ANGLIA RUSKIN UNIVERSITY

WHAT INFLUENCES DECISIONS STUDENTS MAKE IN SELECTING TEXTS TO
SUPPORT LEARNING IN ANATOMY AND PHYSIOLOGY?

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ABSTRACT

FACULTY OF MEDICAL SCIENCE

DOCTOR OF PHILOSOPHY

WHAT INFLUENCES DECISIONS STUDENTS MAKE IN
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The provision of key text reading lists relies on students to select one they will utilise in undertaking a course. In anatomy and physiology an array of texts exist providing lecturers with the task of deciding the most suitable for inclusion within this list, the final choice for a student to undertake. Little evidence was found to identify the decision-making a student undertook in selecting a text. Based on disparate theoretical concepts an initial development of a conceptual process framework followed to provide a basis from which to identify influences which impacted on the student decision-making process.

Using a mixed methods design a survey of students (N=964) undertaking anatomy and physiology courses was conducted whose results, following analysis provided the focus for in depth interviews. These included students (n=15), lecturers (n=3) authors (n=5) and publishers (n=2). Thematic analysis of the transcripts identified four overarching themes these being the Perception of the Textbook, Choice of the Textbook, Mismatch of Perceived Needs and Place of the Textbook.

The results suggested two main influences which impacted on the student when choosing a text, those of existing prior knowledge and recommendation. Without prior knowledge, comprehension and cognition of the text was difficult. Recommendation by a lecturer or reading list, a strong influence, saw students selecting a recommended text without considering their own needs leading to an inability to use this. Without knowledge and recommendation students utilised aesthetic preference and heuristics in selecting a text, with many selecting additional texts to assist in using recommended texts. The results led to the development of the conceptual process framework indicating choice was a complex process for the student.

Selecting a text is complex and affected by numerous influences. The study highlights a process through which a student traverses as they undertake the selection of their text. The study conclusions have led to the development of the Process Framework for Text Selection providing a novel and coherent linking of established theoretical concepts.

Key Words: Textbook, Cognition, Comprehension, Decision-Making, Choice

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Chapter 1

1.1 Introduction

A number of educational programmes are delivered in the university where this study was conducted, leading to professional qualifications in health. The number of students undertaking these programmes ranges from 10 to 20 in the smaller groups, to a maximum of 300 in larger programmes of study. Such programmes have either a strand or dedicated module(s) related to human anatomy and physiology. As detailed in module information sheets, which outline the learning outcomes, content and delivery methods of each module, a variety of anatomy and physiology books are considered as key texts. This is designed for students to choose a text to assist in gaining knowledge and contribute to achieving the module learning outcomes. Anecdotal evidence suggested that students often enquire of lecturers as to which is the "best" text to purchase or consult. However whilst recommendations are given of which key texts should be bought or chosen, these may not always subsequently be seen by the student as being appropriate or useful due to their lack of understanding of the text's content. This may be due to the text being too complex or at too higher an academic level for them to understand and therefore utilise. This, it was observed, leads to students making a choice of alternative non-recommended texts and it was this process of choice and alternative text purchase which provided an avenue of interest for this study.

The production of reading lists is seen as providing students with textbooks that are seen as either key or essential for their courses and it is these which appear in the stock of the university book shop (Horsley et al, 2010). Indeed Horsley et al (2010) identify that it falls to those who coordinate courses to decide which texts should be highlighted and as such this is reflected in the institution where the study was undertaken. Those who produce such lists view these texts as being useful but doing so from a viewpoint of being knowledgeable in the subject area to which the module relates in the case of this study, anatomy and physiology. Furthermore it is assumed that students entering courses would be prepared to become learners in higher education and as such would autonomously use such key texts to learn the subject matter taught in the lectures, such an assumption not being uncommon amongst

lecturers (Railton and Watson 2005). However despite provision of these lists students were still seen to ask which would be the best text to select.

The aspect of currency and which edition to choose also raised a question as to why there were so many new editions of a text, which were regularly being sent to lecturers for inspection, with a view to recommending to students, and as such has been identified as an observation of the textbook market (Jones 2001). Personal experience has identified, in delivering two human anatomy and physiology modules and teaching on a variety of pre-registration health related programmes, that a considerable variety of texts is available for students to choose from to support learning in the subject area. North American (US) based publishers and authors dominate such texts, with their being published by a small number of large publishing companies dominating the market (Silver et al 2012) with only a limited number originating in the United Kingdom (UK). Such texts appear to possess a similar content and appearance but students do indicate that choices were indeed made between these texts despite these similarities. Anecdotal evidence from discussions with US-based authors indicated the reliance of nurse education on the adoption of a named text for courses. Such an adoption was for a period of time which, once ended, required the authoring of a new edition. Whilst this provided some evidence as to why texts were similar and produced at a rapid rate it did not indicate why students still viewed them as differing, despite following similar formats. Little in the literature indicated any reason as to why a student would choose one text over another.

Another aspect that was raised by students in the university where this study took place was how the text would allow them to achieve success in their course assignment and which text would most likely help students achieve this success. Students being motivated not by wanting to learn their subject but rather gain a pass in an assessment is not a new appraisal regarding textbook use in courses (Klymkowsky 2007). Additionally students also enquired about the choice and use of additional texts, often seen as being at a lower academic level, which would in some way assist in the use of the texts included in the course reading list. This aspect raised the question as to why this was so? Such usage seemed to highlight that students were having issues with the use of the recommended course texts indicating that

perhaps their reading or comprehension abilities were not at the required level for higher education, as highlighted by Socash (2007).

An additional issue highlighted is how the "process" of choosing the texts for a key text list for students was completed as this was seen as being undertaken solely by the lecturer who produced the module key text list. A vast array of anatomy and physiology texts are available and those which appeared similar seemed to be chosen when they appeared to possess some educational value in the overall package that was presented by the publisher. At the university where this study took place this was seen to occur with one particular text and as such, due to the provision of ancillary products supplied with the text, did indeed lead to it being promoted again. This is not an uncommon approach from publishers as highlighted by Cassata and Cox (2009). Little literature or evidence was found which provided a complete view of how students undertook the selection of texts, from key text lists, to assist their learning in the subject of anatomy and physiology. This lack of evidence therefore provided the impetus to investigate what influences impacted on the student in their choice of texts. Anecdotally a number of influences seemed to be emerging and as such several issues were evident which would impact on this selection. Such issues and questions raised included how student chose their texts, what issues were presented when undertaking this task? Additionally what were the internal and external influences which impacted on what was seen as being a simple task of choosing from a list of recommended texts? The question raised therefore was:

"What Influences the decisions students make in selecting texts to support learning in anatomy and physiology?"

Such a question indicated that exploration of a number of avenues impacting on the choices made by a student would be required. This study therefore has sought to identify and explore these avenues and identify issues that can and do impact on the process of choosing a text from the viewpoint of a student. The following chapters will present the study and the steps undertaken as detailed in the following section.

1.2 Outline of Thesis Chapters

Chapter 2 The Textbook and its use

In this first of two background chapters a definition of a textbook is offered and the place it possesses in the arena of education. The issues surrounding the identification of a text as being key to being included in a course reading list is explored. This is coupled with regards to how students utilise their textbook for learning. Additionally this chapter provides a discussion surrounding the question of prior knowledge of the subject area of anatomy and physiology with regards to both students and lecturers and how this affects textbook use and choice. The links with the student reading age and how this affects the choice of a recommended text is explored along with sections dedicated to the evaluation of textbooks for identification as being key texts. The chapter will also highlight the links with concepts seen as important in anatomy and physiology and the links with the curriculum and how this has an influence on the choice of a text for being included in the reading list presented to students undertaking courses.

Chapter 3 Making Choices

In this second background chapter those aspects which have an influence in the choice of texts are explored. Initially this relates to the aesthetic qualities of anatomy and physiology texts and whether there is an aesthetic "experience" associated with texts, or if this choice is based on an aesthetic "preference" for a particular text. The next section of this chapter details and explores the issues connected with publishers and the market environment in which texts are placed. These will present evidence that influences from publishers on the choice of a text can predispose a student to be attracted to their particular text. The final aspect of the chapter explores the theory underpinning the decision-making process and will highlight the importance of this aspect when considering the identification of a text to utilise in a course of study. This discussion has an important place in the proposed conceptual framework for this study.

Chapter 4 Theoretical Framework

This chapter introduces the conceptual thinking which underpins the theoretical framework proposed for the study. It highlights three separate theoretical approaches

which are then shown to provide a strong underpinning for the proposed framework. The theories explored and applied are related to text comprehension and cognition, multimedia comprehension and learning and its objectives. This will also include the theory underpinning choice and decision-making. This chapter demonstrates that a novel linking of all these theoretical concepts provides an insight into the process a student progresses through in finally choosing a text for use in their learning.

Chapter 5 Methodology and Methods

This chapter outlines the philosophical underpinning for the study and the support for the methods chosen to answer the question on which this study is based. The ontological and epistemological aspects are considered along with the rationale for the final identification of pragmatism as being relevant to the study. This discussion provides a basis for the need to include both quantitative and qualitative data in the study. The next section details the methods for the study including design, sampling, data collection and analysis for both the quantitative and qualitative arms of this sequential mixed methods study with the final section presenting a consideration of the relevant ethical aspects and steps taken to ensure ethical boundaries were adhered to.

Chapter 6 Findings

This chapter details the findings from both quantitative and qualitative data. The first section provides the findings from the analyses of the quantitative data. The second section presents the findings from the textbook analyses undertaken on a selection of texts identified as being popular with students. The next section presents the findings from the thematic analysis of the interview transcripts from students, lecturers, authors and publishers. In each section a number of themes are presented with sub themes being identified as each section is offered. A selection of quotes from each group of interviews are used to provide illustration and support for the findings identified as relevant to the study.

Chapter 7 Discussion

This chapter presents a discussion which places the findings in the context of what current literature and research has been identified as being relevant to the key aims

of the study. It also identifies those areas where there are gaps in current thinking regarding the central focus of this study. The chapter shows how an integration of relevant theoretical concepts allows the support for the conceptual process framework and provides the basis for its application to the process of choosing a textbook that students undertake. The chapter is presented under four overarching emergent themes these being: "Perceptions of the Textbook", "Choice and Use of the Text", "Mismatch of Perceived Needs" and "The Place of the Textbook". The final section provides a reflection of the Process Framework and its further development.

Chapter 8 Conclusions

This chapter identifies the unique contribution that this study has made in understanding the process of choosing a text both practically and theoretically. It identifies limitations of this research and additionally those areas which warrant further investigation. The main focus of this chapter is to demonstrate that the simple process of choosing a text is all but simple but rather follows a complex pathway as demonstrated by the inductive thinking underpinning the acceptance of the conceptual process framework.

<div align="center">**Chapter 2**</div>

<div align="center">**The Textbook and its use**</div>

2.1 Introduction

The choosing of a textbook by a student is affected by a multitude of issues which impact on what some may see as being a simple action of choice. This chapter explores those issues. The textbooks of interest are related to the biological sciences, specifically human anatomy and physiology. Issues explored include the use of textbooks, reading level and previous educational background regarding the subject area, how teaching staff evaluate textbooks for course adoption, an exploration of the concepts in textbooks, and how the content links with educational curricula, specifically related to higher education health-related programmes.

The discipline in which the study is located is identified as health science and is specifically related to those groups of students who approach the area of human anatomy and physiology as an integrated subject, i.e. bioscience, rather than, as found in medicine, distinctly separate disciplines i.e. Anatomy **and** Physiology. This includes students in subjects allied to health and medicine such as nursing, biomedical sciences, clinical physiology, midwifery, operating department practitioners and those undertaking foundation degrees in health and social care.

This initial chapter provides evidence of the various issues that affect the choice and use of the textbook. Subsequent chapters present evidence that a complex interaction of these issues is present when considering the choice, use and role of the textbook in learning of anatomy and physiology. Chapter 3 later looks at the decision-making process including those factors which have a direct bearing on the student making such a choice and so will include areas such as aesthetics and publisher tactics. The linking of the textbook and student learning is later presented in chapter 4 where the central role the textbook occupies, in the process of learning, is more fully explored including the conceptual integration of learning and comprehension.

Prior to exploring the relevant issues it is appropriate to first identify what is meant by the term textbook and where this text format is located in the world of published literature.

2.2 Defining a Textbook

Generally there are two text types these being narrative (i.e. fictional) texts and expository (i.e. non- fictional) texts.

Narrative text is fictional in nature (McAuley 2005). They describe events on a timeline (Wolfe and Mienko 2007) and are agent/actor orientated (Kent 1984) with such texts including novels. In narrative forms the author, Mellor (2003) infers, adopts the role of the story teller. This central component of storytelling is suggested as a feature of the narrative style found in fictional texts. Avraamidou and Osbourne (2009) state that literature is the embodiment of the narrative text style with romance, tragedy and comedy being classical genres of this form. Discussions regarding the differences between text structures are not new and definitions appear to remain the same with Kent (1984) narrowing identification of narrative to those stories which have a clear cut setting, theme, plot and resolution. However, this is not to say that this text form is exclusive to the fictional genre and, as discussed later in this section, such text style can often be found integrated in the next text form, expository text. Everyday stories are often used to make sense of events in the world and are essentially a subset of the narrative texts and describe a series of actions and experiences involving real or imaginary characters (Avraamidou and Osbourne 2009). Inclusion of real characters leads to the suggestion that far from being non fictional, narrative texts may include fact based information.

In contrast expository texts are not time related and tend to be subject matter orientated (Kent 1984) with such texts describing structure and processes of an event or system (Wolfe and Mienko 2007). This approach is found in texts which include speeches, instructions, journals and articles. Textbooks would occupy this definition. In defining the word exposition as an "explanatory statement or account" (Concise Oxford English Dictionary 2011), an expository text would seek to provide

explanations of the focus of the subject contained in it. Boostrom (2001) states that textbooks are artefacts for formal instructional settings however, far from being an artefact the textbook, with its expository text style, is very much utilised today in educational settings.

Textbooks contain the traditional form of expository text, with the major features being that such text is univocal, non-dialectic with a focus on being descriptive or explanatory (Avraamidou and Osbourne 2009). In expository text styles there are seven distinct text structures that can be utilised in the writing of these forms of text and include those of definition, description, process, comparison, classification, analysis and persuasion, the last of these having an approach which seeks to compel the reader to accept the viewpoint of the author (Heller 2009).

Expository texts are often written around a particular scientific discipline, with emphasis being on a particular theme or subject, having logical consistency or an empirical basis (Mellor 2003). Mellor (2003) goes on to outline that such texts may be written by practicing scientists or those in educational establishments having expertise in the discipline to which the text relates. This is in contrast to those who write narrative texts who seem more likely to have an ability to tell stories, though narratives can be powerful and informative when integrated effectively into expository texts.

It is not difficult to decide that the place of the anatomy and physiology textbook occupies the expository text style but, as stated earlier, such styles are not exclusive since the presentation of an expository text using a narrative style is sometimes adopted. This mixing is what Avraamidou and Osbourne (2009) describe as being "narrative in which expository text is embedded". It is not hard to find such texts especially in relation to the focus of this study. For example, the textbook "Anatomy and physiology for nursing and health professionals" by Colbert et al (2007), uses a narrative form, a journey to be navigated with postcards to complete and maps to navigate. This journey is linked to discovering facts about the human body with each system contributing to the "map" of the body. The reason for undertaking this mixed style is that such tactics seek to stimulate interest and hold the reader's attention

(Avraamidou and Osbourne 2009). This aspect of interest will be discussed later in this chapter.

Kent (1984) suggests that children normally use narrative texts to learn to read but that this changes as they approach higher levels of education, with more expository texts being consulted as it is these that are "informative". This suggests that such texts, and therefore textbooks, might be more widely utilised in higher education where information is sought to undertake assessment processes in university based courses being undertaken. It is this aspect, the choice of textbooks and those with an expository style, which forms the focus of this study.

Finally when the noun "textbooks" is utilised such usage can provoke negative responses as textbooks have been scorned as being poor and insufficient by some authors who claim that they promote a basically passive learning style (Issit 2004). Issit's view stems from a stance that students see textbooks as an alternative to what teachers cannot be "bothered" to teach. This may lead to a reduction of any interaction between the student, the teacher and the subject being taught, resulting in students consulting a text so leading to this passive style of learning. However this does not address the fact that some students may wish to read texts due simply to having an interest in the subject they are studying. Nor does it take into account those students who may be using texts to help them comprehend lecture subject matter, or that using texts helps them with academic pursuits such as revision or assisting in writing an assignment. This is far from Issit's discussions that the textbook promotes a passive learning style. Despite this, Issit continues by acknowledging that textbooks are extensively utilised. The use of textbooks is suggested as not being uncommon in higher education programmes, with texts even being identified as "key texts", these being those which are viewed as important to learning the content of the course.

2.3 Issues affecting the use of "Key Texts"

Horsley et al (2010) in their study looking at textbooks and learning resources in Australia state that many university courses are supported by textbooks which are either prescribed as essential or recommended student resources with university

bookshops being dedicated to the supply of such texts. This is not unlike the situation seen in the UK higher education provision. The results of Horsley et al's study demonstrated that students only utilise texts if they have some direct relationship with their course assessment. Assessment was seen as being a central driver to engage with texts and other resources. The engagement of students with learning resources, including textbooks, is compounded by the fact that coordinators of courses often provide a multitude of resources leaving the student to guess which the best choice is. However, the question remains that whilst recommendations are given of which key texts should be bought or chosen, do these provide the student with appropriate or useful information if they lack an understanding of the text content? Indeed, in Horsley et al's study, it is the course coordinators who adopt the responsibility in selecting which texts are seen as "key". Such selection appears to be common in UK university programmes.

If key texts are selected by expert lecturers then it is possible that such texts may be seen by students as being too complex or at too higher an academic level for them to understand and therefore utilise them. Indeed this is highlighted by Smith et al (2010) who outline that some students have deficiencies in reading and comprehending challenging texts, such as science books. If so this suggests students may make choices of alternative non-recommended texts and it is this process of choice and alternative text purchase which provides an additional aspect of interest in the current study.

Lord (2008) raises the issue that students have very little interest in reading textbooks instead wanting only to know from their instructors what is required in order to pass their course. This view echoes that in the study by Clump et al (2004) who explored the study habits of students undertaking various psychology courses, in using their textbooks. In their literature review they identified that students tended only to read chapter summaries when preparing for examinations rather than reading the full chapter. In the results of their study, which explored the extent to which students read their course textbooks, they found that overall students read assigned readings much less prior to a class but increased this by nearly 70% prior to a test being undertaken. This reinforces the view that some students search only for the essential information that will allow them to complete their course, a sentiment echoed by Klymkowsky

(2007) who, exploring the concept of teaching without textbooks, found that students are motivated not by a desire to learn their subject but rather more to obtain their degree. This is reinforced by Larson et al (2011) in exploring the background to their study regarding the engagement of students in meaningful reading and discussion. They found a similar increase in reading activity prior to examinations with students often skimming text to memorise relevant facts rather than applying critical analysis. This they claim represents the lowest level of understanding, the ability to answer literal questions and retell the information gained from a text.

Students have been described as having to become "professionals" in reading texts, making the reading process itself their profession (Spooren et al 1998). This therefore raises the question as to how such students become "professional" and to which texts they consult to achieve this status. Spooren et al (1998) go on to suggest that the answer may lay in the fact that students have to read many instructional texts, sifting for important information which they require for their studies. However they also state that consequently students may not be knowledgeable about the topic in focus, so raising the question as to how students decide which subject matter to reject and which to retain. A suggestion regarding this may be related to the purpose as to why a student is reading a text, which the above discussion identifies is often related to an impending assessment. It may be this which allows such discriminate reading.

Spooren et al (1998) also go on to discuss that variables have been found which determine how much learning is gained from texts, being related to the amount of attention given to reading text. This in turn is related to the purpose of the reader and why they are reading the text. If the reader can find specific information, linked with their purpose, which is of interest and importance then the learning will be inherent in the student's progress. The latter point links well with the previous suggestion that students faced with an impending assessment may allow this to influence their decision-making process when choosing texts.

This does not however allow a deduction as to how the student first decided which text to choose. Spooren et al's study is focussed on the use of three experiments looking at interest and text structure and does not detail the aspects of how much of

the text is required to be read before a choice of book is made, since book choice is not a variable in their study. Nonetheless, aspects as detailed above with regards to reading and interest do link well with the focus of this current study in relation to student textbook choice and provides some relevant viewpoints to include especially when considering how students read textbooks.

Stevens et al (1993) discuss the concept of measuring readability when discussing accountancy textbooks. Their discussion reflects on the use of formulae, e.g. the Flesch Formula, to determine the reading difficulty of texts and how such formulae have been claimed as being reliable and valid. However they state that such formulae measure only two factors, these being related to word and sentence length, in that the more syllables a word possesses or the longer the sentence, the less readable a passage becomes. Such an approach does not measure factors of interest and motivation of the reader or the retention of the information by the reader once the text is read. Indeed this is of relevance for textbooks and raises the question as to whether a student will apply a decision-making process which includes a personal determination of the difficulty they find when reading a text to support their learning.

The value of readability formulae is called into question by Stevens et al (1993) with respect to their reliability and validity due to the fact that there is a lack of inter-formula consistency in judging difficulty in reading materials. Further they make no indication between text choice and links with readability and, as such, provide only limited aspects for consideration in the current study yet it seems certain to play some part in text choice if a student reads it prior to choosing or rejecting it. Stevens et al (1993) further identify that reading formulae calculate scores based on the "average" reader, with no consideration of lower and higher levels of readership/comprehension and allude to the fact that reader background may indeed impact on comprehension of text when it is read. Such a background leads to the assumption that this could be related to educational background knowledge.

2.4 Prior Background Knowledge in Anatomy and Physiology

Students

Reader interest in text is another area that Spooren et al (1998) refer to, when discussing instructional texts, and is related to the background knowledge of readers, which is seen to allow readers to process information in text more effectively. This suggests that if such background knowledge is limited then interest in texts will therefore be less. This is especially important in students who have little, if any, knowledge of the subject area of interest. The reason for this assumption is that if there is little prior knowledge of the subject matter, then interest may be less and if so this will affect the choosing or not choosing of a text related to that subject. In the current study, entry qualifications to health focussed courses may not actually require a biology-related subject having been previously studied.

The teaching and learning of bioscience subjects is well documented to be problematic for nursing students in particular, partly, though not only, because of the students tending to have weak academic backgrounds in them (Courtenay 1991, Trnobranski 1993 and Clarke 1995). This issue still continues to be debated and studied as seen in Clancy et al (2000), McVicar and Clancy (2001), McKee (2002) and McVicar et al (2010). All of these papers appear to explore the link, or lack of, between biological sciences knowledge and clinical practice. Comparisons with other student groups, where biological sciences are delivered as a defined module(s) and also require students to have clinical practice links would provide a much broader and balanced view. This exploration would allow a conclusion to be drawn as to whether the difficultly of biological science teaching is merely restricted to nursing students or has wider application. This provided the rationale to include students in Biomedical Science, Clinical Physiology and Operating Department Practice in the current study since all have defined anatomy and physiology modules and, more importantly, have defined texts recommended for these modules. How these texts are utilised by the student however, is unknown and not explored in the previous mentioned publications regarding student nurses and biological science learning. The previous statement by Spooren et al (1998), regarding prior background knowledge and use of the textbook therefore remains relevant, as it is intuitive that a lack of previous knowledge of the subject matter will affect how these texts are read, understood and utilised.

Of relevance here is the study undertaken by McKee (2002). In her study, which aimed to see if course entry criteria and study habits affected examinations results, she examined variables such as prior knowledge of biological sciences on entry to a student nursing programme and study habits. This was described by McKee as a small study, involving a maximum of 211 students, but nonetheless the results do resonate with the issues that are identified as relevant to this current study. The results obtained, following statistical analysis, showed there was a strong association between previous biological science knowledge and positive examination results. Such findings and conclusions have been confirmed in studies since McKee's and include those by Newton et al (2007) Dante et al (2011) Whyte et al (2011) and Shulruf et al (2011, 2012). Of particular interest to the current study however, McKee et al's study demonstrated that there was a correlation between the increased use of the core textbook and attendance at biological sciences classes and positive examination results. However whilst there may be a link regarding the importance of the textbook to exam results, the study did not explore how students utilised these texts and whether use was affected by prior knowledge or if there needed to be an interest in the subject which led to increased text use. Once again this study only investigated pre- registration nursing which has a wide varied number of subjects, including biological sciences, to be taught and studied in a defined time period. Whether these results can be applied to other student groups needs further exploration and research.

It is not the intention in this current study to highlight only one student group. Indeed the choice and use of anatomy and physiology texts has wider application and includes those who not only undertake pre-registration nursing courses but who are undertaking a more varied and diverse range of health related courses e.g. operating department practice, foundation degrees in health, midwifery, biomedical science and clinical physiology. Nonetheless the difficulties of student nurses provide some insights that may be generalisable to these other student groups.

Another aspect to consider is that of readers for whom English is not their first language. The work of Rydland et al (2012) is relevant here where they studied 10 to 11 year olds, whose first language was Turkish and not that of Norway where their study took place. They found that the use of prior knowledge was constrained by the student's lack of knowledge of the second language which the text they were reading

was presented. This was found to limit their comprehension of the text. Whilst this study only looked at children there is some relevance when considering that increasingly students in higher education have English as their second language. At the institution where the current study took place many of the courses of interest enrolled students who were from overseas or were UK residents with English being their second language. This coupled with a lack of knowledge of the subject area of anatomy and physiology, as indicated previously, could further impact on a student being able to comprehend their texts.

Lecturers

Whilst the issue of student background knowledge could lead to a lack of interest in the area of anatomy and physiology and so limit learning, the knowledge-base of lecturers should also be considered. Having a weak or lack of background knowledge has been seen to affect the lecturer as well as students (Clarke 1995). Clarke concludes that those teaching biosciences do so at insufficient depth for students and also leads to the assumption that some lecturers' knowledge of this science is deficient. This is echoed by Jordan et al (1999) when discussing the relevancy and difficulties associated with the biosciences in nursing curricula. Clarke (1995) identifies that this is due to the fact that in the move for an all graduate teacher status during the 1990's, many nursing lecturers undertook degrees in sociology, education or psychology with very few undertaking programmes related to the biological sciences (Clarke 1995). Davis (2010) discusses that with a move away from the medical model in nurse education, biosciences diminished in the curricula resulting in lecturers not having to increase their knowledge in this area, instead being required to become expert in the behavioural sciences. Additionally the introduction of shorter teacher preparation courses also meant that such lecturers no longer specialised in such subject areas like the biosciences but only covered those related to education and teaching (Davis 2010). This suggests that Clarke's viewpoints are most likely relevant today as they were in 1995 especially when considering that Clarke's work is still being cited as in the study by Davis (2010).

This issue is not just related to nursing educators but also applies to other disciplines as indicated by Sefton (1998) in her discussion related to the teaching of physiology

in the medical sciences. She concludes that teachers of this subject tend to have experience in only a narrow field of the science, e.g. molecular biology, rather than the broader systems approach to the teaching of the human body and many have little experience of physiology education delivery and are also expected to teach both medical and health science students. In discussing the issues resulting from an international workshop in 1997 concerns were raised that teachers of physiology were often employed based on their research skills as opposed to their skills and knowledge in the science (Sefton 1998). Davis et al (2013) indicate that the curricula in medicine has led to the reduction in science subject teaching such as anatomy and that this is related to lack of medically qualified teachers and also the dominance of subjects such as medical ethics and law. This suggests that observations made by Davis (2010) are not confined to just nursing but are also evident elsewhere and that Sefton's 1998 observations may still be relevant today. The implication overall is that lecturers may still have limited prior preparation or knowledge in order to teach this subject area of anatomy and physiology.

In this respect Courtenay (1991) undertook a small study that looked more closely at the teaching and learning of biological sciences in nurse education. In this study, students and teaching staff in three schools of nursing were surveyed in relation to aspects of biological sciences in the nursing curriculum. Whilst this study looked at nurse education prior to its move into the higher education sector, some of the conclusions drawn do still have some currency with today's teaching of the biological sciences. The study suggested that the use of self-directed learning, identified by students as ineffective, was intimated as an "excuse" not to teach what might be an area where little knowledge of the subject matter was possessed by the teacher. This coupled with an inability to direct the student effectively in how to learn from the self-directed activities, was suggested as the rationale as to why students found this approach to learning to be ineffective. This does have implications for current moves to rely more on self-directed study and open and distance learning. Additionally the work by Friedel and Treagust (2005) indicate that whilst they did not explore the qualifications of nurse educators during their study, they suggested that few had advanced qualifications in bioscience related areas so indicating little may have changed since Courtenay's work.

Lack of time to include subjects to sufficient depth in an all-inclusive curriculum today, often may lead to students being directed to undertake activities outside of the lecture environment using self-directed methods for anatomy and physiology study. A possible lack of guidance regarding the breadth and depth of knowledge required and its link with clinical practice, as identified by Courtenay (1991), appears to be a continuing problem. Indeed McVicar and Clancy (2001) highlight that nursing programmes include a packed and varied breadth of content and suggest a rethink on what can reasonably be included regarding the biological sciences. In later support for this, those authors found that qualified nurses rely heavily on observational skills rather than a deeper understanding of clinical bioscience demonstrating a low level of knowledge when qualifying (McVicar et al 2010). However this does not address the suggestion of the issue regarding the lack of knowledge of the lecturer and that with bioscience embracing a broad application of relevant sciences that it may be this with which lecturers are identifying issues. This, along with a lack of knowledge needs to be considered in relation to textbook choice since lecturers may provide direction of that choice.

If lecturers possess inadequate knowledge, with regards to the biological sciences or anatomy and physiology, to what extent will they be able to support or direct students in choosing textbooks to support learning in this subject area? Spooren et al's (1998) study findings, regarding the need of prior knowledge and interest in the use of texts is relevant to nursing education since, as discussed by Trnobranski (1991), nursing students need to be able to link the knowledge of biosciences with practice knowledge. Identifying relevancy of theory to practice remains a contemporary issue (McVicar et al 2010: Davis 2010) and so Trnobranski's conclusion may not be so out of date. However linking is seen as not being a problem, rather this is more about a lack of knowledge and nurses accepting the importance of possessing such knowledge to be able to make those links.

This lack of adequate knowledge may lead to a reduction in the ability to process the information that a textbook offers, thereby affecting the choice, or not, that a nursing student may make in selecting a text. This possession of prior knowledge may also affect how text is understood by students. This assumption stems from discussions by Maclellan (1997) regarding the use of expository texts in learning in the higher

education sector in the UK. The reader, in an attempt to construct meaning from the text, bring their own contribution to this process, this being their own extant knowledge (Maclellan 1997). This again indicates if that previous knowledge is not sufficiently developed then understanding of the information in a textbook will be difficult.

A lack of time devoted to the subject area may not be true however of all students who have anatomy and physiology as subject matter in their programmes of study. As indicated previously, some courses may have dedicated modules for anatomy and physiology in programmes such as operating department practitioners, midwives, biomedical and clinical physiology students. The reason for this suggestion is that such programmes are more focussed and do not have a packed and varied content. In having dedicated modules for the anatomy and physiology, the relevance of the subject to the overall programme may be more easily identified by the student and may stimulate an interest in the subject. Furthermore increased relevancy may lead to more interest in the text based information sources, used in the courses, and may be greater than that found in nursing students, where dedicated biological science and hence anatomy and physiology, modules may not be found. As to how this allows a student to more readily understand the textbook for these modules is unknown. The relevance of background or prior knowledge and ability to understand the text being read (Spooren et al 1998) is however of importance when considering the choices a student makes when selecting texts from a list provided for modules for these programmes of study. What is of value here is that whilst much has been included with regards to nurse education little has been found in relation to other student groups and this provides further support for including other disciplines in health science in this study.

Whilst use of textbooks and prior background knowledge have been considered as relevant another area which needs exploration is that regarding the reading age of the student and the influences this can have on the choice and use of the textbook.

2.5 Reading Age

The transition of a student from the school system to higher education, and their requisite reading abilities, is not a novel consideration. Both Miller (1999) and Railton and Watson (2005) discuss this issue. Miller (1999), who discusses a taxonomy of learning styles being combined with that of a model of reading development, infers that when a student is accepted onto a study programme, the possession of entry qualifications required by the university is assumed to reflect previously achieved reading skills. This also leads to an acceptance by tutors and lecturers that entry onto a study programme evidences an ability to read, comprehend and analyse texts. Miller (1999) goes on further to suggest that this acceptance is based on the gaining of two separate skills: academic learning, which is tended to by the tutor, and the reading ability being a skill already possessed by the student on their admission to the university course. This in some respects is supported by Railton and Watson (2005), who discussed students becoming autonomous learners when entering university education, in that there is an assumption that students entering the higher education system already know that their role is to learn and not merely be taught. Indeed they go on to discuss that there is a mismatch between tutor expectations, when the term "go and read" is utilised, and students skills, since information is missed regarding what to read, how to read and what to do with the information gained. This is complicated by the fact that students may not have gained the anticipated skills in their previous education and so will not have these to the level required, nor do they necessarily possess the inherent ability to develop such skills (Railton and Watson 2005).

Railton and Watson (2005) base some of their assumptions on their personal experience in higher education and seminar groups. Here they found that pre-seminar reading was supposed to form the basis of the seminar but often this was reduced to mini lectures being given to fill in the gaps of knowledge students still had. Indeed it is suggested that in Inquiry Based Learning (IBL), an approach widely applied at the location of this study, small student groups often, in discrete ways, direct the discussion group into a lecture, which Railton and Watson (2005) refer to as the lecturer unintentionally becoming a central disseminator of knowledge, and the students being peripheral and passive recipients of pre-digested knowledge.

However, Miller (1999) explores the notion that when teaching materials relate to an advanced reading ability of students, such as when they are on a higher education programme, the actual reading level that the student has attained may in fact be lower, leading to a mismatch. This suggests that two problems may exist when considering students in a university classroom. Firstly there may be a lack of understanding of the language utilised in the class which students may see as being too intellectual. Secondly this may impede any understanding when new terminology is introduced; this is especially relevant in the subject of human anatomy and physiology where an array of new terms and nomenclature are required to be learnt when exploring the human body.

Miller (1999) continues his discussion referring to the work by Chall in 1979 which explored 5 levels of reading development. Levels 1-3 are attained when a child has developed through primary and early secondary education. Level 3 (ages 9-13) is linked to using textbooks for the provision of facts only. This level is not sufficient for higher education purposes, where intellectual processes of interpretation, analysis and synthesis may be more appropriate and requiring a higher level of reading ability. Developing readers at level 3 incorporate information based on pre-existing knowledge and experience (Miller 1999).

It is at level 4 (ages 14-18) where abstraction is required since personal experience and knowledge have no ability to provide guidance. The use of textbooks only then becomes effective when this level is reached. This would seem to underpin the assumption by Socash (2007) that the reading ability of undergraduate students may not necessarily have ascended to that required in higher education. What can be suggested here as a consequence is that such students will not have developed the ability to view textbooks as lecturers would wish, since they are unable to achieve the level of abstraction that is required to read textbooks effectively. Choosing those books may then be unhelpful and wasteful.

As suggested above, if students are entering the higher education arena with a lower reading ability than expected, as intimated by Railton and Watson (2005) and Socash (2007), then the suggestion by Miller (1999), that reading lists on courses should be

compiled to take account of differing reading levels, should be accepted. Indeed as further discussed by Miller (1999), learning materials ideally must be matched to an appropriate level for the individual student and that providing materials which will be utilised most effectively by level 4 readers will be ineffective for learning if a student has not advanced beyond level 3.

Finally Miller (1999), referring to Chall's 1979 work states that attaining the even higher level 5 reading development is not achieved by all university students since this requires a development of a relativistic outlook which allows a student to challenge their own knowledge and opinions and accept that one theory can give way to multiple truths. This is aligned with postgraduate education outcomes, but ordinarily is looked for in the work of final year undergraduate students.

The application of adjuncts and a search for more effective presentation styles are strategies employed by authors and publishers to facilitate reading development. The use of additional features that are supplied with books (discussed in the next chapter) can be seen as an attempt to assist the reader in understanding and learning the information the book contains. Additionally, successive editions of textbooks may also be an attempt to address concerns that readers have in relation to how they evaluate the current edition. The question arises however as to if the feedback obtained in developing a new edition relates to a difficulty that a reader may have in using the text, rather than to expand specialist content which would lead to a revision that will address this. The introduction of web based materials and adjuncts, in the form of Compact Disc Read Only Memory media (CD ROMs), may be seen as a way of enhancing understanding of the textbook, though who contributes to this material may again still be an issue. It also does not address the issue relating to the use of the scientific language which students may have difficulty with and may be impeded by the lower reading level that students have when entering higher education courses. However, as a particular reading level is expected of the university student, the question is raised as to how text books are recommended for use to students by academic staff and if these issues have any impact on those recommendations.

2.6 Choosing and Evaluating Textbooks

A wide variety of texts are available for students to choose from to support learning in anatomy and physiology. The US based publishers and authors dominate such texts with only a limited number originating in the UK. Reasons for this are unclear but are likely to include the provision of a substantial, highly illustrated text at an aggressive price that UK publishers struggle to meet. In addition the US authors Harder and Carline (1988) identify that as far back as the late 1970's much attention was given by educators and publishers to textbook format and selection criteria. This has led to the production of highly standardised texts which still exists today, with differing US texts adopting a similar style with regards to presentation and content.

Harder and Carline (1988), in their study conducted in the US, examined the selection of anatomy and physiology textbooks recommended to nursing students. In the study the criteria utilised for textbook choice were derived from previous studies and interviews with anatomy and physiology instructors. These criteria were refined from a total of 60 to 41 after utilising review comments from the instructors. The final 41 criteria were sent to 100 randomly selected schools of nursing. Such criteria included those such as "Simple drawings", "Clear drawings", "Writing level consistent with course level", "Accurate labels" etc. though in Harder and Carline's published study little evidence is given regarding all 41 criterion used. The respondents in each school, a person who taught anatomy and physiology, were requested to review the criteria and score the likelihood that they would utilise the criteria to accept or reject an anatomy and physiology textbook. During analysis two types of programmes were evident which had two distinct types of instructor. Firstly there were programmes for practical nursing students who were studying for a lower level of qualification, this being a Licensed Practical Nurse qualification, which had instructors who were from a nursing background. The second programme type related to higher nursing courses, those leading to a Registered Nurse qualification, and had a predominance of instructors who had a scientific background. The study found that text selection reflected the background and professional education of the instructor.

Considering the discussion above, the notion arises that the background and professional education of academics may or may not match the professional

background of students undertaking a programme of study e.g. a nursing lecturer providing a module for operating department practitioner students or clinical physiology students. This raises the possibility that recommended reading texts may then be biased to the professional background of the academic compiling the list and not to the module requirements or student's professional background. A further question is raised as to how the generation of such a reading list, which the educationalist influences, subsequently impacts on student choice of text to support their learning.

The study by Harder and Carline (1988) above needs to be interpreted in light of it being a US-based study as curriculum delivery in the US is distinctly different to that in the UK. As indicated in the previous chapter, US based authors suggest that textbook selection, then and today, is still very much governed by the adoption of a single text by an educational establishment and as such is highly competitive when universities have to consider which text to adopt. In the UK textbook adoption by lecturers is more likely to be based on selection of a number of texts that match the course content and are seen as being useful in assisting a student meeting the programme learning outcomes. Nonetheless textbook selection must at times meet criteria which will dictate whether it is adopted or not e.g. supporting attainment of the learning outcomes.

Cassata and Cox (2009) discuss their research into an evaluation tool for choosing texts for nurse education courses in the US, and specifically regarding evidence-based practice in nursing. Their discussions resonate with the more general aspects of selecting textbooks to support learning, and that the responsibility of recommending adoption of such texts lies with the faculties in universities. Consequently such reviews of textbooks is normally undertaken by faculty staff in isolation or in haste.

Cassata and Cox (2009) go on to discuss that this task of reviewing texts may be a monumental one since an academic reviewer, in a university, may be overwhelmed by time pressures when scholarly activity, research and service needs must also be met. Indeed they suggest that a "quick fix" regarding the choosing of texts may be

appealing, for example, by considering publishers presenting their own textbook reviews or value packages for students, or perhaps what students can afford. Ensuring content meets current trends is part of that "quick fix". For example one core subject area that texts now need to be seen to support is homeostasis and this is explored in the next section.

2.7 Concepts in Anatomy and Physiology Texts

Harder and Carline (1988) concluded that the selection of anatomy and physiology books may have led to rejection of texts if they did not include the concept of homeostasis as a chapter. The reason for the prominence of homeostasis is that it provides a theoretical framework to understand physiological functioning, pathology and even delivery of clinical practice (Clancy and McVicar 2009). In Harder and Carline's work, they do not indicate if a difference existed between academic staff involved in the selection process related to those having a nursing background as opposed to those who had a scientific one. What is relevant today is that anatomy and physiology textbooks still place importance on this aspect and so readers will normally find a section devoted to this subject. Homeostasis concepts are a vehicle to relate ill health to the lack of homeostasis. This linking therefore allows a student to view the relevancy of the information to their clinical practice. This is important since reflections on nurse education in the UK by Shields et al (2011), where they recount incidents where student nurses fail to see the relevance of biological science to practice, highlights the need for such linkages to be made. A text with such links therefore may provide an attraction for a student to select it when considering the support they need for their studies.

Indeed the new or recent texts of Marieb and Hoehn (2013), Martini, Nath and Bartholomew (2012) and Clancy and McVicar (2009) all overtly link ill health with the imbalance and loss of homeostasis. Inclusion of homeostasis therefore is often found in texts geared towards nursing students. Indeed one only has to look at the current edition of Clancy and McVicar (2009), a British publication, which clearly links the process of health care with homeostasis to the point that they suggest that interventions provided by a practitioner might be viewed as a form of an external homeostatic mechanism. Furthermore, this publication attempts to link the concepts

of biological health and ill health, providing a framework for learning in what are seen as two disparate areas, this being biological science and delivery of health care. An issue is whether or not this infers that the application of this subject matter to nursing activities dictates a requirement of a text possessing homeostasis.

2.8 Links to Curricula

When comparing the use of anatomy and physiology textbooks in British and US higher education institutions it has already been highlighted that the US model is based on using prescribed texts to either direct lessons or certainly form the basis for such educational preparation of students. Indeed Kumar (2005), in discussing the use of problem solving strategies in a US university, provides an example of this assumption identifying a nursing degree course which directed that traditional teaching requires around 1000 textbook pages to be covered in a 16 week period. This highlights the role that the textbook has in a US programme and even test questions are textbook-derived requiring the students to read the prescribed text in order to answer them. Indeed Kumar (2005) also states that workbooks utilised in his study were also a product which linked with the prescribed textbooks. Socash (2007) also states that courses are designed to have students read and study textbooks prior to lectures so reinforcing this strong link between assigned textbooks and course content.

As highlighted in the previous chapter, it is clear in the US that textbooks are designed so that an instructor has all of the materials required to teach the subject of anatomy and physiology, regardless of any previous experience the instructor may have. With additional materials supplied by the publisher, this ensures that there is a uniform approach to the delivery of the course information. Indeed the text by Martini et al (2012) even describes the text as "a course" in the first parts of the opening chapter. This highlights the central role that texts play in a US programme of study and how closely they must link to the taught programme content. Where a publisher has a text adopted in a US based educational establishment, the need to maintain such an adoption could lead to a heavy influence being applied from the publisher to the authors to ensure the text meets the needs of the classroom, and hence the educational establishment, leading to the text reselection in recurrent years.

The US situation contrasts with the experience in the UK, where the curriculum for nursing programmes does not have prescribed texts. Indeed the Standards of Pre-Registration nursing education from the Nursing and Midwifery Council (2010) (NMC) only provides standards (outcomes) which must be achieved so allowing higher education establishments the freedom to decide which key texts are required with the aim of the programmes being to achieve learning outcomes in order to attain those standards. These learning outcomes are derived from content of the course rather than being prescribed by a common textbook. This is not restricted to nursing programmes but also extends to those which include pre-registration biomedical science, clinical physiology, operating department practice and midwifery practice. Content of such curricula is dictated by professional regulatory body requirements with some, e.g. Institute of Biomedical Science (2010), Registration Council for Clinical Physiologists (2010) even suggesting which texts can be recommended to students. This is a hybrid position in comparison to the US system, although in suggesting texts these bodies refrain from being prescriptive.

2.9 Chapter Summary

This chapter has covered a wide variety of areas for consideration in relation to how students are expected to use textbooks. Different types of texts have been identified with particular emphasis on the expository text which includes textbooks. Prior knowledge of the subject area by both the student and the lecturer can have an effect on the learning of the subject of anatomy and physiology and hence the choice of text for the programme of study, indeed this is especially important when considering the issue of reading lists. This prior knowledge has been shown to affect the learning of anatomy and physiology and potentially may be linked with the intentions of the textbook. It has also been shown that poor knowledge of the subject area may lead to a difficulty in reading the information in a textbook. What has not been highlighted in the literature however, is the important aspect of how a student chooses a text to support their learning, this being the focus of the study for which this background discussion forms part. Indeed little has been discovered as to how a student chooses a text to support their learning but much has been found in relation to the process of how texts have been chosen by teaching staff. Such choices may also have involved

the use of evaluative tools for readability scores which have not been proven for reliability and validity.

The literature review has illuminated how some nursing students have difficulties in learning anatomy and physiology, and the problems they have with linking theory and clinical practice. Students have been shown to recognise the importance of learning anatomy and physiology but it is the learning of the fundamentals, and their application to the clinical arena, where issues exist. Whilst also of relevance to them, other student groups e.g. operating department practitioners, clinical physiologists and biomedical students, who have dedicated biological science modules and clinical links have not been identified in the literature as having similar problems. However, limited literature places a caveat that such problems may indeed exist but have not had the attention of those for nursing students. The literature review also exposed the lack of attention to the role of textbooks and their selection which is potentially central to this issue. With this paucity of research, support for the current study becomes apparent since making a poor choice is detrimental to the student and also expensive.

The role the textbook plays as an integral part of programmes at university is observed by the need for the lecturer to provide a reading list of recommended "key texts", which further highlights the importance obtaining a suitable (i.e. fit for purpose) text. If the role of the textbook is vital, then the process and rationale underpinning the selection of texts for recommendation requires exploration and provides further support for the study. Similarly if texts are seen as "vital" by students then having to decide upon a text from this list provides a further clear rationale for exploration. Further questions which are raised relate to when a choice is made, how the text meets the expectations of the student and as to what value it brings to the student's learning.

Such expectations may be affected by the level of reading comprehension that a student possesses when they enter the higher education institution. The assumed and actual level may be mismatched and so when confronted with texts the educational value this has for the student is reduced, furthered not only by a lack of extant knowledge but also by an inability to read at a level which would allow full

understanding of the text to be gained regardless of the interest level of the student with the subject matter.

Interest in the text content has been explored and shown to be an issue in using a textbook and understanding its content. However, this has not been shown to be the main attribute that a reader requires in order to use a text. Indeed this chapter has shown that using and selecting a text is multi-factorial and studies have not identified the processes that a student must undertake to choose a textbook. This process entails a linking of the issues that have been found to be relevant; it is this linking that provides the basis for this study.

Finally whilst textbook use and the issues in using it have been explored, further consideration needs to be given to those issues which have additional effects on the student making a choice, in other words the publisher influences and the presentation of the text as a likely purchase. These issues are explored in chapter 3 and will include the strategies that publishers employ in an attempt to attract the student to select one of their texts. Following this a subsequent chapter will be presented which links the textbook with pedagogy and learning and will explore the central role the text plays in the learning process and how the concepts of reading comprehension and learning are integrated. The exploration of all these aspects provides insights which highlight the issues in decision-making that inform the development of research questions, and design, of this study.

<center>**Chapter 3**</center>

<center>**Making Choices**</center>

3.1 Introduction

As presented in the previous chapter, issues relating to the use of an anatomy and physiology text was explored including those aspects which can impinge on such use. However the central issue of making a choice was not explored and it is in this chapter that this important aspect will be considered. In this chapter those areas posited as being be of importance in influencing the choice of a student in selecting a text are explored, and are related to areas of aesthetics and to publisher considerations, and to aspects underpinning the making of choices.

The first part presents a case that aesthetics related to a text, especially in the arena of human anatomy and physiology, can bring about "aesthetic preferences" as opposed to "aesthetic experiences" with definitions of these being provided. This will be shown to be directly linked to the historical context of the anatomical sciences and the early illustrative texts used in this emerging science at that time. It will be shown that the development of the texts in anatomy and physiology do possess an aspect of beauty especially when considering the illustrative content found in current texts available for students to choose from. It is demonstrated that such illustrations may allow a student to develop an aesthetic preference and so choose one text from a number of alternatives.

The second section of this chapter explores the issues surrounding the publisher and the introduction of the text into the market. It should be noted that the aims of the current study are not to focus on the market research aspects related to the selling of texts. Rather, this section explores publisher actions that, whilst governed by market forces, are also aimed at attracting the student to purchase a text from their respective catalogues. Tactics used and approaches adopted by publishers will be seen to have a direct influence on the decisions students make in selecting the text to support their learning in anatomy and physiology.

The final section of this chapter explores the concept of making a decision and choice. It is not the intention of the current study to "prove" the theories that already have been established in the study of judgment and decision-making. Rather the aim of this section is to demonstrate that once again that the student undertakes a complex journey that results in the final selection of a text. Choice and decision-making theories cannot be excluded but do not form the focus of this study, though they do contribute to its theoretical framework in chapter 4.

3.2 Aesthetic Considerations

In exploring the choice of a text there is a need to first consider the appearance of the text and its inspection prior to deciding on the eventual result to either purchase or at least choose a text for use. The appearances explored here relate to the external and internal physical properties which could be viewed as being an attraction in choosing a text. The inclusion of the aesthetic properties that a text possesses have to be explored to address the question if a text in anatomy and physiology could be seen as an object of beauty and not simply as a utility, so requiring an exploration if a text could bring about an aesthetic experience that affects choice. The aesthetic experience however may not necessarily be the primary position to take when considering the choice a student makes.

The aesthetic experience is described as being a special state of mind that differs qualitatively from every day experiences; additionally such an experience is linked with situations and objects which are fundamentally different from everyday situations and objects (Marković 2012). Palmer et al (2013) identify that aesthetics are those mental processes which are disinterested evaluative experiences at either the positive or negative end of the spectrum of feelings. It is appropriate at this point to define the concept of "disinterestedness" to avoid confusion with the more formal definitions of "interested" and "uninterested".

Stolnitz (1961), in exploring the origins of aesthetic disinterestedness, points to the use of interest as relating to self-interest, motivated by regard to the personal well-being of the individual. Logically therefore the opposite of this is seen as being

disinterested with Kreitman (2006) pointing to varieties of aesthetic disinterest linked with an appreciation of art. Exploring Kant's "Critique of Judgement", Kreitman (2006) links disinterestedness to a state of mind in which an observer of art is immune to its external relations. Carroll (2002) perhaps best illuminates the concept of disinterestedness whilst admitting that the concept has diverse meanings. In discussing the works of the eighteenth century philosopher Shaftesbury and also including the work of Kant and others, Carroll (2002) points to the fact that in an aesthetic judgment, when determining that something is seen as being beautiful notes that it should be *"grounded in disinterested pleasure"* (p150), and that such judgments should be impartial and not based on personal benefit or disadvantage. Additionally such judgements should be free of any advantage whatsoever (Carroll 2002). Based on these points it is suggested that being disinterested is where there is an absence of self-need or want. Interest therefore being the opposite which Stolnitz (1961) defines as practical, referring to actions which are directed toward an anticipated goal. Possessing disinterestedness would seem to be an important aspect of the aesthetic experience and would allow for appreciating some visual component and this therefore would suggest that the aesthetic experience is a subjective response which is indifferent in that it possesses no personal aim or result. Finally uninterested is best defined by the Oxford Concise Dictionary (2011) as being unconcerned about or not interested in an object or issue.

A point that Palmer et al (2013) explores, when discussing the issue of exposure to prototypical examples which would elicit an aesthetic experience, is that not all individuals have the same response to the prototypes, which are normally seen as being positive. The responses may be so different that they can result in feelings which can be powerfully positive or negative. They also continue that aesthetic responses may be only momentary and can be on the edge of an individual's consciousness and may only be taken note of when extreme, i.e. whether positive or negative. With this in mind the experience of viewing and choosing of a text may not be linked with an emotional response such as an aesthetic experience since it is more than a momentary process and more likely to be a conscious one. Additionally Gumbrecht (2006) describes the aesthetic experience as containing intimate feelings with impressions and images being experienced which are not present during the everyday experience. It is hard to envisage that this experience could be linked with the choice of a text in anatomy and physiology where the choice is linked to a need,

i.e. "interest" according to the earlier definition, and not to the generation of an enjoyable experience. Marović (2012) supports this by suggesting that, whilst exploring the literature, the distinguishing feature of the aesthetic experience might be its focus but it is not a goal directed one, being more fixed on the activity itself. He concludes that aesthetic experience therefore is not in the same arena as the occurrence of what he refers to as being "aesthetic preference". This is based on a view that the extraordinary state that the individual psychologically enters when having an aesthetic experience is fundamentally different from the liking or judgment of beauty that occurs in everyday life with respects to common objects which relates more to "preference" (Marović 2012). This raises the possibility that the choosing of a text would be more likely if it is viewed as relating to a common everyday occurrence in the experience of a student. However it is wise to further explore the notion of the aesthetic experience when considering the nature of a text with artwork, such as the illustrative material in an anatomy and physiology text.

Reber et al (2004) conclude that beauty is objectified in that the aesthetic experience stems from the view of an object being seen as beautiful. This is linked to art and paintings and when considering the historical aspect of illustrations in early texts for the anatomical sciences it could be concluded that such illustrations may be seen as allowing an aesthetic experience to be felt. Morriss-Kay and Fraher (2010), in their introduction to the art in anatomy, state that there is a close connection between the visual arts and anatomical expressions and as such this includes the illustration of the human body for anatomists as well as the study of the human form by artists. Indeed Kemp (2010), in his exploration of illustrations through the Renaissance to the publication of "Gray's Anatomy", highlighted that during the 18th century there was a conflict between those who painted the illustrations and the anatomist, who wanted an accuracy of form where the other was attempting to attain an elegance of this. Indeed the work of art produced by Rembrandt in the "Anatomy of Dr Tulp" referred to by Kemp (2010) shows how anatomy was depicted as an art form. Kemp's work outlines the relationship between art and the science of anatomy and, following da Vinci's illustrations, identifies that there was a need for anatomists to utilise artists for illustrating anatomical aspects of the science (Calkins et al 1999). In Calkins et al (1999) it is found that the engagement of artists to illustrate the anatomical form often led to elaborated illustrations since they failed to understand the need simply to support and elaborate on the written text. This resulted in whimsical and creative

illustrations where the essence of the anatomical science was lost in the final illustrations created (Calkins et al 1999). Both Calkins et al (1999) and Kemp (2010) point to the publication of the text by Vesalius in 1543 and how he had employed artists and that the final text, as noted by Calkins et al (1999) produced illustrations which were attractive and had graceful poses of figures back-grounded by landscapes. Indeed Loring Brace (2002) comments that, when reviewing a new anatomy and physiology text, its illustrations contained in the text appeared slick and airbrushed as in magazine art and so was not a great improvement on those by Vesalius. Loring Brace (2002) continues that in order to actually see what the human body really looks like then one only needs to view the publication of Gray's anatomy and physiology text, intimating that these had not yet been improved upon in the last 50 years. The reason for this may lay with Kemp's observation that the first publication of Gray's had illustrations which were more "business-like" with such drawings and presentation

> *"...negating any tendency to think we are dealing with the 'arty' production of a picture book. There is little modelling in light and shade, no attempt to place figures in graceful poses, no evocative backgrounds"*

> (Kemp 2010 p205)

However it should be noted that the purpose of illustrations in texts is likely to be quite different today than when da Vinci or Vesalius produced their drawings. Such drawings were extolling the human form whereas today such drawings seek to provide an education medium from which to learn. This therefore raises the question of the ability to have an aesthetic experience with current day texts since such depictions, such as the style of Vesalius and Gray, are not found in modern texts. Kemp (2010) raises the issue that the current Gray's Anatomy serves its pedagogic purpose and includes physiology and pathology in its 150th edition, and additionally the illustrations are produced using high technical processes that no evidence of Gray can be found in the text he originally authored. If texts have now adopted such highly technically produced illustrations can these still produce an aesthetic experience or do they stimulate an aesthetic preference? A possible answer here may lay in the statements made by Leder et al (2004) who, whilst referring to art, draw the conclusion that there is a propensity to not adopt the old concepts of beauty as being a sole criterion to judge good art but rather look to the concepts of pleasure, and more

importantly here, the ones of interest and stimulation. This would resonate more closely with a student making a preference for a text if they found it to be visually interesting and stimulating. This raises the question if science overall can be aesthetically interesting, so promoting an aesthetic preference.

Parsons (2012) in debating the aesthetics of science points to chemical biology and how scientists and philosophers have debated the role of aesthetics in the sphere of science. Whilst debates concentrated on specific parts of science, namely theoretical physics, he raises the aspect that chemical molecules may only be aesthetically experienced when these are viewed as representations in the formation of either illustrations, water colours or computer graphics. But what is aesthetically pleasing, the actual molecule structure or is it actually the beauty of the representation itself (Parsons 2012)? If the molecule elicits an aesthetic response due to its beauty in it's make up then the conclusion can be drawn that anatomy and physiology which includes chemical aspects can also elicit this response. Parsons (2012) also discusses that, whilst it should be remembered that molecules are functional entities, the understanding of function and mechanism of these has relevance for their aesthetic qualities. He cites Horace Judson that the beauty of the Watson-Crick structure of DNA, "*in itself physically, the structure carried the means of replication...structure had become one with function"* (Parsons 2012 p578) while Crick quotes the structure as *"the molecule which has style"* (p 578). An important position to consider is that by Chen and Granitz (2012) who state that some view books and comics as art and that in touching these media formats a hedonic response can be elicited in that sensory stimulation and enjoyment is experienced. Such responses can be also perhaps relevant to the experience of viewing a textbook and experiencing its illustrative materials. However, as noted earlier, they may still illicit what is seen as an aesthetic preference when selecting a text and, as such, this needs further exploration.

Much of the literature included above is linked to the arena of art but of further relevance here is how this also relates to the pictorial representations found in the texts relating to anatomy and physiology. Development of the illustrations relate to a defined ladder of importance (McAuley 2005). The images are presented in such a way that more important information is seen before lesser detail is considered.

McAuley (2005) states that the nature of an effective illustration will allow what is seen as a linear narrative structure to be combined effectively with the visual elements and that, as such, while the text is read in a linear fashion the illustration is viewed more from a holistic viewpoint. This therefore raises the issue as to whether or not written text with illustrative material is viewed as stimulating an aesthetic preference. McAuley's study was however not looking at aesthetic preference but at the ability to interpret textual information into visual representations. In that pilot study, 12 students, split into two groups of six, who were undertaking design studies were exposed to a passage from an expository text and then asked to sketch a drawing which conveyed the author's meaning in the passage read. The second group differed from the first in that they were given additional text information and required to produce a visual analogy. Data were collected using the sketches and also through the use of semi structured interviews. It was found that no student was able to identify what skills were required to interpret textual information into a visual representation, and so the researcher's previous assumption that students would use prior knowledge and a unique perspective of the world to allow the skill of interpreting textual information into visual form to be developed, was in fact incorrect.

This raises the issue regarding illustrators of anatomy and physiology texts who may themselves perhaps also be unable to interpret the text into an effective illustration, or indeed authors who request specific illustrations who may also lack the skills to allow the text they author to be interpreted effectively into an illustration in the final publication. This lack of an effective illustration could affect a student since they may not make the link with the textual information and so when choosing a text may simply rely on an aesthetic preference as opposed to what could be seen as a sound academic judgment based on textual content and links with the illustrative materials. Those materials and how they appear to a reader could then be seen as being a stimulus for aesthetic preferences, relating to the size and spatial composition of the illustrative material as discussed below.

There is a particular need to think about the composing of an image when this is in a rectangular frame, a common format in anatomy and physiology texts if it is to be considered to be aesthetically pleasing (Leyssen et al 2012). Leyssen et al (2012) undertook five experiments which looked at aesthetic preference and the spatial

composition in multi-object pictures. The aim of the study was to gain an insight into the role of separation of objects, relatedness of objects (semantic relatedness) and balance in the composition of the pictures. It was felt that such experiments would allow for strict control of the factors of interest. However this study was found to be linked more with art composition despite the fact that the experiments did not actually utilise known art works, but images created for the study. The results found that there was an aesthetic preference for compositions which had more than one connected object. There were also findings which indicated that the distance between objects was affected by semantic relatedness (how much one object meaning related to another) and that it was also found that separation, relatedness and inward biases existed and affected aesthetic preferences. Whilst these results were linked with application to works of art it is concluded that such results could also impact on the aesthetic preference students display when choosing texts. Of relevance to the current study is that students could view the illustrative material based on how such images were displayed and so develop an aesthetic preference for a text based largely on this viewpoint. It may also be possible that the layout of a text page, where symmetry and order are viewed, may again lead to an aesthetic preference being made for a particular text rather than any reading of the textual information. Aesthetic preferences for images which reflect their actual size as was the focus of the study Linsen et al (2011) which is discussed below.

In Linsen et al's 2011 study, it was found that viewers of objects had a preference for those which were proportional to their actual size in real life or, its canonical size. The study was undertaken by conducting three experiments which explored aesthetic judgements regarding various objects based on their canonical size in varying manipulation of variables such as pairing and presenting the object pairs in different sizes, relative to the frames in which they were presented, and when the amount of object detail was controlled. The conclusion reached indicated that aesthetic judgments and hence preference was affected by the canonical size with people preferring images in a frame which equated with their knowledge of the objects actual size in real life. The focus of this study looked at images in frames, and not texts, but of relevance here is that again the illustrations in an anatomy and physiology text may bring about similar aesthetic judgements followed by aesthetic preference for one text over another. However it should of course be considered that students without any knowledge of anatomical aspects of the human body may not be able to judge how

an illustration of an organ compares to an actual life size comparison. If the textual information is also not understood then an aesthetic preference may be undertaken simply based on the liking or not of an illustration, in which case then Leyssen et al's (2012) conclusion above would be appropriate here. Choo (2010), when discussing the teaching of reading and writing and the attention paid to aesthetic presentation of the text, highlights that two forms of reading, referred to as efferent and aesthetic reading, can be identified and this may lead to a further conclusion that students choosing texts may not have the required level of knowledge to be able to make a choice of text based on Choo's position.

Choo (2010) points to the application of efferent reading and aesthetic reading with the former relating to "comprehending" the text and the latter being seen as "experiencing" the text. This experiencing of the text changes from the analysis of texts based on linguistics to an adoption of studying the visual signs of the text or semiotics (Choo 2010). This semiotic approach is based on the view that text is multimodal using differing formats for presenting information e.g. text and illustrations. This is seen as being intentionally arranged by the author and as such not only does a reader need to understand the textual content but also the authorial intentions regarding the textual design. This leads to the position that if students need to have an ability to undertake such critical reading then this will not occur when a text is being chosen if underlying knowledge is too low or, based on Choo (2010), if there is no developed skill in being able to read both efferently and aesthetically. Again choice may rely on an aesthetic preference being made based solely on the illustrative material and the cover of the text which will invariably contain illustrative content. Indeed when reading Zacharkiw's review of a new anatomical text they conclude that the atlas produced is "aesthetically pleasing" and that the presentation is a "pleasure to study from" (Zacharkiw 2008). This highlights the importance that would-be purchasers of a text may in fact look to the illustrative components of a text prior to its selection and indeed look to aesthetic preferences first rather than textual content in making a decision to purchase.

Aesthetic preferences may also relate to the way text is presented. This can be found in the study by Ling and van Schaik (2007) which looked at the influence of line spacing and text alignment and reported that there was a preference for justified text.

However this study was focussing on the visual aspects of web pages and they did acknowledge that the best ways and advice in presenting text on the printed page do not readily lend themselves to web based media. In the work of Hartley (2004), referred to by Ling and van Schaik (2007), the advice given regarding textual layout in relation to typographical design, navigation of the text etc. is underpinned with relevant empirical evidence. However, Hartley (2004) concluded that much of the research is uncoordinated and *"atheoretical"* with few studies exploring the several features that need to be considered when designing instructional texts. He points out that textbooks are constantly evolving and that British texts lag behind American ones when considering aspects such as colour and graphical representations, an important aspect when considering aesthetic qualities.

Finally Hartley (2004) concludes that the design and structure of texts will ultimately be under the control of the reader rather than the authors when considering the evolving role of electronic media. So much so readers will be able to decide how the text is presented based on their own needs at that time. Hartley (2004) states that research may never be able to answer the question with regards to what typeface, size, line length etc. is best for each individual text but that in the future readers using electronic texts will be presented with a choice of menus to decide for themselves.

Whilst Ling and van Schaik (2007) adopt the position that advice regarding printed text design cannot be readily applied to web based designs, Gregory (2004) in an earlier work argues that there are more similarities than differences when comparing the two formats. This may therefore actually allow for printed text guidelines to be considered applicable when viewing web based formats. Gregory (2004) undertook a comparison of guidelines for undertaking web and print based media. She concluded that many of the guidelines for the web-based platforms have come from the print-based arena and as such there is a long history in developing these guidelines. Bearing this in mind some of Gregory's observations are relevant here despite her exploration being limited to technical communication roles where writing is over a wide variety of mediums from information leaflets and instruction manuals to printed books. She indicates that content format and design are considerations as these provide a whole package for the reader and so are important when considering the scan reading would-be readers undertake when looking for the relevant textual

information that they require (Gregory 2004). If design of the textual information is seen as important then this suggests that being pleasing to the eye when being scanned by would-be purchasers may also have some aesthetic component. This may therefore lead to an aesthetic preference being made. Indeed the use of what Gregory calls "chunking", with text being grouped into coherent sections, again could elicit a possible aesthetic preference and again provides an additional area for exploration in the current study. This does however lead on to how the publishers design texts and if indeed such decisions are made so as to promote an aesthetic preference and what other considerations are made which lead to a text being selected.

3.3 Publisher Considerations

Authors are frustrated by the fact that publishers must produce what sells and that the unfamiliar, that is incorporating current research, may not sell. This has been of interest as far back as 1985 with Muther's (1985) discussions regarding this issue. Muther included issues relevant to what should be considered when choosing a text to adopt for a course in the US. Aspects such as publisher selling techniques and provision of adjuncts to ensure adoption of a text are identified and she concludes that if texts are not chosen based on their ability to meet the educational establishments needs, then publishers will continue to utilise *"pretty pictures, favourite topics, amusing agents and seducing sales presentations"* (p8) which seem to sway establishments to choose texts for adoption (Muther 1985). The use of such approaches does seem to resonate with current ones, as indicated below.

Harp and Mayer (1998) discuss that the use of seductive details make text more interesting to students. This is where entertaining information is included which has no relevancy with the author's intended theme but seeks to increase the reader's level of arousal and hence interest. Harp and Mayer (1998) make the point that such inclusion does not lead to increased retention of the intended main ideas of the text and ask that if such writing does take place in texts then will a student be sufficiently aroused to select the text if a publisher adopts this approach to achieve a sale of a publication? Such seductive detailing is of interest and provides a point worthy of note in this study. Interestingly as far back as 1974, Nixon suggested that a text, albeit for

developmental psychology, should be presented attractively and be more thought provoking; lecturers should consider cost when attempting to influence students and that texts with hard covers, as opposed to soft, should also be considered (Nixon 1974). This demonstrates that how texts are presented and detailed was as important then as it is today. A decision to choose a hard covered book version over its soft back option is likely to be due to cost rather than aesthetic pleasantry. Cost and presentation therefore are two further possible issues which are in need of investigation when considering student choice of texts to support their learning.

Presentation

The concept of the way texts are presented and produced by publishers' requires consideration, and have been debated by authors. Hartley and Ross (1985) in their discussions regarding a tool developed by their educational institution utilised when selecting new textbooks, state that competition is keen amongst publishers. They go on to state that a variety of enticements are utilised in an effort to make their publication attractive to prospective purchasers. This is suggested as still being evident in today's market for textbook sales. Indeed Miller (1996) in his commentary states that US publications sport hard covers which "scream and shriek" to capture attention in comparison to European texts which are paper backed, and where titles, authors' and publishers names are all that are included. He goes on to conclude that all US books and magazines were presented as if written by the same standardised mind.

Whilst this standardised approach was related more to narrative literature, comparisons do resonate with how US and UK textbooks differ, (chapter 2), and may also support the suggestion that hard covers appear more on US-based than UK publications. Furthermore the use of famous celebrities are at times utilised, for example in Marieb and Hoehn's Human Anatomy and Physiology, 2007, 7th edition, the US tennis player, Serena Williams is featured on the front cover of both the US and international versions. What is worthy of note, since it was found that the version available in the US differed from that available in the UK, is that the subsequent 8th edition, in the US, featured Michael Phelps, the American swimmer, who dominated the 2008 Olympic Games, whilst the international and UK version had an unknown

disabled athlete on the cover. This raises the question as to why the differences were present. It is posited that this could be linked to the dominance of Mr Phelps in an international sporting event and as such was seen in the US as a sporting hero. Such status may not have translated well to non-US countries and so not appeal to non-US markets. Interestingly, whilst the cover is different, the authors still pay tribute to contributors especially for the photographic cover of Michael Phelps, in the acknowledgements page. No attempt appears to have been made to change this for the international version where no such photograph is utilised. However the change of book cover may not be due simply to an aesthetic appeal for potential purchasers, but more directed at controlling the sales of the texts in differing international arenas. Having different covers clearly differentiates and identifies international versions from domestic ones, especially when considering differing levels of cost of the text as discussed by Silver et al (2011). This aspect will be covered more fully in a later section in this chapter.

Another question is whether the way texts are presented, in relation to their covers, are more about standing out to a student and having a visual impact, rather than relying on content alone. Indeed this is identified by Jones (2001) who states that the plainly produced text has been replaced by heavy "glitzy" books, which lure the purchaser who is browsing in the book shop. Indeed an important point raised and suggested by Jones (2001) is that publishing companies have been "swallowed" by four major ones who in some way have determined the national curriculum in the US schools classroom. Silver et al (2012) reiterate that the market in the US is now dominated by four large companies and that the consolidation of smaller publishing companies into these larger ones has led to the increase in the price students pay for their texts. Whilst this is not an issue here in the UK with regards to undergraduate students choosing their textbooks, what is important is the degree of influence such a core of publishers could exert in determining which texts instructors on educational programmes choose to recommend to their students. This is irrespective of whether or not the texts are the most appropriate for the student or programme.

A further point raised by Jones (2001) is that publishers produce new editions so quickly. The rationale is that texts reflect today's market demands, which suggests that student needs are not paramount, rather continuing sales being the most

important factor. No one can argue this when considering publishers are in fact businesses vying for profit. Falling profits that have beset publishers are identified as the reason for the mergers, as identified previously, and has been underpinned by globalisation (Watt 2007). Watt (2007) identifies the 1990's as the era when publishing began to be concentrated in the hands of a few large publishing houses. This has also been affected by a more competitive financial environment which further underlines the need for mergers and larger publishing houses suggesting that larger organisations are more likely to succeed. The issue of producing new editions however can also be seen as being due to what Iizuka (2007) calls *"planned obsolescence"*. It is recognised that manufacturers of long-lasting goods suffer from used goods being in competition with new versions, and that textbook publishers are known to introduce new editions in increasingly shorter periods (Iizuka 2007; Jones 2001). As such, publishers plan for new editions to be released when the sales of the current edition are negatively impacted on by the sales of used texts, the aim being to *"kill off the used units"* (Iizuka 2007). Silver et al (2012) indicates that the edition publication is timed for optimal sales with awareness that too rapid an edition cycle will shorten the life of the new edition and the unwillingness of students to purchase texts at higher prices. Falling sales in the home market however, has been identified as leading to an increase in the overseas sales market.

A point raised by Silver et al (2012) relates to the issue of overseas sales where texts published for the domestic market are sold in international markets and at a lower price than in the country of publication, in this case the US. They use the term "dump" when discussing the overseas sales markets as if implying a flooding of the markets to achieve higher sales is the aim when considering falling sales in the domestic market. They go on to state that a criticism of this business venture leads to the view that US students are seen as subsidising the lower prices paid by international markets. This issue of cheaper texts available to non-domestic markets has resulted in US based students seeking international versions of the text, sourced on line, to avoid the increased price for the text in the US (Simpson 2009). This provides the rationale for the prominent display of the words "International Version" found on commonly used anatomy and physiology texts. The cover of "Human Anatomy and Physiology" by Marieb and Hoehn (2010) contains a statement that the text is a special edition and that, if acquired in the US, the purchaser is informed that this has been wrongly imported and does not have permission from the publisher or author to

be sold in the US. As stated previously the changing of cover designs may suggest that making a text distinctly different when comparing international and domestic versions will make for easier identification and introduction of a toll to preventing importing of cheaper texts into the US markets. Sales of texts in US and international markets however, can also be seen as being promoted by the inclusion of text packages.

The provision of a package or bundle when purchasing a text is another strategy employed by the publisher to increase sales of texts. This is not a novel approach. Lichtenberg (1992) discusses that the text was at a crossroads and that, despite being seen as a four-colour beautiful, graphically enhanced text, it was supported by a "stunning" array of multimedia which was seen as the package that was a "premiere vehicle" for teaching and learning. The crossroads, discussed by Lichtenberg (1992), was identified in the backdrop of developing technologies at the time especially in relation to electronic forms of information available on campus, for example computers in either the library or classroom. Additionally at the time the copying of sections of text was seen as a forward development which publishers saw as another means of achieving sales known as "custom publishing" (Lichtenberg 1992). Lewis (1998) again identifies the evolving text as being "beautiful", when discussing the evolving role of the biology text for the introductory level student. This aesthetic view of the text reinforces the previous one by Lichtenberg (1992) and highlights the attractive nature a text is imbued with when publishers are creating the new edition. Here again identification is made with regards to adjuncts that are supplied being labelled as "enticing goodies" by Lewis (1998) implying that these are required to attract would-be purchasers of the text.

Lewis (1998) additionally suggests what he calls a "novel approach" when considering the selecting of texts for adoption or assigning to a particular course. He identifies that since a number of texts have a degree of similarity then students should be allowed to choose their own text. However choice in the US, where there is a reliance on specific text adoptions, could also be seen as being a novel approach, this approach already being present in the UK where students choose from a list of texts. Finally Sewall (2005), when discussing school level texts in the US, identifies that textbooks are limited to four large publishing companies and that to maximise their

sales they will undertake whatever is necessary with regards to selling a text with "ancillary ornaments" and that each company is uninterested in what means they utilise to achieve the number of sales required.

Silver et al (2012) undertook a pilot study with regards to the rising prices of textbooks and the perspectives held by professors at colleges in the US, and provide some relevant aspects to consider. A random sample of a large number of professors (n = 4342) was included using an internet survey method. The results were analysed using descriptive statistical methods. However it is noted that the response rate of 7.2% does lead to poor generalisability and lack of firm conclusions being drawn from the data gained; this is admitted by the authors, but is seen as providing some insights into how those who responded view rising text prices. In placing the textbook price in context Silver et al (2012) state that publishers, rather than reducing costs of texts, utilise adjuncts which are viewed as actually increasing costs since the adjuncts require investment. This forces students into purchasing materials which are bundled with the text, and which they may not even use. It was concluded in the results that such adjuncts were viewed by academics as not adding any real value to the student's learning experience.

It is the increased production costs of these adjuncts which increases the price of the text and as such this investment needs to be recouped in shorter edition cycles. One particular adjunct that is mentioned in the study by Silver et al (2012) is the provision of on-line materials. Results from their survey suggested a trend which indicated that academics felt that electronic versions of the text would in the future replace the print copy text format. It is this digitalisation of the text materials which however provides another avenue by which publishers can be seen as increasing the purchase of texts.

Digital Texts

The rise of the digital text or e-book has been predicted as being the death knell for the printed version of the text since the early 1990's (Little 2011). However this has not been the case though Little (2011) does identify in his discussion paper that a tipping point is being reached when considering the e-book and the print copy version.

He points out that whilst there have been leaps in the provision of information access and increase in technology development, print copy text acquisitions by libraries is still rising but this is also matched with increase in e-book purchases. There is also recognition that e-book content is now more scholarly and trustworthy with the technology to deliver such content being more robust (Little 2011). Publishers have been hesitant with regards to placing content on line, or indeed produce electronic forms of texts, for fear of piracy and as such this has mirrored the music industry reservations on internet streaming (Butler 2009). The other risk arises from availability of electronic copies of selected chapters of text made available in a university library, so reducing the need to purchase a full print copy text, this having been raised a year earlier by Howard (2008). Such electronic downloading of material is seen as a serious consideration when looking at potential textbook sales reduction (Howard 2008).

Whilst the risk here has been felt to be one of reducing or undermining the sales of print copy texts, there is a consideration that embracing e-books may allow for a tighter control of the large market in sales of used texts (Butler 2009). The increase in used texts is still seen as a risk to new text sales and the development of e-book products is viewed by the publishers as a way of thwarting the competition from this sector (Murray and Pérez 2011). Additionally Butler (2009) indicates that publishers see e-books as a way of destroying the used text market in that frequent updates with electronic formats would be possible, this being viewed as the new edition production, something that would make used texts become out of date rather rapidly. Such ease at producing a new revised edition could also lead to a change in the purchase cost for the student, making e-books (or e-chapters) more attractive.

It would appear that the main drive for e-book use would be the affordability to the student which is lower than the cost of the print copy. Such cost rises in print copy texts are driven by the pace of new edition production, seen as a way of reducing the value of the used text, and the creation of custom books and bundles so as to reduce the impact of the decline in new text sales (Shelstad 2011). Whilst much of the literature has pointed to the markets in the US some authors have also pointed to a similar position regarding used text sales in the UK. Bone (2005) identified that there would be a rise in such sales in the UK but conversely in 2007 publishers were

indicating that such sales were decreasing in the UK (Tivan 2007). Tivan (2007) goes on to quote the Pearson Chief Executive Officer who indicated that the fall is linked to the rise of new technology but that also used sales retailers indicate that students in the UK will purchase older editions due to the lower costs associated with these products.

The first area to consider with regards to electronic texts or e-texts/books is whether students prefer such media when comparing with print-based sources. A recent study by Chulkov and VanAlstine (2013) surveyed students undertaking economics introductory courses in a US based university. The researchers utilised a convenience sample with a 90% response rate based on a sample size of 158. The group was naturally split with 83 students using a print textbook and the other group being identified as having access to e-texts (and printed versions too). The survey questions explored demographics, selection decision based on cost, ability to keep the text and ease of use, and finally provided open ended questions asking for their rationale in selecting the format they chose to use. The results were shown to be varied with format choice not having any association with student academic performance. It was indicated that a wide variety of factors were found which dictated students' choice, and as that having a single format approach to texts therefore was not optimal. It was found that students who were not concerned with cost would choose a print text, despite e-texts having a lower cost. It was also found that those who wanted to keep a text were more likely to choose used print texts. There was no indication of demographic factors affecting choice decisions or abilities in using technology. Conclusions drawn were limited due to the fact that no further exploration was provided with respects to the wide variety of responses given. Utilisation of in-depth interviews could have illuminated such reasons and so underpin a more robust conclusion being drawn. None the less the study does highlight that providing a wide variety of media through which students can access text content could meet students with differing needs and influence their preferences for the media they choose to utilise in their studies.

Gregory (2008) undertook an earlier study to investigate student's usage and attitudes to e-texts and again mixed results were found. Gregory found that e-book use in the institution where she worked had increased in a two year period but that

the negative responses regarding the format had also increased. Based on informal observations from librarian colleagues it was found that e-texts were not popular with undergraduate students, although the Head of the Electronic Resources at the library indicated that research had shown that adding e-book titles was strongly correlated to their increased use. This was also countered by the observation that a large number of students came from a group considered to be from the "Millennium Generation" or "Net Generation" born after 1981. The difference with these students was that they are considered to have been raised in a digitally-based culture and feel more at ease with using computer keyboards and reading from a computer screen (Gregory 2008).

The educational establishment where Gregory's study took place had a very rich and active technological environment. This coupled with the informal observations was the basis for her study. A survey method was utilised with a convenience sample of undergraduate students, though the number surveyed was not given, only those who had responded (n=105), so any assessment of the response rate is not possible. The questionnaire had a number of closed-ended and Likert scale questions. Additionally some open-ended questions were utilised however no mention is made regarding the validity and reliability of the questionnaire though it was "pretested" with three students and three colleagues who gave verbal feedback. The results indicated that a large number of respondents were aware of e-text availability but only a relative few had accessed them, 75% and 39% respectively. There was indication that of those who used e-texts, under half read directly from the screen with others printing off the texts pages to read from print. Generally students were found to prefer the print copy text if a choice was given however the author states that students in large numbers would use the e-text if this were the only format in which a text was provided. This is puzzling since if the student had no choice then surely they would have to access the electronic version to allow their studies to progress which does lead to the suggestion that perhaps students had bought their own print copy version.

Further results from Gregory's study shows that students use e-texts in the same way as they utilise journal content online in that they do not spend time reading on-line material but often print material to read. The physicality of the text was seen as being important when considering the preferences students made and that using a printed

version prevented distractions that were thought to be present when reading on the computer screen e.g. emails and instant messaging. The conclusion drawn was that students considered that both formats were needed so allowing the student a choice depending on the differing information needed. It was found that students appear to have found the "middle ground" in the battle between electronic and print formats. However, an in-depth search of the reasons why students undertook such decisions could have been gathered and would have allowed more irrefutable conclusions to be drawn. This is an approach which has been adopted in a study by Chen and Granitz (2011) as follows.

The study by Chen and Granitz (2012), whilst not specifically investigating textbooks, looked at consumer preferences in relation to technology with regards to other forms of texts. The relevance here is that some aspects of the study's results can be comfortably applied to the arena of academic texts. The study recruited 20 individuals with 8 being identified using purposive sampling and a further 12 by snowball sampling. It is not identified from where the sample was obtained other than there were requirements for the participants to be "avid" readers and had experience of reading electronic forms of text. No definition is given with regards to how the researchers defined "avid" in the context of reading. Each underwent in-depth interviews using guided questions. Results were found to show that when a "tech-enabled" change was introduced, i.e. print to electronic form, there were changes in experiential and utilitarian values. The adoptions of e-texts was underlined by the utilitarian values of accessibility, convenience and ease of use in that texts could be downloaded into a reading device immediately and were light in weight to transport. Rejection of the change was more likely due to the experiential values such as social rituals of sharing and meeting in places where texts were found (e.g. libraries), ownership of texts and aesthetic experience of print texts such as colour illustrations, fonts and book covers. Of those who were unable to reconcile either of the experiential or utilitarian changes then a convergence was found with formats being chosen depending on which values had to be satisfied. As with the previous study by Gregory (2008) once again it was found that offering differing formats of text was necessary due to the differing views that were held with regards to the preference for e-text or print versions.

The results from Chen and Granitz's study are relevant for the current study. The reason for this is based on indications that e-textbook use will increase in the US at a rate of 49% in 2013 (Murray and Pérez 2011). There is a suggestion that similar uptake will be seen in the UK especially when considering that trials are being conducted where bulk purchase of licenses for access to e-texts has been trialled (Butler 2009). If such increases are seen then consideration needs to be given as to what students would prefer with indications from the previous studies indicating that a mix is required. An aim of the current study is to explore student preferences when choosing texts and all formats. Furthermore use of technology will be an important aspect to consider since, as with Chen and Granitz's study, such a change may harm the social aspects of choosing a text, for example when the library is visited to view a collection of texts or indeed if a student desires to own and keep a print text version. Other issues to raise which do not favour the use of e-texts include the inability to access the text contents using a computer when not near an internet connection (Chulkov and VanAlstine 2013) though this aspect can be addressed by the use of mobile devices such as tablets and smart phones (Murray and Pérez 2011). Other aspects include the aesthetic considerations or sensory aesthetics, such as the visual, tactile and olfactory components may also reduce the preference for e-texts since turning pages and holding a text may be held in high regard when comparing the print versus the e-text (Chen and Granitz 2012).

One final aspect is that the use of e-texts can lead to dissatisfaction with the functionality and ease of reading and that an inability to annotate an e-text may lead to negative views of the e-text (Kropman et al 2004). Kropman et al (2004) concluded that access to such texts is at times not user friendly since this is a move by publishers to attempt to control file sharing amongst students. Whilst publishers need to consider the preferences made by students for the format in which the text is presented it should be highlighted that the current study has been designed with the view to exploring the print text. None the less it is pertinent to include a consideration of the e-text since such issues of aesthetics, utility etc. may be raised in the exploration of student's decisions in choosing the text to support their learning.

Finally publishers need to consider the preferences of students when introducing the e-format for texts. A study by Woody et al (2010) explored students' preferences for

e-texts versus print copies. A total of 91 undergraduate students were surveyed and following analysis revealed that they had a preference for print copy texts. This was despite the fact that the mean age was found to be 19.1 years and would fall into what Gregory (2008) called the "Millennium Generation", supposedly technologically "up to speed" with current developments. Those who routinely used e-texts were found to actually prefer print copy texts for learning and that if given a choice between an expensive print copy text or cheaper e-text then many did not want the latter option. It was also found that when comparing the use between the two formats students were more likely to read additional information in the form of captions and charts with print texts when compared to e-texts. Use of the interactive components in the e-texts was found to make no difference when comparing print copy texts where the reader would need to access a computer for anything linked with the physical text.

Woody et al (2010) conclude that despite the advertised advantages regarding the e-text, the medium will need to be sufficiently different from the print text so as to provide a more constructive experience for the reader. One final comment with regards to the reluctance of the e-text to become the most utilised format is based on the observation by Little (2011). He feels that there may be a point reached where the younger users will begin to prefer the e-text, and so younger lecturers, who may be viewed as "Millennium Generation" members, should be encouraged to adopt the use of e-text only reading lists to encourage wider use of e-text formats. It is only as e-texts become more popular that libraries will purchase more of this format (Little 2011). Whilst Little has identified that the rise of the e- book will also become more prominent as technology advances, this is undertaken from his viewpoint as a librarian. He does acknowledge that libraries are still purchasing printed texts in greater numbers and that printed texts are being produced in increasing amounts. Teaching staff utilised e-texts in smaller numbers in their teaching and research, with some specialities being more reluctant to use e-texts than others e.g. humanities (Little 2011). This reluctance is suggested as being as a result of previous discussions which have highlighted the negative aspects of e-texts and their use.

Considering the increasing use of e-texts in the US education system and also being identified as the largest market for publishers, such a development cannot be ignored despite the publishers having more than 90% of sales based on print texts (Butler

2009). Butler (2009) observes that any publishing company that makes progress in the development of the e-text market in the US will also most likely be amongst those who will be most dominant in the international publishing market. Publishers will also need to take note that this is also where the model for sales of the e-text will develop (Butler 2009).

Whilst publishers have been shown to be concerned with sales and developing texts, which encourage either adoption or purchase, the issue of making a choice still lies with the student and as such the issue of making such choices needs exploration.

3.4 Making choices

In this section the concepts of decision-making and making a choice, and their place in the current study are considered. It should be noted that the focus of the current study is not to explore the process and theories of making a choice but rather looking at those influences which lead into this process. It is the navigation through these influences that is of interest and indeed it is necessary to raise the decision-making issue, since this clearly demonstrates that the simple process of selecting a text is in fact a complex and multifaceted journey for the student to take in making the final selection, indeed choice, of a text to support their learning.

Students are noticeably confronted by a large number of texts dedicated to human anatomy and physiology and this presents them with a task of deciding which one to choose to support their learning. The concepts of decision and choice first need expanding. A "decision" is defined as being an intention to follow a course of action (Hardman 2009) with a "choice" being the act of choosing from selection of some aspect from a greater number (of alternatives) (Concise Oxford Dictionary 2011). These definitions however belie the sometimes complex processes that take place in order to decide and make a choice. With the large number of texts from which to choose a decision needs to be made with regards to which text to choose. Hardman (2009) discusses that the human mind has evolved mental short cuts, referred to as "heuristics" and as such these short cuts are what Abel (2003) call experientially-derived cognitive "rules of thumb" and as such guide decisions and choices in

complex situations. Indeed the vast array of texts could be interpreted as a complex situation where a number of variables are present. Payne et al (1993) outlines a number of heuristic strategies that are involved in decision-making and as such promote their thesis of the adaptive decision maker where individuals, who have a limited capacity for information processing when confronted with complex task environments, utilise heuristics to simplify the decision-making process. This therefore raises the issue as to whether or not students indeed utilise this approach when making their decision to purchase a text. Payne et al (1993) posit that individuals adapt and decide which strategy to utilise and that this, as also discussed by Hardman (2009), often is a trade-off between the effort needed and the need to make a good and right decision. However if this is accepted then, when students undertake the decision to choose a text, the question is further raised as to how they decide what will be the right decision. The reason for this is based on a possibility that some students may have a lack of experience of texts in the subject area.

Payne et al (1992), in their review of a programme of research, suggest that individuals may build strategies opportunistically depending on the information they meet when confronted with a complex decision task. Payne et al (1993) further state that decision strategies utilised, with some being identified heuristically, are numerous and individuals will flexibly use these in response to the differing decision opportunities that arise varying from those that require a high level of processing e.g. "weighted additive rule", to those that have fewer variables under consideration leading to lower levels of processing e.g. lexicographic heuristic. In the "weighted additive rule" an individual considers the values of each option on all the relevant essential components and the importance placed on these by the individual, and it is evident that this would require much effort (Payne et al 1993). The less effortful approach of the lexicographic heuristic involves identifying the most important variable or attribute and each alternative is assessed on that one variable with a tie looking at the second most important variable (Payne et al 1993). Payne et al continues that sometimes an individual will use a combination of the above with some using a "habitual heuristic" where the use of a previous choice will be instigated in a similar episode, i.e. a "choose as before" approach. This may be quite applicable to students choosing texts since they may turn to texts chosen previously and select these again in a new course despite the fact that they may be quite unsuitable.

Payne et al (1992) describe how having more alternatives available leads then to simplifying heuristics being utilised to eliminate options since the more variables there are the more complex the task becomes. Such an adaptation needs a trade-off between accuracy, or in the case of this study a good choice, and effort in making the choice. Such a heuristic adoption however is not without risk since the fact is that individuals want to achieve the best decision or highest accuracy. In doing so they will want to expend the least effort (Senter and Wedell 1999) which is the most error prone process when compared to the use of logic (Gigerenzer and Gaissmaier 2011). Gigerenzer and Gaissmaier (2011) in their research concluded that there was in fact a high accuracy associated with the use of heuristics despite less information employed in making a decision, and also that with experience people do learn which heuristic is the best to utilise when confronted with a decision-making task. When considering students choosing texts this raises the question of what experience has been gained by the student prior to being confronted with numerous possible choices. It could be assumed that choosing texts per se may indeed provide this experience and as such allow students to adapt effectively and choose the correct heuristic and so lead to a high accuracy or level of choice of text. There is another aspect to consider and this relates to time, and hence what decision is taken in limited time frames.

Inbar et al (2011) undertook a series of studies to examine increased degrees of regret with choices made from large choice sets. This is appropriate to the current study when considering the large amount of anatomy and physiology texts from which a student makes a choice. The three studies by Inbar et al (2011) manipulated aspects such as choice set size, time to make a choice and lay beliefs that hasty decisions result in bad choices. It was found that the larger a choice set then the more likely people felt they had inappropriately rushed a choice, additionally changing the perception that more time had elapsed led to participants feeling they had been rushed into choosing and so regretted the choice made. Finally, changing lay beliefs that making hasty decisions will lead to a poor choice being made to one that a choosing quickly results in good choices, eliminated any effects that the choice set size had on regret regarding any choice made. The three studies did however identify that there was a low stake level in the choice given and that this was a limitation.

Nonetheless this does resonate with students choosing texts since they may undertake this aspect in a rushed way. This is raised since one would need to consider if students would spend great amounts of time in a university library choosing texts just for one subject or indeed if they were to use time in what may be a tight academic timetable to choose a number of texts for a variety of subjects. This also leads to a consideration of utilising an assigned or adopted text and if this could assist the student by taking away the problems of decision and choice. The answer to this approach may be found in Hardman (2009) and his discussion on choice.

Hardman (2009) discusses that there is a preference by individuals for choice over no choice, based on experimental evidence, since having options can lead to better results. However being given a choice can at times lead to "choice overload" although heuristics for making decisions can often allow people to deal with an ever increasing number of consumer options (Hardman 2009). Individuals value freedom but choosing from too many options can lead to regret (Inbar et al 2011) although this may depend upon whether they are "maximisers" or "satisficers" as discussed by Hardman (2009) in the exploration of studies looking at choice. Maximisers are described as those who want to make the best possible choice, with satisficers only interested in finding a choice which was enough to satisfy them. It was highlighted that regret about purchases was greatest amongst maximisers and that being given multiple alternatives was most likely to lead to regret and thinking about non chosen alternatives due to worrying about not making the right choice. Another issue raised was regarding the consideration of unconscious thought in decision- making.

Dijksterhuis (2004) conducted a series of experiments which explored the effect of unconscious thought based on the fact that such thought processes require a higher capacity when considering complex decisions and that conscious thought is unable to provide this capacity. This is based on the notion that people are unable to concentrate on two things at the same time (Dijksterhuis 2004). The approach is based on the old saying "sleep on it" and it was concluded following analysis that unconscious thought did make complex decision-making easier. However it was identified that the time given for the consciousness to undertake the decisions in the experiments was limited and that longer times may have produced different results. Nonetheless, of relevance here is perhaps that students, rather than selecting texts

on the day they receive their course reading list, perhaps should wait whilst allowing unconscious thought to deal with the complex decision of which choice of text to make, as suggested by Dijksterhuis (2004). Furthermore in later work by Dijksterhuis et al (2006) it was claimed that conscious thought is best at delivering good choices in simple matters but that for more complex ones, the choices made by conscious thought are less effective at achieving satisfaction with the choice made. In these studies subjects were asked to make choices between cars and other consumer products. It was concluded that despite being related to consumer products the results can be applicable to other decision-making arenas, such as text adoption with the current study. When a choice is made another consideration is how alternatives are viewed, whilst regret has been identified as a result of a choice, another is what is related to dissonance.

Brehm (1956) conducted a study whilst looking at how the choice between two alternatives creates a dissonance and that there is a need to reduce this and results in making the chosen object more desirable with the rejected one least desirable. This becomes strengthened when the similarities between the two alternatives are more matched. The reason for this is that the magnitude of dissonance is increased as is the pressure to decrease this, since the values favouring the unchosen alternative more closely match those which favour the chosen alternative. In this respect anatomy and physiology texts overlap considerably in terms of content and structure so presenting the student with just such a dilemma. Additionally in the work of Schrift et al (2011), who identified the act of bolstering a choice and denigrating the other option, found that if a choice was found to be simple then individuals sought to increase choice conflict and so complicated the decision process. This is based on the view that individuals strive for a comparison between the effort perceived to be needed, and the actual effort utilised, in reaching a decision and choice. If a difficult decision is met then a simplifying process is utilised, however should the reverse happen i.e. a decision seems too easy, then artificially increased deliberation and effort increases choice conflict (Schrift et al 2011). Such increase in what is termed the "predecisional" phase can last for a long period of time and such complicating behaviour could lead to lost opportunities. This would suggest that if applied to students choosing texts then they may indeed apply simplifying techniques in order to decide on which text to choose. Additionally it should be noted that students may

often feel under pressure to obtain a text very soon after commencing their course. However with so many choices this may in fact lead to a failure to decide.

Begley (2011) noted that with increased information comes the need to make decisions but such an overload of information could result in poor choices and regret. A relevant point made by Begley (2011) is that a plethora of choices to be made can lead to a decision of not to choose, that is, a failure to decide. She also identifies that too much information can impair unconscious processing, identified earlier and used in decision-making, and can disrupt the heuristics utilised in decision-making. Begley's discussion related to the influx of information coming from electronic communication sources. However this does relate to students in an educational environment who are confronted with the decision of choosing texts not for just one subject but for a whole raft of them included in their courses. Such decisions may be overwhelming due to the complex nature of choosing from a wide range of texts and could affect the ability to make good decisions and choices with regards to this varied array of alternatives.

3.5 Chapter Summary

This chapter has explored the importance of the aesthetic components in relation to a human anatomy and physiology text. It has been shown that such texts may not provoke.00. an aesthetic experience, defined as those which qualitatively differ from those experienced in everyday life, they are usually disinterested evaluative experiences at either end of the spectrum of feelings ranging from pleasure to distaste. This involvement of emotions in the experience is concluded as not being conducive with the common occurrence involved in the choice of a text but rather more would be related to liking and judgment of beauty in everyday life considering common objects.

In exploring beauty consideration has been given in relation to the historical aspects of anatomical science and the illustrative materials that dominated the early development of this science. The close link between the visual arts and human anatomy is demonstrated and this is further strengthened when considering the study

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of the human form by artists. Engaging artists to illustrate texts further links the strong association of aesthetics with the illustrations in the anatomical textbook. However, what has been shown is that with the development of the modern text using illustrators, as opposed to artists, and the technical means to develop highly illustrative colourful material may not bring about an aesthetic experience but it may nonetheless see beauty being found in modern texts displayed as feelings of pleasure, interest and stimulation. Such feelings could however be seen to bring about a feeling of aesthetic preference, as opposed to an experience.

The view of beauty in science is also shown to be present when considering theoretical physics and also when viewing chemical molecules and their structure. It is concluded that with this, as seen in other disciplines in anatomy and physiology, the combination with human anatomical illustrations depicting systems brings about a highly illustrative component in a human anatomy and physiology text and the prospect of inducing an aesthetic preference depending on the nature of the text being viewed. It is further shown in the discussions that alignment of text, given that text is read in a linear fashion, along with the linking of the textual aspects of a text to its illustrative material, further raise the importance of the aesthetic components of an anatomy and physiology textbook. The composition of the illustrative material has been further explored into how such material is presented in frames and whilst related to artistic representations it can be seen that such observations can easily be applied to those illustrations found in texts. Realism has been identified in that illustrators seek to reflect the actual size of objects, again relating to the current focus of texts in anatomy and physiology; this is found to be relevant since aesthetic preference is for those illustrations which reflect the objects canonical size. Other aspects related to the aesthetic considerations have been shown to be important and these relate to the concepts of semiotics and the multimodal text. Understanding of the textual arrangement is considered by authors during writing and that an ability to read both aesthetically and efferently is needed. If these skills are not developed then when choosing a text a student may indeed choose not from looking at the text but at the aesthetic preference for its visual impact rather than its textual content.

It has been shown that how the text is presented in relation to layout has been found to be important with readers scanning text looking for information and that such

scanning may be impacted on by poor design regarding this layout. The use of placing text into chunks is suggested as being an aesthetically pleasing approach as may be the case when student are choosing texts especially if lacking the skills to aesthetically and efferently read, then visual scanning and aesthetic preference may be confined to the visual aspects of the text when deciding to choose which to select. Aesthetic considerations of the text from a reader's viewpoint also links in with that of the publisher who needs to develop an attractive text that will be purchased.

The issue of publishers has been found to be directly related to the fact that texts must sell and that the use of seductive detailing and making texts attractive may be found as efforts to achieve this goal. Two areas of relevance have been identified, these being presentation of the text and the development of the digitised format.

The presentation of texts and the attractiveness of such are designed to ensure that competition is high amongst differing publishers and as such has been debated for many years. The production of texts has been thought to have adopted a standardised approach. The example of US versus UK texts has shown how covers of text seek to play an important role in attracting potential purchasers but the opposing view is that cover differences on the same publication may be more due to differentiating a US version from a European one when considering control of the sales of texts. There is evidence presented that the publishing arena is dominated by a few large publishers and that whilst covers are designed to attract students another issue is the influence that such a small number of publishers have with regards to course content and development. Whilst this is seen as being more predominant in the US such reduction in publishing companies has led to the increase in the overall cost of texts.

Issues with regards to rapid edition production have been explored and concluded as being related more to the need of a publisher to maintain sales throughput and also to reduce the impact that a second hand sales market has on the profits of such publishers. It has been shown that producing a new text is seen as invalidating the content of a used text producing a downward pressure on the sales of these. Publishers have been suggested to produce texts with planned obsolescence in mind

and that the more rapid an edition cycle the more likely students will be to purchase new texts, especially as costs rise with each new production. The need to consider the currency of material is not necessarily as important in anatomy and physiology as when comparing to clinical practice texts where this need will be much greater. A too long edition cycle will lead to used texts harming purchases of the new text. Whilst shown as being evident in US publishers, in order to counter this there has been the development of overseas markets. Increasing availability of texts in this market is seen as offsetting falling sales in the domestic market in the US. This also has led to price differentials with overseas texts being cheaper to students than those in the US. This has been shown to lead to the development of easily recognisable international versions of US publications so as to allow some control of the sales of these in the US markets since such texts as seen as being wrongly obtained and sold.

The provision of bundles in the texts sales and addition of adjuncts are seen as being enticements to either adopt a text or promote sales amongst students. Such adjuncts are suggested as being ancillary ornaments where the value of these is questionable and that little thought is given to these as long as they achieve the goal of promoting sales of the texts. The provision of adjuncts however has been found to actually increase the text cost itself, due to production investment and whilst these adjuncts are seen as having little educational value, the increased price is paid by students. It was concluded that increased prices, increased production cost and edition cycles are closely related. The production of internet based adjuncts and optical media (e.g. compact disc) has led to the debate if the future of texts lies in the realm of digitalisation despite suggestions showing that such adjuncts are not utilised well.

It has been shown that whilst many had predicted that the print text had a limited future the reality is that print text sales have been found to be increasing. This is despite the development of technology that allow digital information to be accessed. The fear of piracy, mirroring that felt by the music industry, has led to publishers not developing digital texts to the level that had been predicted. Indeed it was seen that publishers felt that as university libraries increased their digital collections that this would in some way harm their sales of the print texts. This is countered however by the thought that the embracing of digital technology would allow for greater control of textual content and could be used as a way of driving down sales in the used text

market. The reason for this is the ability to publish ever more rapid updates and in so doing invalidate the content of used print texts. Development of digital formats however again has been shown to be a consideration in the field of text delivery. It should however be noted that this current study does not seek to focus on the economics and market activities as found in market research but this area does need to be considered as an influence on students choosing texts to support their learning.

The preference indicated by students for digital formats has not shown an overwhelming support for these forms of text. Indeed aspects such as ownership dictate that print texts are preferred. Furthermore it has also been shown that preference for print text has been demonstrated when looking at comparisons between the two formats. The conclusions drawn are that students prefer to have the option of both formats and that they have found what is referred to as the middle ground when looking at the development of the relationship between print and digital texts. The use of texts has also shown that preference between the two formats will depend on both utilitarian and experiential values e.g. convenience versus ownership respectively, however the aesthetic considerations of holding a text and turning pages have been highlighted as valuable. It has been concluded that as more students of a younger generational age along with lecturing staff joining universities who are also from this group, so the adoption of digital texts may increase but at present the print text would appear to maintain its place in the learning environment.

The final area shown to be important is related to decision-making and choice. What has been shown is that far from being a simple act of choosing, a number of strategies can be adopted in making a decision to choose. Indeed when confronted with a large amount of variables the limited processing ability of the conscious mind seeks to simplify this process by the use of "rules of thumb" or heuristics. It has been seen that this simplification is a trade-off between effort and making a good decision. Whilst some view heuristics as being error prone when compared with the use of logic it has been found that a high degree of accuracy is evident in their use.

When making a decision and choice a large choice set increases the feeling of regret since this leads to a reduced time to make a choice and as such time frames have

been shown to be a factor in feeling regret with a decision made. Having no choice though has been shown not to be favoured by individuals. Having choices can lead to better decision results however having too many can lead to choice overload and this can be overcome by the use of heuristics in making a decision with ever increasing choice sets. The need of having choice is seen as being based on valuing freedom however this can also lead to regret being more commonly felt when a decision or choice is made. It has been shown that evidence exists that two groups are found in those who choose, maximisers who may feel the most regret, with satisficers looking only on a choice that will be enough to bring satisfaction.

Subconscious thought has a greater capacity to process information when compared with conscious thought. The old adage "sleep on it" is seen as being an approach which simplifies complex decision-making. Furthermore it has been found that simple decisions might be effective with the use of the conscious mind but poorer outcomes were found when using the same conscious approach for more complex decisions. When a choice is made between alternatives a dissonance may be evident and to reduce this, an individual actively increases the desirability of the chosen object with the rejected one being seen as less desirable. It has additionally been shown that if a decision is seen as being too simple then efforts are undertaken to make the process more difficult. This is based on the approach that there should be a comparison between the effort perceived to be needed and that actually expended in making a choice. In the pre-decision phase if a decision is seen as being too effortless then there is increased deliberation which may be so prolonged that an opportunity is lost or there is a failure to choose. Such a failure can also be present when there is an increased information input and as such this has been shown to have the ability to impair the unconscious processing which has been shown to have a greater capacity for information processing than the conscious level. This information overload can also lead to a failure of the use of heuristics to simplify the choices available.

The key points that have emerged throughout this chapter have been summarised in Figure 1.

AESTHETICS

Book Design

Aesthetic Preference
&
Aesthetic Experience

DECISION MAKING

PUBLISHER INFLUENCES

Cost

Layout

Skim Reading

Text Chunking

Presentation

Physicality

Paper Vs Electronic Formats

MAKING A CHOICE

Heuristics

Effort   Vs   Conscious
&   &
Time   Unconscious

Dissonance

Freedom of Choice

Maximisers & Satisficers

Ownership
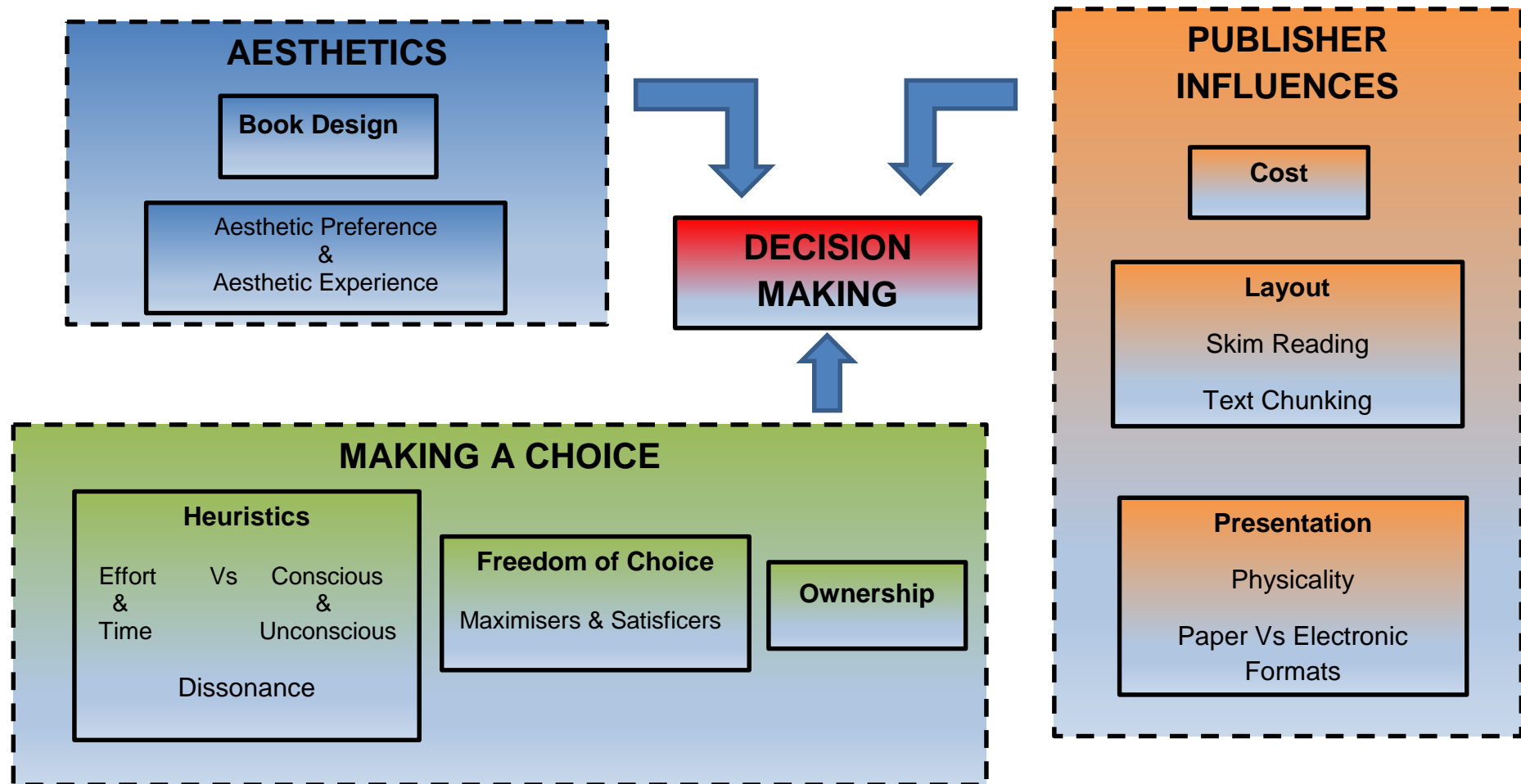
Figure 1 The Decision Making Landscape

Throughout this chapter the issues relating to three areas have been found to relevant to the current study. Aesthetic preferences, publisher influences and choices made are all highly applicable and as such need integrating into a unifying whole which can allow for a more comprehensive understanding of the influences that impact on a student making a choice regarding which text to select. It is this lack of evidence that provides further support for the current study. It will be in the next chapter where the theoretical framework will be presented providing a rationale for the integration of a number of concepts, those covered in this chapter, and those to be explored in the next chapter.

<center>**Chapter 4**</center>

<center>**Theoretical Framework**</center>

4.1 Introduction

This chapter introduces and explores the theoretical framework for the study. The framework is constructed from theories that have been found to be relevant and connected to the process of choosing a text. The areas of "aesthetic preference" and "decision-making" additionally have been explored in the previous chapter. Three final concepts are required in the completion of the proposed framework: learning (and its objectives), cognition and comprehension. The chapter provides the necessary rationale for the integration and application of the identified concepts to propose that the route to choosing a text is a series of events which presents as a complex process for the student.

In identifying a theoretical approach to comprehension I considered the use of Paivio's Dual Coding Theory (Paivio 1986) when I initially reflected on the construction of the theoretical framework. In this theory, cognition and recall depends on the coding of textual information via two mental systems, these being a verbal system, for dealing with language, and a non-verbal system, dealing with imagery (Sadoski et al 1993). Cognition and recall of text is best if information is coded concurrently in both systems however this can occur individually and in isolation in each system, though recall is more effective when coded in both systems (Sadoski et al 1993). Sadoski et al (2000) indicate that perception and recognition, by activating recall in both systems, identifies familiarity as being an important text variable and suggests that prior knowledge is important, though this is not specifically identified by these authors. The importance of prior knowledge has been identified as being a relevant issue in earlier background chapters of this study. As had already been identified earlier issues may arise when students possess little, if any, knowledge of the visual aspects of anatomy in a text i.e. canonical sizing. This would suggest that students would have difficulty in processing the text if they were not only unable to identify relevant words and so process these, but also be unable construct images as required for dual coding due to a lack of knowledge of size and form of anatomical structures.

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Reed (2013) indicates that Paivio's theory is limited since it is only valid for those who are asked to identify how concepts are related when reading. If prior knowledge and unfamiliarity, with both the language and diagrammatic representations in an anatomy and physiology text are deficient, it is difficult to identify how this theory can be effectively utilised in my study's theoretical framework since students may be unable to relate the different concepts in the text. Additionally there is a focus on recall within Paivio's work and as such the current study was not focussed on a student's ability to recall information but rather to comprehend it when considering the choice of a text.

It is for these reasons I rejected the use of Paivio and chose the theoretical concept identified by Kintsch (1998) which focussed more readily on prior knowledge as being important in the comprehension of textual information. Additionally the importance of the diagrammatic representations in textbooks and that students may view these separately from the textual information, required that an additional theoretical approach was required. This allowed the identification inclusion of Hegarty's theory of multimedia comprehension (Hegarty 2005) which also relies on the possession of prior knowledge. Finally the choice of Blooms Taxonomy (Anderson et al 2001) was based on the fact there is a close relationship of these with the learning outcomes of the programmes of study students undertook at the university where this study took place. This therefore led to the assumption that this could present a possible influence on a student when choosing a text. This therefore led to the decision that it be included in the proposed theoretical framework.

This chapter will therefore commence with an exploration of the first concept, Kintsch (1998) regarding text cognition and comprehension, followed by Hegarty's Theory of multimedia comprehension (Hegarty 2005) and Bloom's taxonomy for educational objectives (Anderson et al 2001). Finally the overall conceptual framework proposed for the current study is presented as an integrated whole.

4.2 Cognition and Comprehension

Comprehension of Text

In choosing a text it is necessary to identify what process a student would undertake when first evaluating a text and how this would be connected with their ability to comprehend the information in the sample texts that they have selected from an array of those available. These sample texts would form the total selected, from which a choice is made, and would most likely be derived from external influences such as reading lists, recommendations and such like. In determining the text which is most likely to be useful it is first necessary to be able to read and understand both the textual and diagrammatic information in the selected text. Therefore the need to adopt a theoretical concept regarding comprehension and cognition is evident. Maclellan (1997), referred to in chapter 2, page 19, identifies the need for readers to bring their own existing knowledge to the comprehension process and introduces the theory put forward by Kintsch (1988) regarding the comprehension process. This resonated with the aims of the current study in that, as already highlighted, previous experience and knowledge of the subject, in this case of anatomy and physiology, are important issues in using texts to support learning. The following provides an exploration of the theoretical approach adopted by Kintsch and its applicability for use in the proposed framework.

The proposed framework presents a process that is represented as a number of stages which need to be undertaken in choosing a text. This has been designed based on the literature explored in the previous chapters identifying aesthetics and choice as two concepts relevant to the current study. These have been placed in the framework but prior to these components it was necessary to consider evaluation of the textual content and this introduced the necessity to include the theory developed by Kintsch and related to the areas of cognition and comprehension.

There have been two aspects of comprehension identified as being necessary related to the written text and to diagrammatic representations. Whilst it is not in the scope of the current study to test and validate the work by Kintsch or others, what will be undertaken is the critique and exploration of appropriateness for fit in the proposed framework for this study. Kintsch (1994) identifies that in reading it is found that two

results can emerge, firstly that a reader can remember the words in the text and reproduce them either in their entirety or nearly so or even summarise what the words were saying to the reader, this being referred to as its "gist", a general grasp of what the text is saying. However Kintsch goes on to inform us that learning from a text is not being able just to recall it but rather infer new information and facts from the text and then integrate this with previous knowledge held in memory, applying to new problems when looking for solutions. Learning therefore is identified as having a deep understanding of the content of the discourse as opposed to a surface or shallow understanding, as may be seen with list learning for example (Kintsch 1994). The meaning in discourse is seen as being made up of microstructure and the macrostructure or surface levels of analysis (Kintsch and van Dijk 1978). Microstructure relates to the individual sentences and their relationship to each other which is termed as being at the local level of the discourse, with macrostructure relating to more global meaning of the text as a whole derived from the microstructure (Kintsch and van Dijk 1978; Kintsch 1998). It is this first level of analysis of the surface structure of discourse that takes place when comprehending a text.

The second level of analysis relates to what Kintsch calls the text base. Kintsch (1998) indicates that the process of comprehension results with an end product of a mental representation of the text, which he calls the episodic text memory and that this is an interrelated network of propositions. In this network propositions are seen as the basic units of language and a combination of what is termed a predicate and an argument (Kintsch 1998). A proposition is defined by Sadoski (1999) as not being seen as actual language, since they have no forms, but as an abstract, mental, meaning base of language. The predicate is typically seen as a verb and the arguments are its agents such as a subject or object found in the noun phrase of a sentence (Sadoski 1999) e.g. in the phrase "the heart pumps blood", the predicate "pumps" is linked to the arguments "the heart" and "blood" so forming the proposition.

Propositions however are not as simple as they appear above but can become more complex, indeed Kintsch would call the simple example above an "atomic" proposition. Kitsch (1998 p38) uses the sentence "Mary gave Fred a book" where the proposition here would be the predicate "give" and the arguments "Mary" "Fred" and "Book". Simply viewed the propositions can become complex by adding modifying

components such as "old" before "book" or "inadvertently" before "gave" additionally by adding a circumstance i.e. time or place such as "yesterday" the proposition is now seen as complex. Such complexity serves to preserve the intended meaning of the writer (Kintsch 1998) since it adds further depth and breadth to the "circumstance".

The forming of propositions in the reading of the text is at first seen as the building of a network with each proposition linking with another, with propositions being seen as nodes in the net (Kintsch 1988). As a sentence is read a new proposition is formed but may be incomplete requiring more information regarding for instance the addition of an argument. This is gained as the reader progresses with acquiring more information from the text and then as propositions are linked modifiers are connected resulting in more complex propositions. Kintsch also introduces the fact that as text is read and a proposition is constructed, predicates may be identified which require an argument or a person. Kintsch (1988 p166) gives the example of the sentence "Mary bakes a cake" where the predicate "bakes" requires a person and so a reader will search their knowledge net to test if Mary is a person and that if this is not found then an inference will be attempted following the search. Kintsch goes on to suggest that there may not always be the right proposition formed with incomplete and incorrect ones being the result. Links between the propositions or nodes can be strongly activated or may be rejected with some nodes being unconnected or connected with inhibitory links (Kintsch 1994). This process is what is termed the formation of the textbase and is often seen as an incoherent network and that in order to complete it the reader must add nodes, from previous knowledge, and links between the nodes to make the structure coherent (Kintsch 1998). This undertaking requires the use of various sources of knowledge and experience possessed by the reader and allows interpretation of the text by integrating it with prior knowledge. This is the formation of the situation model and as such all sources of knowledge may be needed to convert what Kintsch (1998) feels may, on its own, be an isolated memory structure to becoming something which is integrated with a readers own knowledge and experience.

It is appropriate to point out that in the context of Kintsch's theory regarding cognition and comprehension the term "node" does not reflect that which is utilised when considering sentence construction. Such usage here relates to the components that

make up a sentence with the linking of each component resulting in a tree structure. As each component is linked in the structure, each node becomes labelled and this label refers to the constituent part of a sentence it holds, such as a word or phrase, and also includes components called noun phrases, adjective phrases etc. (Fabb 1994). This differs from the application of the node in Kintsch's approach where such nodes relate to "propositions" and stimulation of adjacent nodes when comprehension takes place using prior knowledge to allow cognition to result.

It is this linking with prior knowledge and ability to comprehend the text and the formation of both a textbase and situation model which aligns itself to the current study, the need for students not only to be able to understand what a texts says but also what the text is about. The textbase represents the meaning of the text as a network of propositions with the situation model construction being the ability to integrate and use the information (Moravcsik and Kintsch 1993). Finally the textbase and situation model formations should not be seen as discrete separate functions but rather occur simultaneously. The text base and situation model contribute links and nodes in a single network, this is called the construction integration model (Kintsch 1998). The textbase is formed with the construction of propositions; these are then connected in a network and a process of integration with existing knowledge, the situation model, to allow a well-structured mental representation to be formed.

There are however some aspects to consider when choosing this theory since in the comprehension Kintsch states that the use of schema is seen as being a top down approach which is limiting and provides an inflexible approach to comprehension. Sadoski (1999) raises this point when critiquing Kintsch's theory. "Schema" is defined as a knowledge structure (schemata: plural) which Pearson (2010) describes as containers into which are deposited evidence of experiences and the information from such experiences. As such these are stored in memory and provide the scaffolding, containing slots where readers expect that information from the text will fill such slots, and also they allow for deciding where attention will be focussed when reading. Kintsch (1998) however argued that using such schema may introduce an inflexibility since they guide the process of understanding by blocking out irrelevant material and filling in gaps from the textual material in a top down approach. However, Kintsch

argues that comprehension is flexible and context sensitive and as such schema are not.

If then schemata are so inflexible then the question is raised as to why Kintsch introduces the notion of the predicate argument schema in the theory of comprehension he presents. This point is seized upon by Sadoski (1999) where he indicates that a fluctuation in the opinion regarding this aspect is evident. He points out that schemata are present throughout Kintsch's approach in that they are present for the proposition, where a mental programme exists composing of a predicate slot and arguments slots. However Sadoski does reveal his support of the Dual Coding theory of cognition, comprehension and memory for text, as presented by Paivio (1990). Nonetheless Sadoski still highlights the strengths of Kintsch which is applied in the current proposed framework. Support for schema approaches are evident as Spooren et al (1998) indicates that readers possess topical schemata which are stored in memory and with structural schemata assisting in the processing of incoming information. The complexity of processing schemata increases as experience increases with readers who are proficient possessing higher expectations of the text they read. This should however be read against the backdrop of Pearson (2010) who indicates that schema theories from the 1990's have lost their dominant hold on comprehension theory and indeed the advances seen in comprehension theories include that of Kintsch!

Kintsch's theory can assist in the understanding of comprehending textual information and is summarised by Moravcsik and Kintsch (1993) as follows:

> *"The textbase represents the meaning and structure of the text as a network of propositions. It enables the reader to reproduce the text i.e. to recall or summarise it. The situation model represents the content of the text as it is integrated in the reader's domain knowledge." (p363)*

However this statement does not indicate what would happen if a reader could not form a textbase. Indeed whilst a formation of a textbase can lead to having recall of the text, or certainly gaining a gist of what the text is about, little is said as to what would happen if there were also difficulties in constructing the textbase. Cromley et al (2010) note that biology texts have a high proportion of vocabulary which is

unfamiliar; this could also be said of anatomy and physiology texts. Additionally authors do not always make the relationships amongst the propositions of a science text explicit; assuming that the reader has the ability to make inferences, these stemming from drawing conclusions between propositions in the text (Cromley et al 2010). Cromley et al continue that vocabulary knowledge is also required so that meanings of words can be understood. If then a student cannot understand the word then it is appropriate to assume that constructing a textbase will not be possible, and so questions how a student will determine if a text is appropriate for their choice. This leads to an assumption that diagrammatic representations potentially may then play a significant part in enabling a student to develop a gist of what a text is about and so provide a driver for choosing one text over another. It is therefore appropriate to include a discussion relating to comprehending diagrams.

Comprehension of Diagrams

Cromley et al (2013) draw attention to the fact that whilst textual components of diagrams will follow the comprehension model of Kintsch, the processing of non-textual elements (i.e. graphics) will still require inferences to be made and this will require specific knowledge of the topic. This draws on the model proposed by Hegarty (2005) specifically in relation to the "mental animations" as presented in her earlier work (Hegarty 1992). In the latter publication Hegarty refers to mechanical and electronic devices and how readers can infer motion using knowledge of motion in particular systems and terms this as mental animation. In attempting to link this theory to the current study it is the case that most physiological systems are often described in mechanistic terms e.g. the heart as a dual pump, the kidney nephron as a filtering mechanism, the joints acts as hinges or inter-spinal discs act as shock absorbers. Such descriptions serve to provide a visual clue as to the actions and functions of these anatomical parts. Indeed in some texts diagrams represent organs not as they are naturally seen but diagrammatically represented so that features of the system can be easily outlined and function more readily understood. If this is accepted then Hegarty's model can be easily applied.

Application of mental animation however is not without its shortcomings since there still needs to be possession of differing types of knowledge. These relate to

knowledge of the parts of a system, knowledge of how the components "move" in this system and finally knowledge of what the system actually does in terms of its function (Hegarty 2005). These are termed by Hegarty (2005) as "configuration", "behaviour" and "function" in relation to the three forms of knowledge. These forms of knowledge are applied to mechanical systems but as stated previously are not totally beyond application to biological systems such as those in the human body. Nonetheless difficulty arises since this implies that prior knowledge is required in order to allow comprehension of a diagrammatic representation to be achieved. Hegarty (2005) posits that in order to understand a system, the display of text and diagrams presents an external representation and that for comprehension to occur an internal representation or mental model has to be constructed. Such construction may require inferences to be made based on prior knowledge and the quality and result of this comprehension may allow the mental model developed to contain information not explicitly available in the external representation (Hegarty 2005). This leads to the conclusion that if students have little prior knowledge of human body systems, diagrammatic representations may not serve as reliable factors in deciding if the textbook is suitable for choice to support learning. It can be assumed that if sufficient knowledge is possessed then an ability to build a mental representation of the diagram may indeed lead to the text being seen more favourably when the textual content is not so easily comprehended and diagrams are assessed instead.

Another appropriate point that Hegarty (2004) identifies is that some representations may be designed so as to distort reality so that whilst components of a display are designed to draw a reader to them and may be thematically relevant, they may not be perceptually salient i.e. not easily identified as being important. Novices may be distracted by more salient features, in that these appear to be more important, but are not those that are thematically relevant. Consequently if a new student views a text then they may choose from a text that has prominent features in its diagrammatic representations but may fail to identify that thematically relevant details are missing. Choice then would be based on merely looking for an attractive diagram according to their aesthetic preferences. Indeed Cromley et al (2013) point out that for comprehension to occur with regards to diagrams from Hegarty's viewpoint then obstacles may be present such as inadequate attention to the relevant points of the representation, lack of subject knowledge and inability to draw inferences due to poor background knowledge. A choice of text may then be based simply on the aesthetic

qualities of its diagrams and that further analysis of the text for its appropriateness, based on informational content enclosed, may not progress any further in the proposed theoretical framework when considering the learning aspects e.g. academic level.

If sufficient background knowledge and cognition contributes to comprehension in the selection process the next phase is posited as being related to the assessment of the academic level of the text. This relates to the application of Blooms Taxonomy for Learning.

4.3 Blooms Taxonomy of Learning Objectives

The taxonomy of educational objectives (Bloom et al 1956) has been chosen as part of the theoretical framework for the current study as the taxonomy framework does not rely on any one theory, but rather it was designed to be consistent with current "theories" of learning (Andrich 2002). As such this allows its use whenever a taxonomy of learning is required, as in the proposed process framework for the current study.

The original taxonomy framework was designed to assist in the clarification and communication of intended outcomes of what students needed to achieve as a result of teaching, crucially the cognitive outcomes of such instruction (Anderson et al 2001). It is this strong linking with learning outcomes that provides the rationale for the use of the framework in the current study since the nouns utilised in the framework still predominate in higher education today. Indeed Seaman (2011) confirms that the framework is still widely utilised in the discipline of teaching and its intention was, as highlighted by Booker (2007), intended for use in the higher education system.

The taxonomy was originally designed with six categories in the cognitive domain and identified as Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation (Krathwohl 2002). These were further broken down into subcategories but with the publication of the revised framework from Anderson et al (2001) the nouns

have since been replaced with verbs i.e. Remember, Understand, Apply, Analyse, Evaluate and Create. The last two descriptors have also been reversed as evaluate is no longer being the highest level. Despite this it should be noted that the use of the original taxonomy wording is seen in the learning outcomes of higher education in the UK and is found in the documentation supplied by the Quality Assurance Agency (QAA) for Higher Education e.g. UK Quality Code for Higher Education (2011). Such documentation provides the basis from which Higher Education Institutes (HEIs) devise their programmes of study and develop the learning outcomes required for these. Indeed the HEI where the current study took place utilises the descriptors in the code of practice that guides the production of the learning outcomes for proposed programmes of study. It is posited that students, being aware of the intended learning outcomes of their courses, would view texts which were seen as being commensurate with the level required i.e. application comprehension analysis synthesis and evaluation. This aspect will be presented more fully later in this chapter.

The linking of the outcomes with learning, whilst significant, should be noted as not being the centre of attention for the current study. Learning theory, whilst important, was not the focus but rather the exploration of the underpinning processes identified in the choosing of a text to support such learning. The study was not designed to explore the learning experiences of the students but their thoughts and decision-making processes involved in choosing a text to support that learning in anatomy and physiology. Perhaps here the statement of Veeravagu et al (2010) is worthy of note since they indicate that:

> *"Reading comprehension...is a thinking process by which a reader selects facts, information or ideas from printed materials; determines the meanings the author intended to transmit; decides how they relate to previous knowledge and judges their appropriateness and worth for meeting the learners own needs and objectives." (p206)*

In this quote it is found that the need to comprehend, as previously explored, relates to prior knowledge, a pre requisite for cognition and comprehension, and judgement if a text will allow a student to meet the learning outcomes of the programme of study. This will then guide the choice of text. Whilst Veeravagu et al (2010) were looking at the use of Bloom's taxonomy to gauge reading comprehension, the statement was

found to fit well with the intended aims of the current study. Finally Bloom et al (1956), stated when the taxonomy was published that the framework was not about classification of teaching methods, relations between students and teachers or instructional materials but was focussed on the thinking behaviours that were expected in following the learning process. These were intended to be seen following instruction and a way of measuring what had been learned by the student. The learning process is not seen in the taxonomy but rather measures of the outcomes of learning. Learning theory was considered for exploration in the current study but the proximity of Bloom's Taxonomy to the developing theoretical perspectives led to its rejection as a theoretical contribution.

The adoption of Bloom's taxonomy has been explored with regard to the validity of the framework. Research related to the assumptions made by Bloom et al (1956) was undertaken quite early following its publication and the quest to examine the theoretical validity has produced mixed results (Jansen et al 2009). An exploration by Kropp et al (1966) found that whilst there was increasing use of the taxonomy there was little empirical evidence to provide a foundation for its assumptions. They identified four assumptions which they suggest underpin the taxonomy, in that it stipulates that the processes it measures are cognitive, the taxonomy is hierarchical, the hierarchy is cumulative i.e. each stage builds on the lower levels, and finally that the mental processes in the taxonomy are learned behaviours. This they felt presented the opportunity to develop hypotheses from which to provide data which would empirically validate the taxonomy. However, Kropp et al (1966) point out that this is not without inherent problems and this is concluded as being why there had been little research at that time that had been conducted on the taxonomy. The second aspect they identified was how to identify which conditions would be chosen when behaviours were being measured. This surrounded the decision as to the appropriate test format and observational conditions. Another area concerned knowledge and the recall of knowledge in the taxonomy. Indeed Kropp et al (1966) identify that the lack of recall of knowledge does not necessarily indicate a lack of knowledge but rather may be due to a stimulus being at too lower value to trigger the required recall process. The final area identified as presenting difficulty is the absence of a valid statistical methodology to provide validity for the taxonomy.

Seddon (1978) points out that Bloom original 1956 discussions identified checks and tests of the taxonomy but did not provide any experimental or statistical evidence to underpin the taxonomy. Seddon (1978), reviewing other studies, found that conclusions were not always in agreement and that conclusions drawn reflected a stance that the taxonomy had, at best, only a degree of reasonableness regarding its accuracy, and that experiments differed in the number of samples utilised in each study they identified. He concluded that no one taxonomy could ever provide a means of universal understanding with any population of educationalists. Seddon (1978) points to two studies which agree that the hierarchy was in the correct order, i.e. knowledge, comprehension, application and analysis, and that interestingly the last two of synthesis and evaluation were in the wrong order. This is interesting since in the revision of the taxonomy in 2001 by Anderson et al finally reverses the order of these last two levels in agreement with a conclusion drawn twenty three years earlier! Seddon (1978) finally concluded that the view that the psychological properties of the taxonomy have validity remained uncertain and that whilst the properties of the hierarchy had not yet been proven to exist conversely it had not been proven that they did not exist.

Kunen et al (1981) undertook research looking at the assumption of the cumulative hierarchy of the taxonomy. Here two groups of students were utilised, one from the US (n=80) and another from Australia (n=52). The issue investigated was that memory performance increases as the taxonomic level increases. The use of the two differing groups was to allow generalisability of any results gained. Four experimental groups were formed and were assigned tests based on the levels of the taxonomy this being knowledge, application, synthesis and evaluation. The levels of comprehension and analysis were omitted due to difficulties in producing tests which could be utilised in the experiment this being due to the framework adopted in the study. Each group was assigned tests based on the taxonomic level to which they had been assigned. Recall scores measured in the tests provided the data for analysis with the main difference being found in the level of application. Results showed that knowledge was indeed well placed in the lowest level of recall and that synthesis was seen as the highest level of recall. As indicated earlier the evaluation level was found to be misplaced from Bloom's original taxonomy, in that it did not gain the higher level of recall that was predicted in the hierarchy but was at a lower level than synthesis. This confirms the conclusion by Seddon (1978) that synthesis and

evaluation should have been reversed and supports the eventual revision by Anderson et al (2001). The conclusion of the study however appears to be drawn away from a main focus of providing evidence for the accumulative aspect of the taxonomy and instead discusses the use of questioning in the classroom to elucidate differing levels in student achievement.

Despite the lack of empirical evidence to support the assumptions underpinning Blooms Taxonomy it continues to be widely used in teaching and curriculum planning (Seaman 2011) and that despite having severe critics continues to have significant influence (Granello 2001). In the face of not having a wealth of supportive data the taxonomy continues to be embraced worldwide and also used in all levels of education even though it was designed for use in higher education (Booker 2008). The use, as stated previously, HEIs in the UK continues and it is for this reason the hierarchy is adopted for the current study so the terminology and order of the original taxonomy is found with the framework designed for the current study, this being knowledge, comprehension, application, synthesis and evaluation.

4.4 The Framework

The framework proposed for the current study has drawn from themes and theory presented in previous discussions and is designed as a conceptual process framework in that it is presented as a number of stages that students are proposed as going through in making their selection of texts to support their learning in anatomy and physiology. This framework is now presented in Figure 2 and described as follows.

External Influences
Reading Lists, Key Texts
Assessments, Cost
Adjuncts

Course Enrolment

Preliminary Selection of texts
Inspection and Reading

Internal Influences
Reading Age
Motivation
Interest
Academic Background Knowledge

Blooms Taxonomy*
Educational Outcomes
Knowledge, Comprehension
Application, Analysis
Synthesis, Evaluation

Assess Academic Level

Kintsch's Theory & Hegarty's Theory Comprehension and Cognition

Decision Making Theory

Heuristics

Decision Making

Aesthetic Preference

No Choice made

Or

Choice Made

Stage 1 Influences   **Stage 2 Comprehension, Cognition & Level**   **Stage 3 Decision-Making**   **Stage 4 Choice**

Figure 2 Conceptual Process Framework for Text Choice

*Terminology is based on that used in Blooms original publication of the framework (Bloom et al 1956)

Stage 1 Influences

In this framework it is proposed that first exposure to embarking on a journey to choose a text commences when students first enrol on their chosen course. This would entail the influence of both internal and external forces which would impinge on the students choosing their texts. Such external influences particularly include reading lists supplied with course information where key texts may be identified. As identified in chapter 2 cost considerations, assessment requirements and supply of additional materials in the form of adjuncts are also thought to be considerations in this first stage. Internal (personal) influences are thought to originate from the reading age of the student along with motivation for taking the course and this will also be affected by having an interest in the subject material, in this case this being anatomy and physiology. Another internal influence is felt to be related to the academic background that a student possesses in the subject area and as such may provide additional influences when considering the decisions in choice of texts. It is proposed that the final step in stage one of the framework, is that a preliminary selection of texts will be undertaken and this will lead to an examination of the texts in a subsequent process of deciding which to finally choose. Students who are presented with a key text list will still be expected to make a choice from such as list, as seen in the UK when compared with the US where text adoption has been shown to be prevalent.

Stage 2 Comprehension, Cognition and Level

In this stage it is suggested that students assess their ability to comprehend the selection of texts that have been identified as potentially suitable. If comprehension of either the textual content or diagrammatic representations is incomplete or absent then choice of the text will proceed to stage 3. However if comprehension and cognition is present then students proceed to assessing the academic level of the text for use in their chosen course. Students will determine the level of the text and attempt to match this with the claimed or perceived level of the course. This information of course level will be identified by the learning outcomes of the course as indicated in the course documentation. As identified in the previous discussions this may be subconsciously matched using the taxonomy identified by Bloom since it is these descriptors which are found in the course learning outcomes i.e. knowledge, comprehension, application, analysis, synthesis and evaluation. Once this has been assessed then stage 3 is entered into.

Stage 3 Decision-Making

In this stage the theories surrounding decision-making are applicable and draws on experience of making decisions in similar occurrences where decisions regarding text choice have occurred e.g. heuristics. If there is an absence of cognition and comprehension it is proposed that students make decisions regarding texts based on aesthetic preference alone. However cognition and sound assessment of academic level may lead to choice by utilising aesthetic preference since if texts are similar in the final selection stage aesthetic preference may be the only distinctive difference which will lead to a decision being made regarding one text over another.

Stage 4 Choice

The final stage is the choice of text. However it is noted that in the theory of decision-making the choices may be so vast that the student cannot make a decision on which text to choose and may exit the process with no decision being made (see discussion on dissonance in section 3.4). The timeframe for the progression through stages 1 to 4 will be affected by the level of cognition and comprehension but may be quite rapid if this is absent.

4.5 Chapter Summary

This chapter has identified that cognition and comprehension are essential aspects to consider when identifying what texts are conveying in relation to the information they contain. To gain a deep understanding of this information then just being able to recall from a text is insufficient. Kintsch's theory on cognition has been selected as pertinent to the focus of the current study and that this cognition relates to viewing the text from both a macro and micro-structural level. This is the first level a reader must accomplish prior to proceeding to comprehending the text. The next level has been seen as forming a textbase, a network of propositions which are the basic units of language. This interconnection of propositions forms a network and each proposition provides a node in this net. As the reader continues new links are formed and if information is missing then the reader will draw on personal experience and knowledge. This integration of prior knowledge is what Kintsch has called the

"formation of the situation model". It has been shown that formation of the situation model is the integration of information from the text into the readers own experience and knowledge.

The formation of a text base and the situation model allows the reader to not only understand what the texts means, but also what the text is about. These processes occur simultaneously and allows for a mental representation of the text content to be made. This integration of the textbase and the situation model forms what Kintsch has called the "construction integration model". It has been shown earlier in this chapter that the texts of interest in the current study contain many unfamiliar words and that if vocabulary knowledge is deficient then formation of a textbase may not be possible. This has led to the inclusion of the comprehension of diagrammatic representations in a text based on the work of Hegarty and mental animations. This was appropriate since many physiological and bodily systems are often referred to in mechanistic terms. Prior existing knowledge once again has been shown to be a requirement in facilitating the formation of a mental animation. This knowledge has been identified as having three areas for inclusion, identified as configuration, behaviour and function. Whilst originally applied to machinery the application to body systems is not difficult in anatomy and physiology. However this reliance on prior knowledge has also been shown to be affected by representations being shown as a distortion of an actual real life size and shape. This may lead to incorrect attention being paid to less important aspects of a diagrammatic representation, or to the missing of relevant material due to poor diagrams in a text. It is concluded therefore that students may then choose from an aspect of using aesthetic preference rather than on the information contained in a diagram when prior knowledge is poor or deficient.

The choice of both Kintsch and Hegarty in the proposed framework is strengthened by the consideration that both rely on prior knowledge, an aspect which has been highlighted in chapters 2 and 3. This possession of prior knowledge is found to be important in comprehending a text both from the textual information and the diagrammatic representations. This process is not a simple mental one resulting in comprehension. It is concluded that the use of Kintsch and Hegarty present a process which is both complex and intertwined and so can lead to students making choices of

texts which are not based on cognition but rather more on a liking for a text's appearance, aesthetic preference.

The final component of the proposed framework is identified as that belonging to the work of Bloom, the taxonomy of educational objectives. It has been shown that this widely utilised and accepted framework represents a hierarchy of behaviours that indicate what has been learned from instruction. The choice of the taxonomy has been based on the fact that higher education in the UK utilises the terminology and represents an expected level of attainment in the courses students undertake. It is this which supports its use in the current study since learning outcomes used in courses, where students need texts, utilise terminology that reflects Bloom's, leading to the assumption that many students will select texts based on it. This is related to the fact that course assessments will need students to demonstrate attainment of learning outcomes.

It has been shown that the empirical evidence supporting Bloom's taxonomy has produced mixed conclusions with no strong outcome, many not being able to draw one common conclusion regarding its validity. However, whilst it has been concluded that no one taxonomy can cover all aspects of educational outcomes, no one study has shown that the taxonomy of Bloom is not valid neither has any shown that it is. Furthermore what has been shown to be in agreement is that the final two descriptors in the taxonomy have been shown by studies to be in the wrong sequence and that this has now been reflected in a revision of the taxonomy. It relates to the reversal of synthesis and evaluation, with synthesis taking the highest point in the taxonomy. Despite this what is concluded is that its popularity continues to influence education and that this strengthens its choice for use in the proposed framework supported by the presence of Blooms terminology in course learning outcomes.

The proposed framework that incorporates elements from Kintsch, Hegarty and Bloom has been presented and shows a process that is concluded when a student chooses a text to support their learning. Based on the literature and discussion presented both in this chapter and the preceding ones what has evolved is a view that there is a complexity to what is seen as a simple choice of text being made. The

framework draws together theories from comprehension and cognition, aesthetics and decision-making to show that a complex process is evident when students choose texts. It has been identified that external and internal influences are present and that these will affect the initial choices a student makes. The framework allows for those for whom comprehension is less forthcoming and allows selection of texts to be based superficially on their appearance and how pleasing they look. Finally the end result of this complex process is either a choice being made, or no choice should the options be so great that a student is unable to process information sufficiently to make a choice.

The framework assists in the planning and collection of the data in the current study, and also provides supporting scaffolding in the analysis and exploration of the data. Whilst the framework has been formulated on current evidence found in the literature, revision of the framework may also be appropriate as analysis takes place and findings emerge.

It is concluded that the merging and connection of different theories, highlighted in the framework, provides a novel approach to the process identification involved in students choosing texts to support their learning. The inclusion of the theoretical approaches seeks to strengthen the conclusion that the process is far from being simple but involves a shift to a more complex one which can highlight why students may have difficulties in deciding on their final texts for choice.

Methodology and Methods

5.1 Philosophical Considerations

This chapter provides a methodological underpinning for the study and a rationale for the methods and procedures adopted in addressing the questions posed in this study: "what are the textbooks that students read for learning about anatomy and physiology?" and "how and why do they choose one text or texts over another or others?" These questions stemmed from my wide personal and professional experience of using textbooks in the focus of human anatomy and physiology, both as a student and lecturer. An array of differing texts are available for students to choose in supporting learning in this subject area. The process of making such a choice provided the basis for the research questions in that the first aim would be to ascertain what texts were being chosen and how many students were choosing these texts. This quantitative approach would not be sufficient as there would also be a need to undertake an exploration of how students went through a personal decision-making process in deciding which text they wished to utilise and ultimately choose. Such an exploration regarding the subject of personal choice therefore require a qualitative approach. I therefore decided that there would be a need to combine both qualitative and quantitative methods for the study. The use of a mixed methods design required an exploration of the underlying ontological and epistemological approaches to decide whether a combining of qualitative and quantitative methods was feasible, and what if any limitations are imposed.

5.2 Ontological Considerations

Traditional approaches to academic research require that nature of reality, ontology, be explored and defined and as such this would lead to an epistemological approach that would identify the methods adopted for this study. The use of both quantitative and qualitative methods required me to consider both positivistic and interpretivist epistemologies. Moses and Knutsen (2007) point out that when considering the philosophy of science terms are utilised that can be confusing. They describe the first, ontology, as being the most abstract and link this to the study of being, the nature of reality and its building blocks. This reality can be viewed from two extreme perspectives, these being positivistic and interpretivistic. From a positivistic stand

point reality exists and is not dependent on our perception or interpretation of the real world (Plowright 2011). Plowright states simply that reality is objective and facts are universally applicable and it is this which underpins the adoption of a set of ideas and/or theoretical principles, a paradigm, which dictates viewing reality with an ontologically realist perspective. This perspective Plowright (2011) calls the scientific paradigm or, as Howe (1988) discussed it, positivism being based on observations which are free of personal value, interests and purposes. Positivism, therefore, views the world as having a single, objective reality that would exist despite the presence or absence of humankind. Indeed, the world had a prior existence before humankind even evolved (Plowright 2011).

It is suggested that knowledge is recognised as time and context free and at times, seen in the form of cause and effect laws. Positivistic approaches stem from a belief that observable facts and events that occur are not random or haphazard but have causes (Polit and Beck 2101). Regarding this study issues related to students choosing books would be reduced to a single generalisable fact, or conclusions from the study would be sufficient for providing a universal answer to the research question. There would be the need to discover facts that could be reduced and could be generalisable. This raises the question whether there is a single cause and effect when considering a choice related to that of textbooks? I rejected this view since the issues of personal choice were present and this did not link well with a cause and effect approach therefore another paradigm was explored - interpretivism.

In interpretivism, reality is what Plowright (2011) calls intransitive in that it is ever changing and is a product of "human agency". Humans construct their own realities with such realities being multiple mental constructions that are both socially and experientially based (Guba and Lincoln 1994). Guba and Lincoln (1994) describe such realities as local and specific and note that they are often shared but are also dependent on the individual for the form and content of such realities. When considering a student's reasons for choosing a text this would require an exploration of differing and multiple realities and the discovery of "facts" which are not generalisable. Biesta (2010) identifies the opposing ontologies as being a distinction between a mechanistic ontology (positivism) on the one hand and a social ontology (interpretivism) on the other. Thus where one approach may require the identification of cause and effect, the other would seek to discover the meaning of social and

individual actions. Such actions of students cannot be mechanistically reduced thereby leading to the assumption that the choice of textbooks, whilst superficially amenable to a mechanistic view, must surely have some personal and socially evolved meanings and influences as to why a specific choice is made. As identified previously (Chapter 3), the textbook is seen as an expository form of text, which is to inform and is subject-matter orientated. This is suggested as presenting a single reality, a set of universal facts which are generalisable and includes cause and effect approaches, especially true when considering the subject of anatomy and physiology. The choice of one text over another, however, must depend on personal, social and individual considerations involving multiple realities.

5.3 Epistemological Considerations

Whilst ontology occupies the most abstract of the philosophical considerations in looking at scientific knowledge (Moses and Knutsen 2007) the next is epistemology and as such, Moses and Knutsen (2007) state, this is a more straightforward term and relates to the study of knowledge with the central question being "what is knowledge?". In the positivistic approach it adopts a dualist and objectivist stance (Guba and Lincoln 1994) where the investigation views the researcher and subject to be separate and the researcher's values and biases are excluded. However this approach, called logical positivism, led to criticisms and so throughout the 20th century underwent a development in response to questions which were raised relating to the concepts of verification and induction. The first relates to the fact that despite how many observations could be made complete verification is, if ever, rarely possible and that researchers can never prove universal laws or theories with the use of inductive logic alone (Teddlie and Johnson 2009). Indeed this may allude to the fact that strictly speaking we are now currently in a post-positivistic period which developed during the 1950's and 1960's (Plowright 2011). Postpositivists are receptive to the stance that inquiry is value ladened (Tashakkori and Teddlie 1998). However, the postpositivistic paradigm differs from its predecessor in far more than the use of value-ladened approaches to enquiry, especially when considering the ontological, epistemological and methodological assumptions of enquiry (Guba 1990).

Ontologically, postpositivism has adopted a critical realism, as opposed to the naive realism seen in positivism. In the positivistic paradigm the existence of a reality is

driven by "immutable natural laws", critical realism has now replaced this (Guba and Lincoln 1994) by accepting that the frailty of the human senses means that reality can only be imperfectly understood requiring examination via the widest possible critical examination. Hence "critical realism" is needed, to gain an appreciation which will never be totally perfect but will be as close as possible to this (Guba and Lincoln 1994). Rather than attempting to find cause and effect, postpositivism seeks to identify correlational relationships, and considers the nature of knowledge as probabilistic (Parahoo 2006). No one can ever reach one truth but rather more, one attempts to capture, using multiple methods or examinations, as much of this reality that can be possible. This stance is adopted since no study of humans can be completely free of the researcher's influence (Begley 2008) leading to the suggestion that being truly objective is not possible, thereby weakening the case that the positivist stance is unshakeable. Postpositivism therefore has sought to present a modified dualism and with this there is an emphasis on deductive logic, influenced by hypotheses and theory. This is coupled with a belief that reality is constructed and that a researcher influences their studies with their own values and therefore with this rise of postpositivistic epistemology, developments of other paradigms were seen e.g. constructivism, interpretivism and naturalism (Onwuegbuzie 2002).

Finally, the methods of the two paradigms, positivism and postpositivism, differ in that whilst both adopt the experimental and manipulative stances, the postpositivistic introduces the approach that if the human senses cannot be relied on then the introduction of differing sources of data is required. Indeed, whilst postpositivists work in traditional methods, an important aspect adopted is that there is recognition that human values are an important part of social study (Teddlie and Tashakkori 2009). Research takes place in a social setting and is affected by the social and interpersonal conditions in which researchers study (Polgar and Thomas 2008). However, vestiges of positivism still exist and arguably is inherent in Creswell and Plano Clark's statement that postpositivism relies on determinism, reductionism, empiricism and verificationism (Creswell and Plano Clark 2011). This, however, should be viewed bearing in mind the suggestion by Racher and Robinson (2002) that most researchers have now rejected the premise that a single true reality exists and that the exclusivity of an objective versus a subjective reality no longer exists.

At the other extreme, interpretivism purports that knowledge comes entirely from the interaction of mind and environment with reality being constructed both individually and socially (Teddlie and Tashakkori 2009). This is also coupled with an inextricable link between the knower and the known and this differs from the post positivistic stance where the link between the two is not viewed as possible and so remains objective (Tashakkori and Teddlie 1998). The stance of the interpretivist is that a subjective position must be taken since it is forced on the researcher by the human condition and as such the way to understanding this is by exploring the constructions held by individuals (Guba 1990). Guba succinctly states that if realities exist only in respondents' minds then subjective interaction is the only way to access these. This therefore suggests that if subjective interaction is the only way, any method utilising a quantitative approach would likely fail to capture the essence of the individual's construction of their reality. This certainly would not lend itself to a universally applicable answer when considering a research question which seeks to explore this multitude of individual realities.

Moses and Knutsen (2007) identify that knowledge for the interpretivist is pluralistic in that such knowledge is carried by individuals yet it is anchored in collectives. Knowledge of this social world is seen as "knowledge-in-context" and in order to gain this there is a need to view it both as socially situated and having social consequences (Moses and Knutsen 2007). This highlights the fact that interpretivists study patterns which are socially constructed and seek to understand these patterns in the context they occur, that is in the social world. Indeed knowledge is less likely to be universally applicable since interpretivists hold the belief that any results from investigations are always context-related (Parahoo 2006). Knowledge is gained from focussing on subjective experience, perception and language and seeks to understand this so as to explain the behaviours observed. This leads to the adoption of methods of research which are different from those seen in a postpositivistic approach (Parahoo 2006). Interpretivists seek to understand socially constructed patterns in the world and utilise methods which allows knowledge to be gained from these patterns by observing them in the context in which they occur so as to allow a meaning or meanings being arrived at (Moses and Knutsen 2007). This is in direct opposition to the post positivistic stance where knowledge is time and context free.

5.4 Pragmatism

This study used a quantitative method for the first stage with qualitative approaches for subsequent stages. This clearly dictated the adoption of opposing ontological and epistemological stances which led to a consideration if such paradigms are reconcilable. A pluralistic approach was required and this prompted the use of pragmatism as providing the methodological underpinning for the study. Whilst discussing the writings of Rorty, Baert (2005) points out that debates about philosophical approaches are pointless if they do not have visible consequences. This implies that if there is a debate about which philosophical approach should be chosen, what difference will this make to the outcome of a study? If the outcome is affected then the debate must be worth it since the consequences are visible; if not, then the debate is pointless! It is suggested that further debates regarding this may be fruitless. However, the choice of pragmatism as a paradigm for this study, needs to be explored, and its assumptions considered, so as to provide a sound basis for its application in this study. I will not look to rejecting the epistemological stances of either positivistic or interpretivistic methodology but rather present a case for pragmatism. Pragmatism allows the ability to use methods from both the positivistic and interpretivist camps, so providing a basis to "honour" the principles of both paradigmatic approaches and identify the methodological basis for this study.

The pragmatist methodology is, as discussed by Onwuegbuzie (2002), consistent with the "compatibility thesis" as opposed to the "incompatibility thesis" explored by Howe (1988). Here Howe (1988) explored the extent as to how irreconcilable qualitative and quantitative research methods might be and concluded that far from being unable to coexist, both methods are indeed compatible. The reason for this may be found when considering Plowright's statement that the reality in the natural world is intransitive and not dependent on the human existence, it merely exists (Plowright 2011). The social world however, is transitive in that it is not permanent but ever changing and he goes on to suggest that the natural intransitive world constrains and contains the transitive social world. From this it can be suggested that there must be a relationship between both realities since if the existence of the social world is dependent on the natural world the link is surely evident as the realities exist together. The next reason for accepting Howe's assumption is that both postpositivist and interpretivist stances share some of the same beliefs, those of inquiry being value ladened, facts being theory ladened and the existence of constructed realities

(Tashakkori and Teddlie 1998). The beliefs are stated as being fundamental values shared between quantitative and qualitative researchers. The methods chosen in research do not belong to any individual paradigm though some, it is suggested, do have a traditional place i.e. the experimental design and postpositivism. So to conclude, if the ontologies are linked, with one needing the existence of the other, the values which underpin the each are shared and the methods are shared, the decision by Howe (1988) that there is in fact an existence of compatibility must be accepted.

Pragmatism adopts the position that there are both subjective and objective viewpoints, using both inductive and deductive approaches, rejecting the dichotomy and seeing scientific enquiry as existing on a continuum between positivism and interpretivism (Onwuegbuzie 2002). The adoption of pluralistic methods, allows a bridge to be made between these opposing ends of this continuum, allowing diversity in the methods employed especially when dealing with research into complex problems (Giddings 2006). The focus is on research design appropriate to answer a research question rather than a paradigmatic dichotomy. In viewing the research question of my study the complexity in the questions was quite clear and as such needed methods which could both quantify and illuminate why students chose certain texts over others. Giddings (2006) goes on to state that the combining of both qualitative and quantitative findings can allow more confidence to be found in what she terms the "truth value" of the outcomes of mixed methods research.

Pragmatism is seen as an important philosophy for mixed methods research and has had its origins traced back to the work of Dewey, Pierce and James (see Teddlie and Tashakkori, 2009). The rejection of the "incompatibility thesis" and the acceptance that research paradigms can remain separate, or be mixed in another paradigm, is the approach that a pragmatist would adopt (Johnson et al 2007). This approach therefore has been adopted for this study in that there had been a planned sequential use of methods which subscribe to the epistemological assumptions that would underpin these methods, these being both quantitative and qualitative. Another important aspect to consider is the study's research question since the adoption of pragmatism elevates its status. The research question in pragmatism is more important than the research methodology or world view adopted, and the worldview therefore hardly "enters the picture" (Tashakkori and Teddlie 1998 pp21). Indeed it is identified that a broad consensus exists in the field of mixed methods research that it

should be driven by the questions that the research seeks to answer, rather than identifying the philosophical assumptions underpinning the study (Johnson and Gray 2010).

The adoption of a pragmatic approach, in relation to the philosophical basis for the study, relies heavily on what Johnson and Onwuegbuzie (2004) as seeking to find the "middle ground" between the philosophical dualism, and as such rejects traditional dualism i.e. subjectivism versus objectivism. Pragmatism looks to accept more common sense approaches which are based on "what works best" in solving problems. Indeed the use of "middle road" approach would seem to allow the rejection that the study fits exclusively into either purist views of the quantitative or qualitative paradigms. The forced choice between positivism and interpretivism was rejected. Acceptance of the involvement of personal values to decide which methods were most appropriate to explore the research question is compatible with the pragmatic approach (Tashakkori and Teddlie 1998).

To conclude this discussion the approach that the study adopted, in answering the questions related to the choice of texts that students make, was underpinned by pragmatism. It appeared that this choice would not subscribe exclusively to viewing these phenomena in a single reality but rather in both single and multiple realities. Personal experience, based on value judgments, would dictate that a subjective approach was needed but then opposing this was a need to quantify certain aspects that would dictate a method drawn from the postpositivist camp. Clearly both subjective and objective stances needed to be adopted and herein lay the issue of reconciling the use of both methods in a single paradigm which on first viewing was not possible. Indeed the adoption of a postpositivistic method would certainly have lost the subjective reasons in choosing texts as these experiences would be reduced to mere quantifiable results leading to a single generalisable stance. This would result in a loss of rich subjective information underpinned by a multiple reality. Thus it was concluded that there could not be an abandonment of qualitative approaches. Equally, the rejection of the data gained by methods ground in the postpositivistic realm was also not seen as acceptable. Pragmatism therefore provided a bridge between these two opposing epistemologies and so allowed the study to adopt a pluralist stance, allowing the use of both quantitative and qualitative methods without breaking the underpinning philosophies of both approaches.

5.5 Design Overview

A mixed methods sequential exploratory design was chosen for the study since it was identified that both quantitative and qualitative data would be needed in exploring the reasons for choosing texts to support learning in anatomy and physiology. A survey was utilised for the first stage of the study, the results of which informed the development of the qualitative stages of the study therefore the design adopted was seen as utilising a QUAN-QUAL sequential approach with the data being mixed during data collection. In applying this design, based on Creswell and Plano Clark (2011) exploration of mixed methods, it adopted a qualitative priority, since the emphasis was on the qualitative data analysis results, with an "interactive level of interaction" where the strands of the design interacted directly with the methods being mixed before final interpretation has taken place by utilising sequential timing. In this study the quantitative stage comprised stage 1 occurred first with subsequent data collection and analysis of the qualitative stages, 2, 3, 4 and 5 following on sequentially.

The methods which will be discussed in the next section include:

- A survey of all students undertaking anatomy and physiology in 8 distinct student groups (stage 1)
- Follow up semi-structured interviews (stage 2)
- Semi structured interviews with: Lecturers (stage 3), authors (stage 4) and publishers (stage 5)

The study is exploratory and descriptive in nature since little is known with regards to the phenomena under investigation and as such seeks to primarily describe rather than identify causal relationships as seen with explanatory study designs (Nieswiadomy 2012).

5.6 Recruitment of Participants

The study was located in a large university in the east of England. The university has a history of providing health care education in a range of disciplines and academic awards.

Stage One

Initially all students were identified who were taking human anatomy and physiology either as a strand or as a module. Those students who were studying subjects with a focus on a specialism e.g. ophthalmology, microbiology, cardiology, were excluded since it was felt that these students would not be choosing generic human and anatomy textbooks for their studies, but rather would be viewing those which were more focussed on the subject area of the module/course being undertaken. The sample chosen was considered a non-probability one being both purposive and convenience in nature.

The first stage of the study recruited a total of 964 students who were studying at the university at the time of the data collection. The area of sampling error and bias were considered, however the large sample size addressed the issue of sampling error since larger samples results in lower errors (Bruce et al 2008). With regards to sampling bias, taking care in choosing the sample for the first stage is important as bias can be a direct consequence of the researcher's actions (Nieswiadomy 2012) and can lead to groups being under or overrepresented (Bruce et al 2008). To reduce the incidence of a sampling bias the use of an accurate database or list in selecting recruits (Proctor and Allan 2006) should be utilised and as such the university database of students was accessed to identify those which met the inclusion criteria and therefore reduced the risk of sampling bias. The reduction of sampling bias allows generalisations to be made to the population under scrutiny (Proctor and Allan 2006) and the use of very few exclusion criteria further reduced this risk.

The final sample included students who were studying pre-registration nursing, midwifery, operating department practice and also foundation degree students in secondary care, biomedical science degree students and clinical physiology degree

students and diagnostic radiography and mammography post graduate certificate level students. The majority of students were at level four (certificate) or five (diploma) in their courses at the time of the study with some, in the midwifery and nursing degree pathways, being at level six (degree). Students in Operating Department Practice and Foundation Degree finished their programmes of study at level five. Those in degree programmes for biomedical science specialised in subsequent years of their courses, years two and above, and therefore utilised specialised textbooks and so provides the rationale as to why no students in this group was included in stage one of the study. Students in the Clinical Physiology degree programme were also excluded in year three and above again due to a specialisation regarding their subject focus. The final breakdown of the sample is provided in Table 1.

Course	n
Pre-Registration Student Nurses Common Foundation Degree and Diploma Year 1	309
Pre-Registration Student Nurses Branch Degree and Diploma Year 2 & 3	306
Pre-Registration Student Midwives Degree Year 1 and 2	159
Pre-Registration Operating Department Practitioners Diploma Year 1 & 2	35
Foundation Degree Students Secondary Care Year 1 & 2	26
BSc Clinical Physiology Students Year 1 & 2	27
BSc Biomedical Science Students Year 1	57
Diagnostic Radiography and Certificate in Education Mammography Year 1 to 4	45
Total Number of Students	964

Table 1 Detailed Breakdown of Students in Stage 1

Stage Two

The sample for stage two relied on students volunteering for the qualitative stage of the study by placing their Student Identification Number (SID) on the survey questionnaire for stage 1. By including a SID, the student's university email addresses could be identified so providing a means of contact, should they indicate they wished to be included in the stage two of the study programme. Following discussion with the supervisory team, sample sizes for each speciality were decided upon and were randomly chosen from those whom had volunteered. Initially it was thought that data saturation would be gained with 9 to 10 respondents, however to avoid the risk of needing to undertake further interviews, should data saturation not be obtained with this number, this was increased to 15 students in total. Additionally this also reduced the risk of students having left the university, following completion of their courses, and so could be difficult to locate should further interview data be needed to gain data saturation. Of those chosen none from the biomedical or diagnostic radiography/mammography group were included since, despite repeated attempts to contact those who had volunteered, no student responded to communications sent via email. As such these groups is not represented in stage 2.

A sample size of n=15 students was finally gained for the stage two data collection and included one foundation degree student, two clinical physiology students, three operating department students, four midwifery students and five adult nursing students. This was seen to reflect the overall student population included in the first stage of the study and represented a convenience sample. The smaller sample sizes are acceptable in qualitative studies since more in depth information is required and larger samples may result in less detail emerging from any individual (Creswell and Plano Clark 2011). Based on experience from the supervisory team data saturation would be achievable with this amount.

Stage Three

In this stage lecturing staff were approached who taught anatomy and physiology. In all, three staff members volunteered, one of whom had since left the university. This staff member was actively recruited since it was felt that they could shed light on how a particular text had been introduced into one of the programmes of education utilised

in the study. This related to the pre-registration nursing programme. The two additional staff members included one who taught on the pre-registration nursing programme with the other staff member teaching on the biomedical degree programme. Due to the researcher delivering anatomy and physiology lectures to the midwifery, operating department practitioner and foundation degree programmes no other staff member could be identified to include in this stage of the study. Whilst a lecturer was identified who taught on the Clinical Physiology programme it was felt that including him would be inappropriate since the module delivered to these students was that which the researcher was managing and as such relied on a reading list which had been compiled by the researcher.

Stage Four

In this stage of data collection, authors of those textbooks identified as being popular in the first stage of the study (five in total) were directly approached since their texts had a generalist human anatomy and physiology focus. Authors of other generalist human anatomy and physiology textbooks were also sent invitations for inclusion in the study, with the final total number of authors being invited being eleven. Of those who were invited five responded and were included in this stage and therefore constitutes what was a non-probability purposive sample. This does represent a risk of bias (Proctor and Allan 2006) though was likely to be a minimal as selection of authors was based on the fact that they needed to have produced a general human anatomy and physiology textbook irrespective of the reputation of any author. It was also felt that by inviting a large number a higher response rate would be gained. A popular text identified in stage 1 was found to have a specialist focus of midwifery and as such these authors were excluded from being invited to be included in this stage of the study. The rationale for this being that the text was highly focussed on midwifery practice as opposed to general aspects of anatomy and physiology. The final sample included three US-based authors and two UK-based authors.

Stage Five

The final stage included participants who were considered to be instrumental in commissioning anatomy and physiology texts and included one publisher of one of the most commonly chosen textbooks. A total of five invitations were sent to

publishers but only two responses were gained for inclusion in this stage of the data collection.

5.7 Data Collection

Stage One

A questionnaire was designed for the first stage of the study with the initial draft being developed following a review of the literature, and discussion of the data required to answer the study's questions. Oppenheim (1992) points out that a substantial amount of time must be dedicated to the construction, revision and refinement of a questionnaire; the final instrument for the first stage data collection underwent eleven reviews before being deemed acceptable for use. As stated, firstly a draft questionnaire was devised based on the need for data which would assist in providing information surrounding the central research questions. These questions related to what texts were students choosing, what influences were seen as being instrumental in these choices, how texts were seen in relation to their utility, comprehensibility and ease of use.

Guidance was gained from the supervisory team; both being well versed in the area of questionnaire construction, with one also having experience of being a human anatomy and physiology textbook author. Feedback led to alterations in the first draft questionnaire in preparation to pilot it.

A small group of students, compromising of eleven members who were undertaking anatomy and physiology as part of their programme of study, next were presented with the questionnaire and were asked to comment on its content and ease of being able to complete the questions and provide feedback relating to clarity of instructions and understanding of the questions being asked. Students were also asked to comment on other areas they felt needed including in the final questionnaire. Following this feedback the questionnaire was refined further to address the comments made by the students and then was re-presented to two expert researchers with further feedback and refinements being made. Feedback also gained with regards to layout and design both from the small group of students and

expert researchers, since such aspects are important in questionnaire design especially when considering respondents give up what may be seen as valuable resources when considering time involved to complete it (Parahoo 2008). With regards to time it was found that students took ten to fifteen minutes to answer all the questions in the draft presented to them. The questionnaire that emerged following this process include a mixture of closed questions comprising of two way and multi-choice questions, checklists and ranking questions. There were also a number of open ended questions included in this draft.

Piloting the questionnaire is seen as an important aspect prior to gaining the final draft ready for the main the study (Oppenheim 1992 and Parahoo 2008) and so a test retest was undertaken utilising another group of students who were undertaking a programme of study in human anatomy and physiology. This group consisted of 24 students whom had not seen the questionnaire prior to this further piloting. This aspect of the study is important in determining the validity and reliability of the final data collection instrument. The questionnaire was administered and the completed forms collected. During this period further information was requested regarding the clarity of the questions asked and of any difficulties that were encountered. A period of two weeks elapsed before the questionnaire was once again administered to the group, this aspect is important since enough time must have passed in order that respondents have sufficiently forgotten the questions but not too much time has passed such that changes in views may have occurred that dictate the respondents will change their answers given on the questionnaire (Nieswiadomy 2012).

The responses from the two questionnaires were then entered into the computer program the Statistical Package for the Social Sciences (SPSS® Version 20.0). The SPSS® database had previously been prepared with the variables included in the questionnaire. The total amount of variables equalled ninety six for each of the data collection periods. Data was inputted, then analysed statistically for internal consistency utilising Alpha coefficients. This test produces a result ranging from 0 to 1.0 and relates to the internal consistency reliability and measures to what extent the two data results for each question are similar or related 0 being unrelated and 1.0 showing completely related to each other (Macnee and McCabe 2008). An alpha result of 0.7 or higher is considered as an acceptable reliability score (Nieswiadomy

2012). All questions with a lower score were withdrawn from the questionnaire since it was felt that these would yield answers which were implicit in other questions. Additionally the questionnaire responses in the pilot were analysed using Pearson's r for reliability viewing only those key questions around choice. Where there was inconsistency in answering all questions between the two then these questions were omitted from the Pearson analysis.

The questionnaires were not re-piloted following the removal of questions. The groups utilised in the test-retest pilot were excluded from the main study due to the fact that memory of the previous draft questionnaire would still be fresh in their memory. Also the time constraints in undertaking another test-retest procedure, and increasing of the time in proceeding to the main survey component of the study, were ever present considering that the development of the final questionnaire had taken eight months. Additionally only a small number of questions were seen as unreliable with some also presented with no variance and were therefore retained. The questionnaire with the Pearson r and alpha scores is presented in appendix 1 along with the final survey questionnaire in appendix 2.

Whilst reliability had been established the concept of validity had to be considered to determine the final questionnaire measured the concept intended to be measured (Macnee and McCabe 2008) or gathered the data needed to answer the research question (Nieswiadomy 2012). The validity of the data collection instrument can be considered in that they are termed face, content, criterion and construct validity (Murphy-Black 2006 and Parahoo 2006). Face and content validity refer only to the data collection instrument under consideration with criterion and construct validity referring the ability to measure the instrument against others which measure the same variable of interest, and how well it compares with these (Nieswiadomy 2012). The first two had been addressed in the study in that as described earlier the use of a student group to utilise and comment on the questions in the questionnaire and provide feedback as seen in the small group and larger test retest groups and so this would establish face validity (Moule and Goodman 2009). The involvement of expert researchers would establish content validity. Indeed the use of experts can be utilised to establish both face and content validity especially when considering that no other similar instrument was found to exist for comparison (Nieswiadomy 2012).

It is this lack of a previously developed data collection instrument which would make the establishing of criterion validity difficult since the responses of the questionnaire for this study and questions contained in it would need to identify any objective measures regarding the focus of each question and as such during the literature review for this study found no such objective measures. Establishing construct validity would require the use of the questionnaire in a multitude of settings and so led to the conclusion that to establish construct validity of a newly developed questionnaire, such as the one formulated for this study, would be difficult in the constraints of a PhD study (Parahoo 2006).

The final questionnaire presented to students required the identification of the most popular texts used and also those which students felt were necessary as additional texts to choose (questions 4, 13 and 14). Also included were questions related to course, academic level and type of course being undertaken to ascertain if associations existed regarding the texts chosen, course undertaken and student type (questions 1, 2, 3 and 27). Additionally, as indicated in the chapter 2 issues relating to comprehension and ease of reading a text formed the basis for those questions relating to these aspects (questions 7, 9, 10 and 24). How students choose their text is also explored in chapter 2 and provided support for the inclusion of questions related to regarding key text lists (question 8). Chapter 2 also explored issues regarding English as a second language and also aspects surrounding reading age and so required that the biographical data was needed when considering these aspects (questions 29, 30, and 31). The concepts of aesthetics, the way texts are presented by publishers considering internet links and adjuncts and the need to own a text, explored in chapter 3, and if these aspects influenced a student's choice warranted that these aspects were included in the questionnaire (questions 5, 6, 11, 18, 19. 22 and 23). Another aspect considered necessary to cover in the questionnaire connected to the use of the text related to comprehension of both textual and diagrammatic information as explored in chapter 4 (questions 7, 9, 10, 14 to 17, 24 and 25). Some questions gave an opportunity to provide a free text response if the available choices given did not include a match with that of the respondent. Finally whilst not explored in the background chapters some of the courses where the study took place required that students to complete a learning styles inventory and

so presented an opportunity to explore if this might be an additional influence (question 28).

The questionnaire was self-administered and was presented to each group by the researcher who outlined the details and the purpose of the study. It was felt that this would also provide an opportunity for any respondents to ask questions should the need arise. Initially the first five groups had the questionnaire, participant information sheet and self-addressed envelope distributed with instructions that all completed forms could be either placed in the university internal mail system or returned to the university student information centres, (I Centres) where they would be forwarded to the researcher. This exercise was undertaken when respondents were just about to start a class lecture. Response rates for the five groups proved disappointingly low at 15%; indeed, low response rate is well known for self-administered questionnaires (Oppenheim 1992, Parahoo 2006).

Recommendations for increasing response rates have been well documented (Bruce et al 2008, Parahoo 2008 and Murphy-Black 2006) and include strategies such as inclusion of self-addressed envelopes, questionnaires being handed out personally, explanation regarding the study objectives and relevance to the respondents all which were considered to have been addressed. However, as Parahoo (2006) points out that research involving health care professionals, albeit in this study, trainee health care professionals, may have "question fatigue" since they may also be involved in other research studies. It is suggested that this may also be highly relevant when considering the use of course evaluations questionnaires requiring resources from the student to complete at a time when there may also be demands of time for the preparation of course assessment work. Reminders are also seen as a method of increasing response rates and as such email reminders were sent out to students via programme administrators, who had access to each cohorts student email addresses, this reminder was sent after three to four weeks but still did not lead to an increase in the return of the completed questionnaire.

Considering the low response rate, despite reminder emails, it was decided to adopt the method of visiting classrooms and distributing the questionnaires to students and

then waiting for these to be completed and returned being mindful of ethical constraints. This is a technique that is seen as acceptable especially considering that such respondents are viewed as captive audiences (Parahoo 1996, Leedy and Ormrod 2005 and Macnee and McCabe 2008) and it leads to higher responses rates. Aware of the need to respect the rights students who did not wish to undertake the survey, it was made clear that respondents were welcome to complete and return the completed questionnaire via the previously identified method of either using the internal mail system or returning to the local university student information centre known as the I Centre. A further advantage of undertaking the data collection in this way also afforded respondents the benefit of being able to ask for clarification from the research should they have a query regarding any of the questions. Oppenheim (1992) highlights that this should be limited to explanation, but not interpretation, of the questions since this may introduce researcher bias. Further advantages include the benefit of the personal contact which further enhances response rates. This change in method of administering the survey questionnaire led to an increase in the response rate to 52%, a level considered acceptable since response rates over 50% is required to gain representativeness (Moule and Goodman 2009).

Stages Two to Five

Data collection in stages two to five utilised the semi-structured interview approach where subject areas for inclusion in the interview were derived from the initial analysis of the first stage survey data. Areas included in the interview related to the choice of text and how such texts were utilised, along with how well the texts fulfilled the need to have such a text were explored with students in stage two. Lecturers, in stage three, were invited to explore issues relating to text recommendations made to students and also areas surrounding what were seen as essential qualities needed for an anatomy and physiology textbooks. Authors (stage 4) were invited to explore issues relating to considerations when authoring textbooks and how these linked with needs of readers of such texts. During stage five interviews issues relating to the development and marketing of textbooks were explored with publishers. These full lists of subject areas for discussion are included in appendix 3.

The interviews were conducted on university premises for students and lecturers in stages 2 and 3, for stage 4 those authors who were geographically distant were

interviewed using Skype® and if not possible via telephone. Face to face interviews are seen as appropriate for semi structured and in-depth interviews (Sturges and Hanrahan 2004). Sturges and Hanrahan (2004) also indicate that the value of telephone interviews is that the time consuming quality of face to face interviewing is avoided since it minimizes imposition on research participants and also allows those who are distant from the study to be included in the data collection process. Whilst it is accepted that visual cues, as found in face to face interviews, are absent in telephone interviews, Sturges and Hanrahan (2004) in their comparative study looking at both types of interview techniques found , contrary to the literature, that no significant difference existed in the quality of the interviews or transcripts obtained. Only one interview was undertaken via the telephone.

Interviews were conducted utilising a conversational format with the ability for dialogue to take place which was not predetermined, using the guide as a trigger and as such is not seen as being as structured as where there is a standardised set of questions to ask (Jackson et al 2008). The decision to undertake such interviews was to allow exploration of a phenomenon of which little was known and also to allow the exploration of the social processes and relationships involved (Tod 2006) around the subject of textbook choice. The exploratory interview has the ability to discover new dimensions for study, the development of theory and hypotheses and allow the collection of a rich store of attitudinal and perceptual expressions (Oppenheim 1996). Such depth interviews therefore allowed the study to identify and develop theory around a subject area which had not been identified as being evident in the current literature.

Prior to the interviews respondents were requested to sign consent, if appropriate, and reminded of the need to record the conversation that was to take place. Each interview with students lasted between 15 and 61 minutes with an average being 33 minutes, between 27 to 50 minutes for the lecturers with an average of 40 minutes, between 42 to 64 minutes, average 50 minutes for authors, and finally the two publisher interviews lasting 51 and 59 minutes respectively. All interviews were recorded using an Olympus© Voice Recorder with the digital audio files being transferred to a personal computer for storage. Each file name was automatically assigned a prefix identifier by the recording device with further codes being added to

strengthen and ensure anonymity and also allow clear identification to the researcher to whom only the codes were known.

The student interviews included, along with the interview guide, an exploration of the answers that had been given in the returned questionnaire they had completed. Identification of individual respondents, as previously stated, relied on the students including their own SID numbers if they wished to be recalled for interview. This stance of being able to explore some of the responses made in questionnaire permit the researcher to allow the respondent to elaborate on the responses they made, to expand, clarify or illustrate their answers. Such an exploration not possible when relying on questionnaire responses alone, this being a disadvantage of the self-administered survey (Parahoo 2006). There was also an exploration of the student's views with regards to a selection of sample chapters from each of the five main texts identified as being most popular in the survey data analysis. Each chapter related to the presentation of the anatomical aspects of the heart and its physiological considerations and efforts were made to ensure that similarity was near as possible matched for each text (in the confines of being independent sources).

The student centred interviews all began with a simple request as to why they had chosen the text identified in their survey questionnaire and from these discussions were allowed to develop whilst ensuring the focus remained on the need to explore reasons for choice of text and associated issues. As each interview was conducted areas not initially identified for inclusion in the interview guide were included for the next interview thereby allowing the guide to develop as this stage of data collection progressed. Each student was also given the opportunity to include any areas which they felt had not been covered as each interview came to a close the purpose here is to allow expression of individual thought feelings and experiences (Tod 2006 and Moule and Goodman 2009).

Interviews for the subsequent stages of the study tended to follow the same strategy of using a general question related to the respondent, for example to lecturers. This related to how they chose textbooks for inclusion in their teaching or, for authors, how they started out writing a text for students. Publisher conversations were commenced

with questions as to how texts were chosen for publication and in each case again prompts for subjects to be included in the interview were followed so as to ensure that a thorough exploration took place and additional issues identified from previous interviews, which were felt relevant, were included. Interview guides were concluded to be developed as each interview took place and informed and directed subsequent interviews if relevant.

The conducting of interviews is a seen as a difficult task (Tod 2006) and requires interpersonal skills of a high order (Oppenheim 1992). These skills were seen as being novel to me and as such development of the skill in interviewing commenced with a practice interview with an experienced researcher. Reflection on the technique used and weaknesses identified were helpful in developing the approach that was required. Indeed practice is seen as being useful in developing the correct technique and allowing reflection of the experience (Tod 2006). Tod (2006) continues that mistakes are inevitable but identifying these and discussing ways to avoid such mistakes allows them to be avoided in future interviews. As each interview was conducted the digital recording was listened to and as such allowed me to develop my interviewing technique. One potential such poor technique is that of leading the respondent, which can be identified by listening to interview recordings. However, despite being prepared, the danger of introducing leading questioning is an issue even for the most experienced interviewer (Oppenheim 1992).

5.8 Data Analysis

Survey Analysis

Data from the survey stage of the study was entered into the Statistical Package for Social Sciences® (SPSS®) version 16. The program had been previously prepared, during the test-retest stage of the study, with the setting up of all the variables that had been identified in the questionnaire with data also being related to differing choices presented with multi-choice, ranking, and two way questions.

Questions that required a free text answer were reduced to quantifiable variables by using coding and thematic analysis. Each answer was recorded and these were

grouped under main headings and as these were developed they were assigned numerical values (see appendix 4). The coding of these responses were checked with an experienced researcher to assess the validity of the grouping codes that had been developed.

It is worth pointing out the value of viewing the data prior to any tests being carried out and undertake what Nieswiadomy (2012) calls "intraocular method" of data analysis or quite simply put as "eyeballing" the data. The adoption of this frequently pays dividends since the method can lead the researcher to detect errors in data inputting and analysis (Nieswiadomy 2012)

Initial analysis was centred on providing descriptive statistical analysis, measures to condense data (Nieswiadomy 2012) so as to produce frequencies and percentages with further analysis looking to determine if associations were present with the use of the Chi Square and Fisher's exact tests. The data were deemed as categorical on the nominal level and as such were amenable to the use of these tests. In order for the Chi Square test to be used, data should be categorical, frequencies are utilised, variables are unrelated and independent, and the sample does not have a particular distribution in that they are non-parametric (Puri 2002). All data met these conditions. The use of Fisher's exact test is seen not as a different test from Chi Square but rather a way of calculating the exact probability of the chi square statistic when samples are small since Chi Square gives an approximation and as such when samples are large this approximation is not deemed a problem (Field 2009). The use of the Chi Square test was undertaken to assess if there were associations between variables, but did not allow further inferences to be made. Associations included the type of book and course undertaken, type of student and book chosen, book choice influence on choice etc. In undertaking this analysis a probability threshold of 95% was chosen since this level is normally adopted in research (Polgar and Thomas, 2008 and Fowler et al 2002).

Text Analysis

It was considered that any texts highlighted as being popular amongst students would require some analytical considerations to identify if any issues or commonalities existed. Since no one tool existed for such an analysis it was decided to use the sample textbook chapters that had been used in the student interviews and to analyse it using readability scores available at www.readabilityformulas.com. To reduce the variables in the excerpts analysed, all texts had two areas identified which were common, this being the description of the heart and the pericardium, a membrane covering the heart itself; all but one covered this aspect. Identifying one area of text for inclusion allowed for the number of words analysed being relatively uniform in amount. The text identified earlier as not having a section covering the heart and pericardium, this being Anatomy and Physiology for Midwives by Coad and Dunstall (2005), included only a small section dedicated to the cardiovascular system as a whole. To ensure that the word amount used for analysis was comparable with the other texts, the whole section in this text on the cardiovascular system was utilised for analysis. Each text extract from all the selected texts was uploaded to the internet site identified above and analysed using a number of readability tests these being, the Flesch Reading Ease, the Gunning Fog, the Flesch-Kincaid Grade Level, the Coleman-Lau Index, the Automated Readability Index and the Linsear Write Formula. Additionally further analysis by the site also provided statistics related to the word usage in relation to average numbers per sentence, number of syllables etc. Finally the diagrammatic representations, in each extract, were examined visually for number of labels and detail points and to identify if accompanied by cadaveric photographs etc.

Interview Analyses

The interviews were all transcribed verbatim into Microsoft® Word 2007 and each transcript was made available to the respondent to which the interview belonged. This allowed the opportunity for any inaccuracies to be identified and additions to be made should the respondent wish. As such no corrections or additions were requested, indeed only two responses were made to requests from students for feedback with regards to transcripts. Respondents for subsequent interview data collection stages did not request copies of their transcripts despite this opportunity being made available and highlighted in the participant information sheet each respondent received.

Each transcript was read and the digital recording listened to prior to thematic analysis. Each transcript was then reread with what Saldaña (2013) terms as initial coding or first cycle coding being undertaken with interpreting and memo writing. All the transcripts were formatted with two columns being present, the first for the interpretive memo and the second for the code or theme which was seen as emerging. This interpretative memo was based on the listening to the recording and recalling of the interaction for each interview. Due to the small number of interviewees the recall of each interview was seen as being enhanced by the listening of the interview recording which allowed a narrative, in the form of these memos, to be more accurately developed. Whilst increasing the time required for each interview analysis, it was felt that such rereading and memo writing provided a thorough approach to the analysis of the transcripts.

Silverman (2011) reminds us that when undertaking qualitative data analysis this will depend on the use of theory-dependent concepts, and it can be guaranteed despite there being a tacit use of an unacknowledged theoretical position. Considering Silverman's statement, as data analysis was undertaken, the use of the conceptual framework, discussed and critiqued previously (chapter 4), from the adaptation of Blooms Taxonomy of Educational Objectives (Anderson et al 2001) and Kintsch's Theoretical Framework for Discourse Comprehension (Kintsch 1998)(chapter 3), was utilised as coding of the memo's and interpretations took place. Initially the framework did not impact on the memo writing but as the coding developed it appeared that components of the framework were appropriate to coding development and so were utilised. This was in relation to the levels of the taxonomy labelled "Knowledge", "Comprehension", "Application", "Evaluation" and "Synthesis". These terms now however have been revised and renamed, as discussed previously, in the text by Anderson et al (2001) in their rewriting of the handbook originally published in 1956 and critiqued earlier in this thesis. As analysis progressed additional codes were identified, not represented within the conceptual framework, which were seen as linking or relating similar interpretive memos together. Indeed Saldaña (2013) indicates that as initial coding is undertaken, the analysis may show the identification of a category or theme not previously noted and as such leads to the development of new codes.

Each interview was analysed first using initial coding, a first cycle method which followed the completion of memo writing for each transcript, each was again reread and codes developed from the memos this being second cycle coding or focussed coding (Saldaña 2013). As each memo was analysed a code was assigned, these codes were then analysed and clustered together, based on how related they were, leading to the formation of the subcategories or subthemes. A sample transcript along with the method of analysis is presented in appendix 5 with codings and theming identified in appendix 6. Further analyses, in a third cycle, were undertaken which allowed the development of the main themes which consisted of identification of the most salient relatedness of the subthemes leading to their categorisation into an appropriate main theme (see appendix 7 for generation of Sub Themes and Themes of all interviews). Sample transcripts along with memo and developed codes/themes were given to the supervisory team so as to ascertain the validity and quality of the analytical approach adopted and the generation of themes and codes being made. This form of quality checking is referred to as code confirming and is seen as an acceptable method to employ (King and Horrocks 2010).

It was decided not to use a computer-based program for this part of the analysis (e.g. NVivo) but rather use a highlighter form of analysis. As such transcripts sections were highlighted and then analysed in what King and Horrocks (2010) describe as descriptive and interpretive coding styles. It was felt that the use of this form of manual coding was appropriate considering that each interview only involved one respondent and as such was not as complex as when a group interview was taking place requiring the identification of numerous respondents where computer based analysis programs would have been appropriate. It was also felt that since I had little experience in the transcribing and analysis of interview data the style finally adopted allowed my skills in analysing such data to be developed.

5.9 Ethical Considerations

Johnson and Long (2006) outline that the main ethical issues that require attention in the conducting of research relate to the respecting of individuals, responding to the needs of those who are vulnerable and the gaining of consent and confidentiality. Plowright (2011) echoes this and adds the need to acknowledge the right of refusing to take part in research and the right to withdraw from research without a penalty

being exercised. The security and safety of individuals is also important during the research process. Finally Dimmond (2011) reminds us that any research should not be undertaken until ethical approval has been gained and that the responsibility of the principal researcher should ensure ethical conduct throughout the research process.

Ethical approval was sought from the Faculty Research Ethics Panel (FREP) on two separate occasions (see appendix 7 and 8). The first application concerned the undertaking of the survey component of the study and this was granted for a period of three years, with a subsequent application being submitted for stages 2 through to 5 and the obtaining of a further three year approval. Approval required the submission of the survey questionnaire and Participant Information Sheet (PIS) with amendments being made following scrutiny by the FREP in the Faculty where the study was conducted.

Anonymity/Confidentiality

In stage 1 the questionnaires included no data whereby each student could be individually identified from the questionnaire alone. Students were asked to include a SID if they wished to be included in the second stage data collection. The inclusion of the SID did not compromise anonymity since student details are protected by systems which require the use of a university assigned username and password. In considering the storage and access of personal information, as with all electronic data storage, the institution applies the principles outlined in the Data Protection Act of 1998 which dictates that amongst other considerations, all personal data should be protected from access by unauthorised persons (Dimmond 2011). It was considered that whilst access to student's details is commonly undertaken by authorised staff members in the university, all such staff members are contractually required to observe the obligations placed on the institution in respects of the requirements of the Data Protection Act. Professional and statutory regulatory body obligations, related to professional groups, provide further additional safeguards in relation to Codes of Conduct specific to each individual profession. These relate specifically to the Health and Care Professions Council (HCPC) and also the Nursing and Midwifery Council (NMC).

Whilst students were protected by the use of SID codes subjects from stages three to five were assigned codes which were automatically provided by the recording device used in the data collection employed in these subsequent stages. Additional codes were also added known only to the researcher were also added so providing a further protection with respects to respondents identities.

All data gained from respondents relating to both the survey and interviews were stored electronically on a laptop personal computer which was only accessible via a username and password and additionally no individual names or personal details, which would allow identification, were included in the stored data other than the aforementioned SID codes.

Data related to the research stages two to five transcripts were readily available for respondents to request their access to determine accuracy and also provide an opportunity to either request amendments or withdrawal of the transcript from the study prior to analysis or completion of the study.

Non-electronic data sources in the form of the questionnaires and consent forms were stored in a locked cupboard, only accessible by myself, on University property. Access to the area where the cupboard was situated required the use of identity swipe cards possessed only by authorised university staff members. Knowledge of the storage of this data was also only known to myself and no other.

Consent

Dimmond (2011) points out that consent to participate in a study should be preceded with sufficient relevant information regarding the study. During the first stage data collection all respondents were given information of the study both verbally and also in the form of a PIS (see Appendix 9) as was the requirement of the university and FREP approval. Such information should be clear and easily understood (Johnson and Long 2006) and as such it was considered that, following approval of this

documentation at the FREP approval event, information in the PIS met the requirements as outlined by Johnson and Long (2006). Respondents were given the opportunity to ask questions with regards to any queries they had that related to the study and survey, indeed this is considered important before any attempt is made to gain consent in written or any other form of consent (Moule and Goodman 2009). Completion of the survey form was voluntary and return of the completed form was seen as implied consent; Moule and Goodman (2009) point out that there are a few exceptions where implied consent is acceptable a survey design being one of these. However they also point out that some ethics panels do demand the need for a written consent form in a questionnaire-focussed study; this was not a condition of approval for this study. It was considered that such consent was informed and should further information be required all respondents were provided with the details of the researcher in relation to how to gain contact if there should be a need to do so.

With regards to the involvement of vulnerable adults all students undertaking programmes for inclusion in the study were over the age of majority, this being eighteen years of age in the UK. The basic legal principle is that consent should be freely given by an adult (Dimmond 2011). This was also considered when viewing the undertaking of the interviews in the study stage two with respondents being students. All of these interviews were conducted on university property with respondents given the choice to be accompanied either by a friend relative of university staff member if they should so wish. Respondents in the third stage were known to me and again were conducted on University premises again given the option to be accompanied if this was required. Stage four interviews were all conducted over the internet or via telephone with the respondents being able to dictate time and venue with stage five interviews taking place at the respondent's place of employment.

The subsequent stages of the study relied on respondents again being provided with a Participant Information Sheet and a consent form (see Appendix 10 and 11). Two consent forms were signed allowing for one to be retained by the respondent. International respondents (book authors), where signing a consent form was inappropriate or difficult, relied on email records where formal consent was explicit in the message content and as such both paper and electronic copies were stored. The consent form followed the format prescribed by the University and also underwent scrutiny by the FREP process.

The Participant Information Sheet (PIS), and also included in the consent form, informed all respondents of their right to withdraw from the study at any time should they wish to retract their consent. This is an important aspect since the right to withdraw at any point during the study is of paramount importance (Plowright 2011). Such withdrawal was also applicable to any recorded and transcribed data relating to the interviews undertaken where on request respondents would have the right to demand either destruction or return and deletion of such data if they wished. All respondents were informed that following completion of the study all data stored either electronically or as a print copy would be destroyed.

<div align="center">**Chapter 6**</div>

<div align="center">**Findings**</div>

6.1 Introduction

This chapter presents the findings of the analysis of the data gained from the fieldwork in the five stages of the study.

The quantitative data were analysed with SPSS® version 20 using descriptive statistics with frequencies being identified in the first instance. Following this the data was explored to see if any associations existed using Fisher's Exact Test since rules for using Pearson's Chi Square Test were violated and so would not produce a valid result. It is the findings of these explorations of the data that are presented first in this chapter. It should be noted that in this study quantitative and qualitative findings are not mixed but rather those from the quantitative stage were utilised to inform and direct the student in-depth interviews. The quantitative analysis therefore had been undertaken prior to the in-depth interview stages taking place.

The analysis of the transcribed interviews produced a number of emergent themes which will be presented with each main theme having a number of sub-themes. These are presented with examples of the transcripts and in order to protect the identity of each respondent each will have an abbreviated descriptor as follows: Operating Department Practitioner (OP), Adult Nursing Student (AN), Associate Practitioner (AP), Clinical Physiology Student (CP), Midwifery Student (MW), Lecturer (Lec), Author (Auth), Publisher (Pub) and Researcher (Res). Following each descriptor a number was assigned to identify each different interviewee amongst each group.

6.2 Statistical Findings

6.2.1 Frequency Analyses Findings

During the first stage of the study, all students undertaking a defined biological sciences component of their course were surveyed (N=964) with a response rate of 52% (n=503) and initial descriptive analysis was undertaken and provided the following findings.

Demographic Profile

The majority of the students were found to be in pre-registration nursing accounting for 47.7% (n= 240) of the total responses gained. However, all other programmes only undertook anatomy and physiology in the first year of study whilst nursing had an anatomy and physiology input throughout their course and so more than one cohort, from years one to three were included in the survey and would account for the higher number of respondents in this course type. The overall spread of the student type in presented in Figure 3.
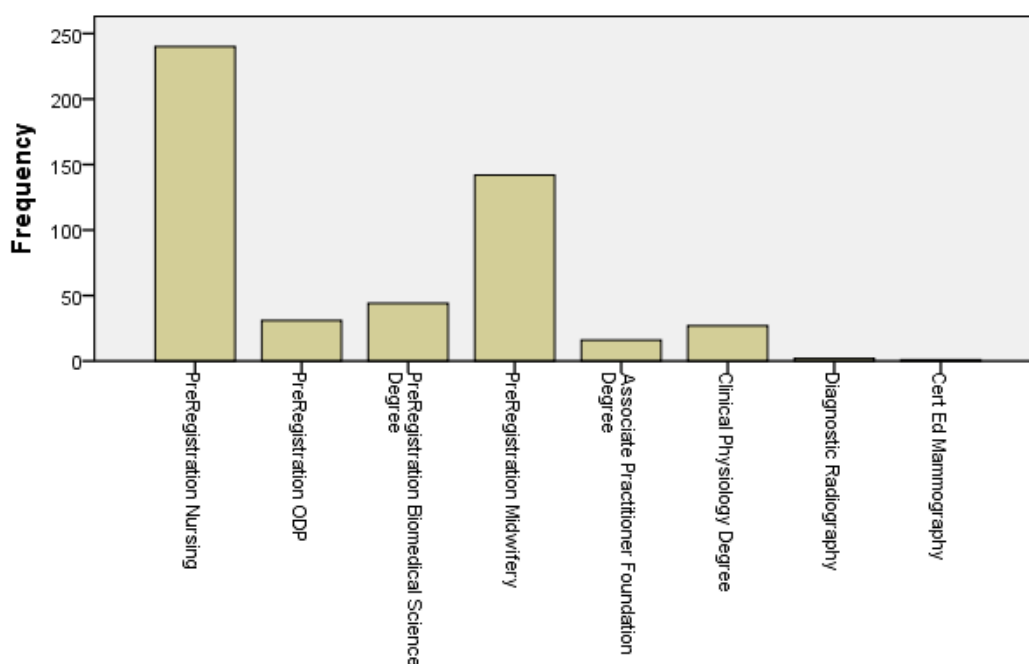
Figure 3 Student Type by Course Undertaken

The academic level and point at which the respondents were in their courses are presented in Table 2 with the majority being seen in the first year Diploma and Degree levels, 29.2% (n=147) and 33.2% (n=167) respectively though Diploma level year two also has 19.9% (n=100). This can be seen as being expected since it was found that of those students who had a module focussing on the biological sciences undertook this in their first year of study. The high level of those studying at diploma level had anatomy and physiology as a strand and as such had this focus in both years one

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and two, additionally this group also made up the highest number of student type by course being undertaken.

		n	Valid Percent
Valid	Year 1 Diploma	147	29.2
	Year 2 Diploma	100	19.9
	Year 3 Diploma	7	1.4
	Year 1 Degree	167	33.2
	Year 2 Degree	48	9.5
	Year 3 Degree	18	3.6
	Year 1 Certificate	1	.2
	Year 4 Degree	1	.2
	Year 4 Diploma	14	2.8
	Total	503	100.0

Table 2 Academic Level and Point in Course

The type of student by mode of study showed that 85% (n=426) of the respondents were undertaking their programmes via a full time route with the remainder being either by a part time or distance learning route (see Table 3). Two respondents provided no response.

		n	Valid Percent
Valid	Full Time	426	85.0
	Part Time	72	14.4
	Distance/Open Learning	3	.6
	Total	501	100
Missing	System	2	
Total		503	

Table 3 Type of Student by Mode of Study

Further data analysis results showed that the ethnic background of the respondents, as seen in Figure 4, had a high level of white respondents accounting for 78.8% (n=394) of the total number of respondents.

Analysis of the language of students identified that 84% (n=421) considered English as their first language. Two respondents provided no response this question.

The age range of the respondents showed a large number in the 18- 24yrs range (see Table 4) and accounted for 43.9% (n=220) of the total respondents. This may not be unsurprising as many students commenced their programmes of study upon completion of their secondary education, commencing their courses at the age of 18yrs.

Age Range		n	Valid Percent
Valid	18-24	220	43.9
	25-34	134	26.7
	35-44	112	22.4
	45-54	33	6.6
	55 and over	2	.4
	Total	501	100
Missing	System	2	
Total		503	

Table 4 Age Ranges for Respondents
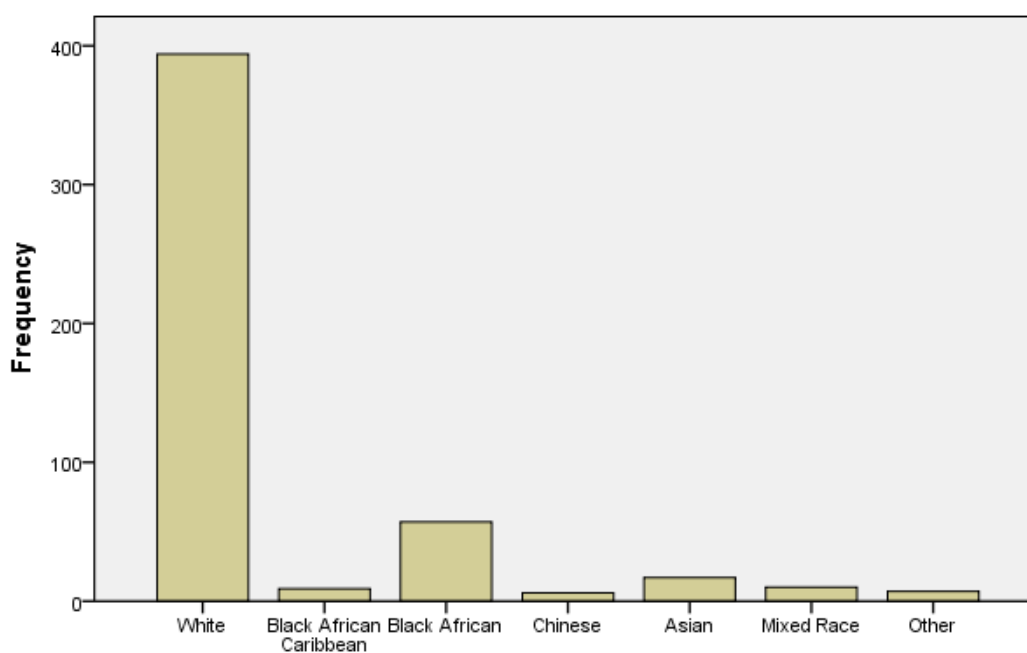
Figure 4 Ethnic Origin

Of the respondents it was found that 50.3% (n=253) were studying the biological sciences as a dedicated module with the remainder (49.7% n=250) having the subjects as an integrated strand in their courses. The respondents in the nursing and diagnostic radiography courses were identified as the only courses having the

biological sciences as a strand rather than a defined module over the period of their courses.

Finally the gender of the respondents showed that 85.5% (n=430) were female, 13.9% (n=70) male with 3 respondents providing no response to this question.

To summarise the majority of respondents were found to be female, in the age range of 18 to 24 years, white and English speaking undertaking mainly nursing pre-registration courses on a full time route.

The next set of findings related to those questions in the survey which explored the student's choice and use of texts to support their learning in the biological sciences.

Choice and Use of Texts

The choice of text is displayed in Figure 5. It should be noted that due to a number of respondents choosing less popular texts it was decided to reduce those choices with a 5% level or less and amalgamate these into an "other" category.
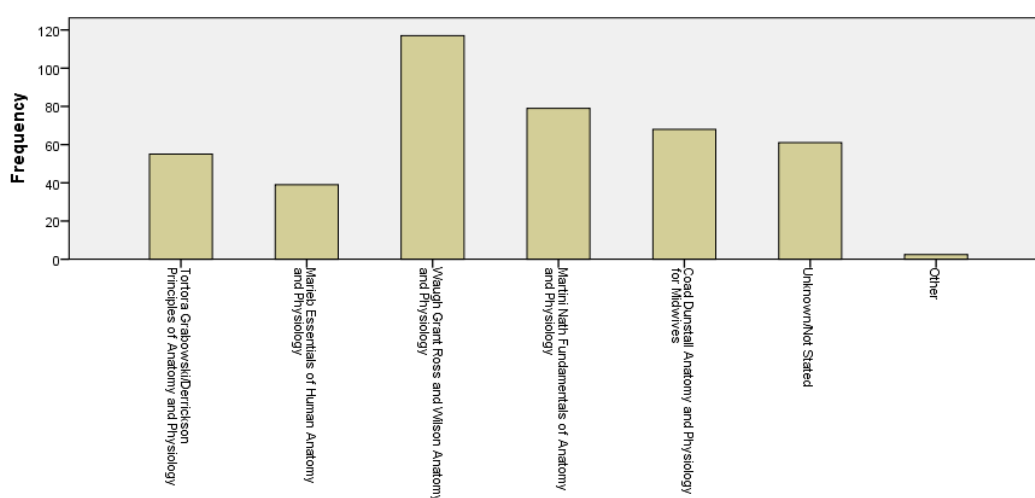
Figure 5 Main Text Chosen to Support Learning

As can be seen there was identification of five main texts with one text being highlighted this being the Ross and Wilson Anatomy and Physiology in Health and Illness (Waugh and Grant 2006). This text is generally considered to be a diploma-level textbook.

The frequencies of responses regarding the choices that were made resulted in the following findings, firstly it was found that 73.5% (n=367) had purchased their text, with 15.6% (n=78) borrowing their text from the University library, this being presented in Table 5.

		n	Valid Percent
Valid	Purchased Book	367	73.5
	Loaned from University Library	78	15.6
	Loaned from Public Library	15	3.0
	Loaned from Workplace	6	1.2
	Loaned from Friend/Colleague	31	6.2
	Other source	2	.4
	Total	499	100
Missing	System	4	
Total		503	

Table 5 Source from Which Main Text was Gained

Of those who responded to the question regarding the type of binding their text possessed it was found that the majority, 72% (n=278) of the respondents had a soft-backed version this may be the result of a lower cost of such texts and these findings are displayed in Table 6 below. Additionally in this question students were offered an option to state if they purchased a second-hand textbook where the choice of cover was considered not being a priority but rather one of obtaining a textbook at a lower cost.

		n	Valid Percent
Valid	Hard backed	78	20.2
	Soft back edition	278	72.0
	Second hand purchase	30	7.8
	Total	386	100
Missing	System	117	
Total		503	

Table 6 Cover Possessed by Main Text

The respondents were asked to identify their reasons for choosing the main text and all identified more than one reason. The majority who responded identified a

recommendation as being the driver for the choice made. The finding are shown in Table 7.

Reason for Choice	n	Percent (not Cumulative)
Recommended	429	85.3
Easy to Understand	349	69.4
Large Amount of Diagrams and Pictures	272	54.1
Appropriateness of Book title to Course/Module undertaken	218	43.3
Familiarity of Author(s)	70	13.9
Availability of Book	94	18.7
Familiarity of Title of Book	47	9.3

Table 7 Reasons Identified as Influence Choice of Text Made

Respondents were also given the opportunity to provide other reasons, which were grouped and coded. It was noted that recommendation was further identified as a secondary driver to choosing a text. These findings are presented in Figure 6 below.
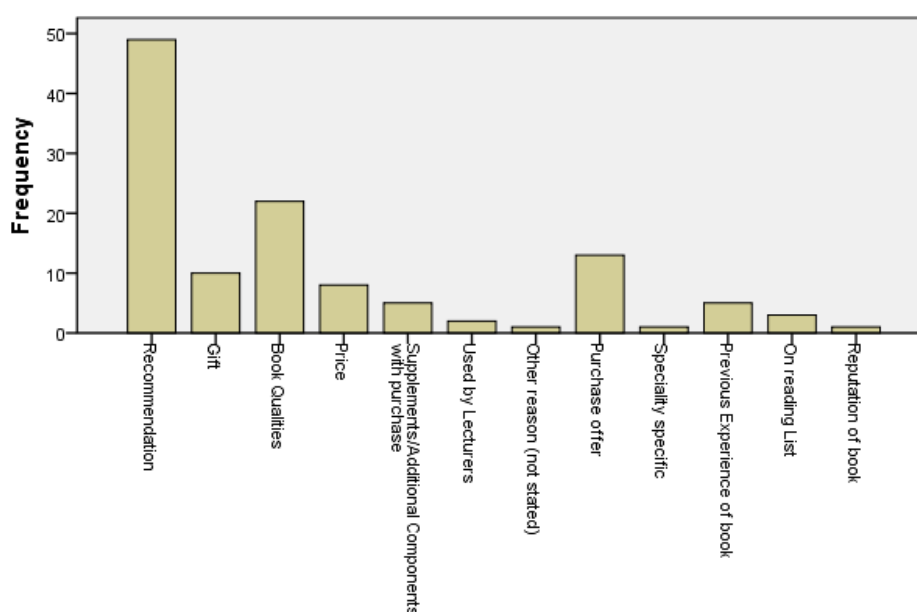
Figure 6 Other Reasons for Text Choice

The ease of understanding also featured highly in responses displayed in Figure 7. It can be seen additionally the content of the text with regards to diagrams and pictures

along with appropriateness of title of text to the course being undertaken are also considered important aspects in deciding on choosing a text. A coding of free text comments led to recommendation once again being identified but not as highly as previously found.
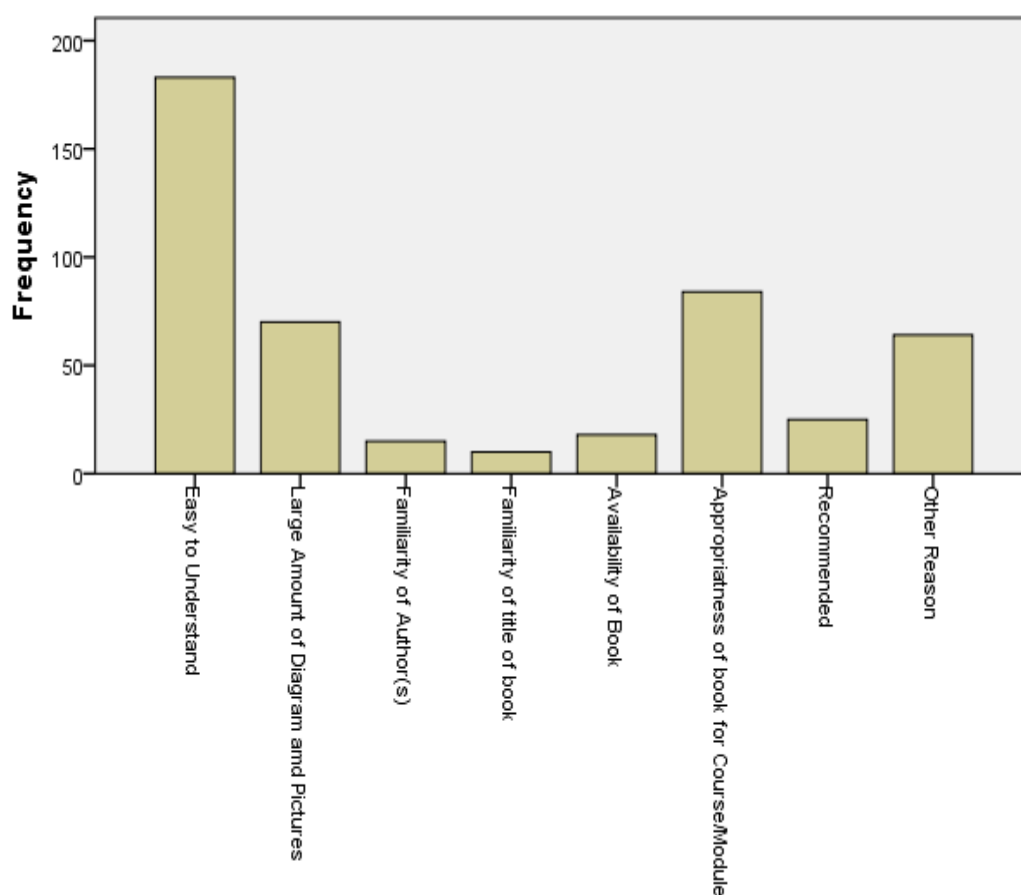
Figure 7 Main Reason for Text Choice

Since "recommendation" was seen as significant in the analysis this was further explored identify who had made the recommendation. It should be noted that the respondents may have answered with more than one recommended source see Table 8. However the course/module leader was seen as being the most significant source.

Who recommended text	n	Percent (Not Cumulative)
Course/Module Lecturer	318	63.2
Friend or Colleague	170	33.8
Taken from Module Reading List	108	21.5
Personal Tutor	70	13.9
Student from another year/course	67	13.3
Internet Source	26	5.2
Publisher Representative	11	2.2
Librarian	9	1.8

Table 8 All identified Sources From Which Recommendation Gained

Respondents also had an option of identifying other sources of recommendation and these were grouped and coded and are shown in Figure 8 but only represent a small number of respondents who actually answered this option.
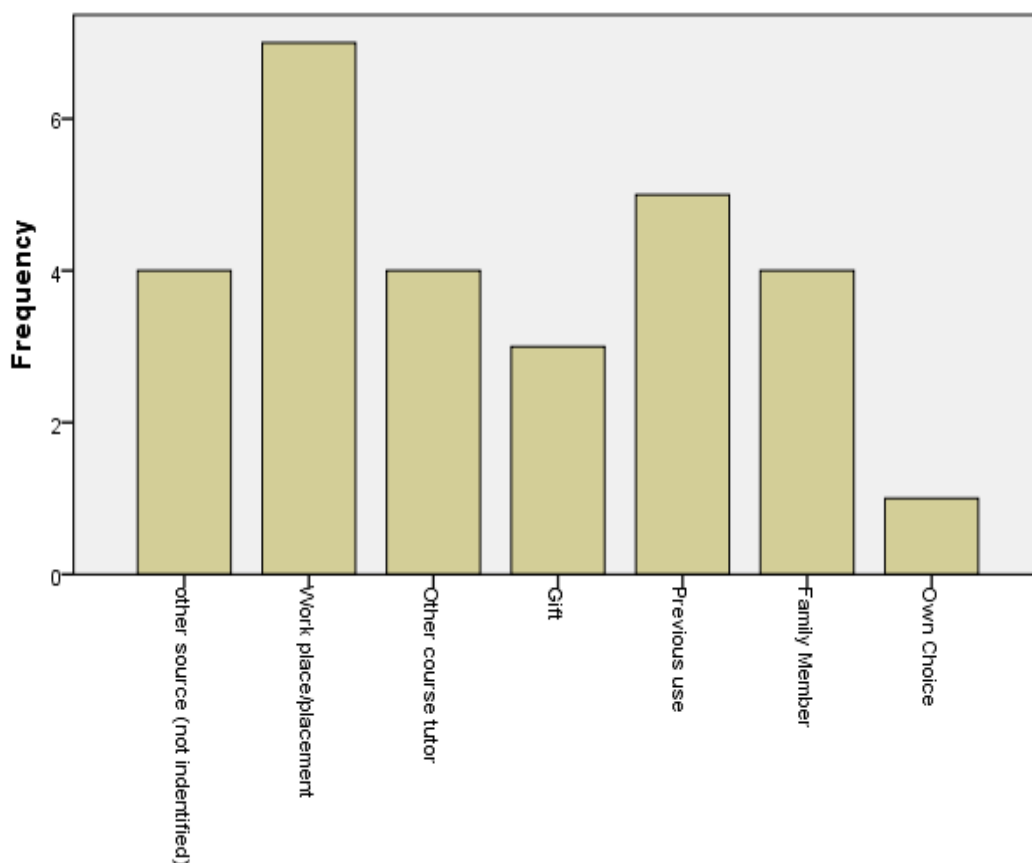
Figure 8 Other Sources of Recommendation

The respondents felt that overall the text they had obtained had been helpful to their studies of the biological sciences. This was 95.6% (n=481) of the overall cohort. Respondents were also asked what the most helpful aspect of the chosen text was and this was identified as the text being "easy to understand" (57.9% n=231) see Table 9)

		n	Valid Percent
Valid	Easy to Understand	231	57.9
	Layout easy to Follow	70	17.5
	Ease at which information could be applied to my situation	55	13.8
	Ease at answering my questions	35	8.8
	Other Reason	8	2.0
	Total	399	100
Missing	System	104	
Total		503	

Table 9 Most Important Helpful Aspect of Chosen Text

Respondents were also asked if the front cover design had been a consideration in the choice process and it was found that the majority of respondents (72.2% n=361) had not considered this as an influence. In exploring if an alternative text had been purchased or loaned before the main text was chosen 69.4% (n=347) of the respondents had not had prior exposure to any other texts and of those who had (30.6% n=153) identified that other texts had been utilised prior to gaining the main text choice.

The respondents who identified having accessed a text prior to choosing another main text to the reason why an alternative choice was made was that a more basic text was required (24.3% n=28) other reasons were that a more advanced level was needed, a more relevant text to the course was required or that a recommendation was made to gain an alternative text (see Figure 9).
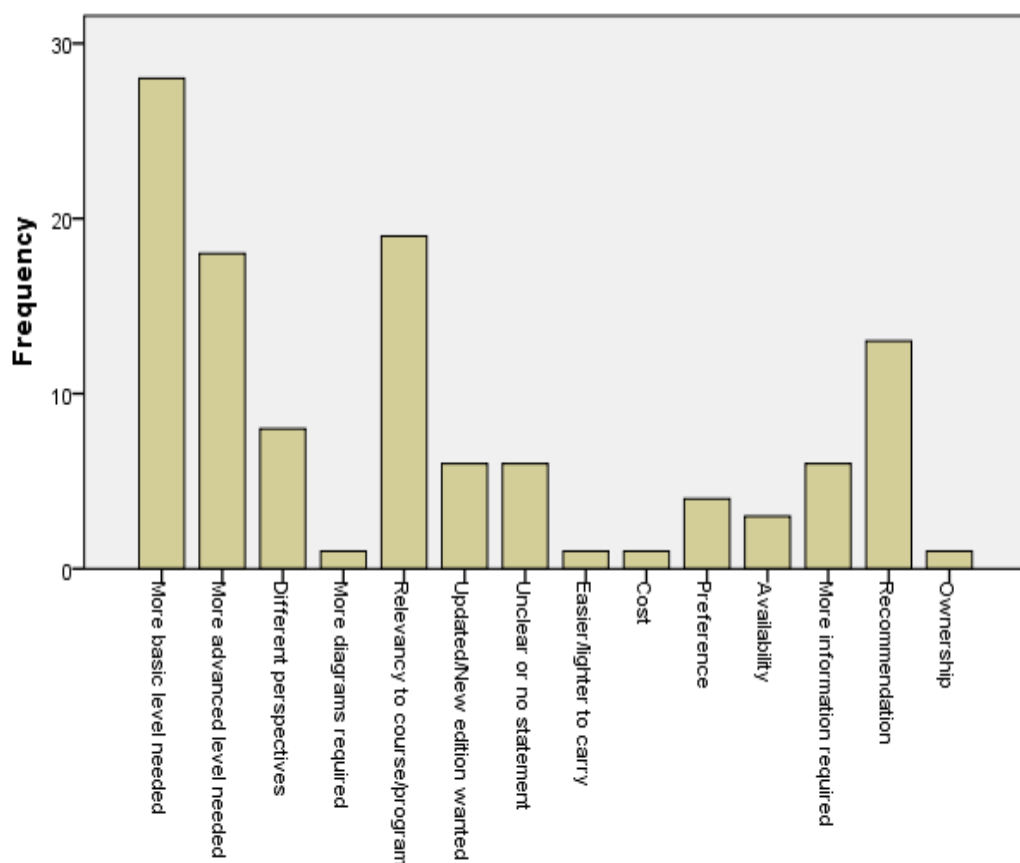
Figure 9 Reasons for Alternative Text Choice

Respondents were also asked if more than one text had been required for their courses and of those who responded it was found that 76.2% (n=380) had more than one text with regards to the biological sciences. The main rationale for having more than one text, once grouped and coded, were found to be a requirement for additional information (38.5% n=116) and to increase or to assist understanding of the main text (30.9% n=93) (see Figure 10).
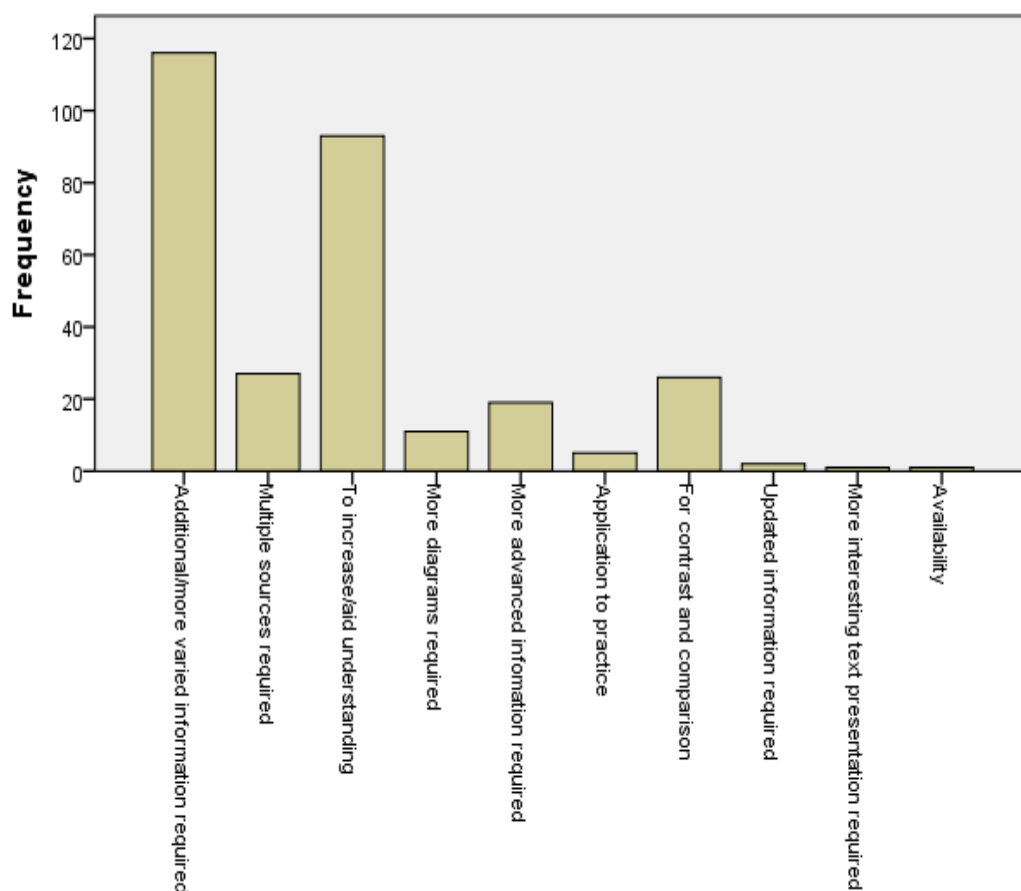
Figure 10 Reasons for requiring more than One Text

It was also explored as to whether the chosen text was at a level appropriate for the course being undertaken with 89.4% (n=448) being positive about the appropriateness of their choice. This agreed with respondents (70.9% n=355) stating that the chosen text was at the right level for them regarding understanding the language used in the textbook chosen (see Table 10). This is interesting since when viewing fig 9 and 10 students had indicated that an additional text was required either at a more basic level or to increase understanding of the main text. This contradicts the high percentage who stated the main text was appropriate or easy to understand as in Table 10.

		n	Valid Percent
Valid	Very Difficult for me	14	2.8
	Difficult for me	82	16.4
	Just at the right level for me	355	70.9
	Easy for me	45	9.0
	Too Easy for me	4	.8
	Undecided	1	.2
	Total	501	100
Missing	System	2	
Total		503	

Table 10 Difficulty in Using Chosen Text

Respondents were also asked to identify which aspects of the chosen text liked the most and respondents chose the diagrams and pictures (72.8% n=56), language being easy to understand (67% n=337) and the layout of the text (48.1% n=242). Other responses grouped and coded only related to 23 respondents of the total cohort and raised no remarkable findings for inclusion in this section. The most important liked aspect of the text, for those that responded to this question (n=399), did however highlight that the language of the text being easy to understand (57.9% n=231) as being the most popular response (see Table 11).

		n	Valid Percent
Valid	Easy to Understand	231	57.9
	Layout easy to Follow	70	17.5
	Ease at which information could be applied to my situation	55	13.8
	Ease at answering my questions	35	8.8
	Other Reason	8	2.0
	Total	399	100.0
Missing	System	104	
Total		503	

Table 11 Most important liked aspect of chosen text

Respondents were asked to choose the most disliked qualities of their chosen text and the majority (74% n=375) of those who responded felt there was no quality they disliked. Others (9.3% n=47) identified diagrams and pictures and text language (9.1% n=46) as not being favourable. Some respondents had identified other aspects (11.9% n=60) as being undesirable and this area highlighted the text being too advanced or conversely the text being too basic (see Table 12).

		n	Valid Percent
Valid	Not enough diagrams	2	3.3
	Other quality (not listed)	4	6.7
	Pressure to buy book	1	1.7
	Confusing	4	6.7
	Too advanced	17	28.3
	Too basic	11	18.3
	Book too large	4	6.7
	Relevancy	9	15.0
	Insufficient information	4	6.7
	Text	3	5.0
	American Spelling/Grammar	1	1.7
	Total	60	100.0
Missing	System	443	
Total		503	

Table 12 Disliked Aspects of chosen Text

Respondents were asked if the text they chose had an internet link and to what extent they accessed this adjunct. Of those that responded 42.8% (n=212) did have an internet link with 58% (n=123) of these finding the link useful in using the text. A number however did not use the links (39.2% n=83) and those that did access it (43.7% n=55) did so one to two times a week though with a similar amount accessing the site less than this. Further questions were asked in relation to how these links assisted learning. Of those who responded a number found that the links provided access to information not included in the text (14.9% n=75) and also gave them access to animated presentations (14.5% n=73). Other respondents provided a small number of other reasons but only related to small number students and provided unremarkable results for this component of the questionnaire.

Further results indicated that if a text provided internet links, or was supplied with DVDs or CDROMs, they did not greatly influence purchase of the text. Of those who responded (96.2% n=484) it was found that the majority (80.2% n=388) did not think that provision of these adjuncts were influential in persuading the student to purchase the text.

One final question analysed related to what qualities students felt were required in anatomy and physiology texts and these findings are shown in Table 13. However a small number (4.6% n= 23) provided other reasons and these are presented separately in Table 14.

Qualities a book should possess	n	Percent (Not Cumulative)
Language Easy to Understand	480	95.4
Diagrams which aid Understanding	458	91.1
Ability to Apply to own Situation	271	53.9

Table 13 Qualities that Students felt a Text Should Possess

		n	Valid Percent
Valid	Another quality not listed/stated	3	13.0
	Clarity of meaning	4	17.4
	Adjuncts to assist learning	4	17.4
	Interlinking of book sections	3	13.0
	At right level for study/course	5	21.7
	Relevancy	2	8.7
	Case Studies	1	4.3
	Increases knowledge	1	4.3
	Total	23	100.0
Missing	System	480	
Total		503	

Table 14 Other Qualities Texts Should Possess

Students were asked to state which was the most important quality. Of those who responded (n=461), 66.6% (n=307) felt that having easily understood language was the most important with diagrams which aiding understand being the second most important (23.4% n=108).

Finally students were also asked to identify if they had undertaken any learning style tests and it was found that of those who responded (61.4% n=309) the majority had utilised the VARK (Visual Aural Read/Write Kinesthetic) test (62.5% n=193), developed by Neil Fleming (see Fleming 2006). It was thought that such data could be used in determining if an association existed in the data linking learning styles to texts chosen. These findings are detailed later in this chapter. Frequency analysis resulted in the findings shown in Table 15 below. It should be noted that the pre-

registration nursing programme exclusively utilised the VARK in the early stages of their programme when the data collection took place. Due to the higher proportion of participant numbers in this student group then this accounts for the high amount undertaking this learning style test.

		n	Valid Percent
Valid	Honey and Mumford	63	20.4
	VAK or VARK	193	62.5
	Cannot remember	9	2.9
	Not Stated	35	11.3
	Felder and Soloman	9	2.9
	Total	309	100.0
Missing	System	194	
Total		503	

Table 15 Learning Test Undertaken

6.2.2 Associations

The next stage of quantitative analysis sought to explore if there were any statistical associations present in the data, using Fisher's exact test to compute the exact probability of the Chi-Square value.

As presented previously, five texts had been identified as being chosen by students (see Figure 5) and so the data was explored to see if an association existed with regards to the course undertaken and the text chosen. The test showed that there was a statistically significant association between the course undertaken and the main text chosen with $p<0.000$. On viewing the frequency data, pre-registration nursing students chose two texts in large numbers, these being those by Martini and Nath (2009) and Waugh and Grant (2006). Pre-registration midwifery students not only chose the Waugh and Grant (2006) text but also that by Coad and Dunstall (2005). The foundation degree students only selected the Waugh and Grant (2006) text with pre-registration operating department practitioner students choosing not only this text but, nearly equal to this, also that by Marieb (2009). Pre-registration biomedical science degree, diagnostic radiography and mammography students chose the text by Tortora and Derrickson (2009) with Clinical Physiology degree students choosing the Marieb (2009) text. These frequency data are presented in Table 16.

The next area that was explored looked at the academic level of the student and the main text of choice. It was found that there was a highly significant association between these two variables with $p<0.000$. However these results need to be viewed with caution since only those courses which had general human anatomy and physiology was included in the survey. This meant therefore that the majority of the respondents would have been in their first year of study since only Pre- Registration Nursing undertook study in this area beyond year 1.

Main Text	What Course								
	Pre-Registration Nursing	Pre-Registration ODP	Pre-Registration Biomedical Science Degree	Pre-Registration Midwifery	Associate Practitioner Foundation Degree	Clinical Physiology Degree	Diagnostic Radiography	Cert Ed Mammography	Total
Tortora & Derrickson Principles of Anatomy and Physiology	15	1	34	2	0	1	1	1	55
Marieb Essentials of Human Anatomy and Physiology	14	11	0	7	0	7	0	0	39
Waugh & Grant Ross and Wilson Anatomy and Physiology	60	13	0	33	11	0	0	0	117
Martini &Nath Fundamentals of Anatomy and Physiology	71	2	0	5	0	1	0	0	79
Coad & Dunstall Anatomy and Physiology for Midwives	0	0	0	68	0	0	0	0	68
Total	160	27	34	115	11	9	1	1	358

Table 16 Main Text & Frequency of Selection by Course

Analysis also explored the course being undertaken and the main reason for choosing the text. Here a statistically significant result was obtained p<0.000 with many students identifying a text being easy to understand as being the most important reason for choice. Another area seen as important was the number of diagrams a text provided and this related more to pre-registration nursing and midwifery students than to other subgroups. Another area worthy of note related to the appropriateness of the text to the course, with a number of the biomedical degree students who answered this part of the survey (n = 38) indicating that this was the most important aspect in making a choice. The pre-registration midwifery students also highlighted this as important in choosing a text, which is interesting since the text identified as being a popular one for this group included the word "midwives" in the title.

The most important recommendation to choose a text, when identified by the students, was found to be the course/module lecturer. For all students this was statistically significant, p<0.000. Pre-registration nursing students also identified the personal tutor, friends and colleagues as other sources of recommendation. However the reading list was not identified as an important source of recommendation. The overall frequencies regarding this aspect in choosing a text is displayed in Table 17.

		Most important recommendation								Total
		Course/Module Lecturer	Personal Tutor	Friend or Colleague	Module Reading List	Student from other year/course	Librarian	Internet Source	Other Source	
	Pre-Registration Nursing	95	25	39	9	18	6	2	9	203
	Pre-Registration ODP	22	0	2	1	4	0	0	0	29
	Pre-Registration Biomedical Science Degree	34	1	1	2	0	0	0	1	39
What	Pre-Registration Midwifery	80	1	11	13	10	0	3	2	120
Course	Associate Practitioner Foundation Degree	11	1	1	1	0	0	0	0	14
	Clinical Physiology Degree	13	1	6	1	1	0	1	0	23
	Diagnostic Radiography	1	0	1	0	0	0	0	0	2
	Cert Ed Mammography	0	0	0	0	0	0	0	1	1
Total		256	29	61	27	33	6	6	13	431

Table 17 Most Important Recommendation Source Frequencies

Participant age ranges were explored in relation to which text was chosen and this produced a statistically significant result, p<0.000. What is of interest here is that whilst there were a variety of ages ranges who choose the texts by Waugh and Grant (2006) Coad and Dunstall (2005) and Martini and Nath (2009), these groups were identified primarily as being the pre-registration nursing, midwifery, operating department practitioners and foundation degree students (see Table 16). The two other courses which had much less varied age ranges, with the majority being in the 18-24 year age group and included the biomedical and clinical physiology degree courses. Both of these courses chose texts not seen as popular with other groups (see Table 16) and what is seen as distinctive with these two degree courses is that, it is suggested, the others have a more direct focus of patient care delivery rather than an indirect one i.e. being in a laboratory undertaking physiological estimations. The age ranges are presented in Table 18.

		Age range					Total
		18-24	25-34	35-44	45-54	55 and over	
What Course	Pre-Registration Nursing	76	75	65	21	1	238
	Pre-Registration ODP	10	9	10	1	1	31
	Pre-Registration Biomedical Science Degree	35	6	3	0	0	44
	Pre-Registration Midwifery	75	31	29	7	0	142
	Associate Practitioner Foundation Degree	3	5	4	4	0	16
	Clinical Physiology Degree	21	6	0	0	0	27
	Diagnostic Radiography	0	2	0	0	0	2
	Cert Ed Mammography	0	0	1	0	0	1
Total		220	134	112	33	2	501

Table 18 Age ranges by Course Group

The type of learner identified by a learning inventory, e.g. VARK, Honey and Mumford etc. being undertaken showed there was no significant association present when compared with the main text chosen (p = 0.354) and the number of respondents who answered this question did not give an adequate representation of the whole cohort of respondents. However, further exploration looked at this issue from the type of test

undertaken, as opposed to the type of learner, and text chosen and this produced a significant result with p=0.0001. Those utilising the VARK learning inventory showed an association with the Waugh and Grant (2006), Martini and Nath (2009) and Coad and Dunstall 2005). However caution should be taken when viewing this result since those undertaking the VARK primarily belonged to the pre-registration nursing and midwifery groups who had been identified as using this test exclusively in the first year of study and also being the largest groups in the cohort surveyed would account for this high significance result.

6.3 Textbook Analysis Findings

In this section the outcome is presented of the analysis of the excerpts from the five main texts identified as being popular in the quantitative stage of the study. The five main texts have been identified as presented in the previous section. Each text excerpt, following identification as described in the methods section, was subjected to a number of readability analyses. It is these findings which will now be presented. The analysis is presented in tables so as to allow for comparisons to be made when viewing these. The first of these presents an overview of each chapter analysed with subsequent boxes displaying statistical results for the sections analysed, readability scores and finally overall consensus for each text excerpt derived from the consensus tool available at http://www.readabilityformulas.com/free-readability-formula-tests.php.

Text Components Assessed	Textbook Title				
	Fundamentals of Anatomy and Physiology	Human Anatomy and Physiology	Principles of Anatomy and Physiology	Ross and Wilson Anatomy and Physiology In Health and Illness	Anatomy and Physiology for Midwives
	Martini and Nath 2009	Marieb and Hoehn 2010	Tortora and Derrickson 2009	Waugh and Grant 2006	Coad and Dunstall 2005
Total Number of Pages excluding Appendices:	1123	1114	1174	462	432
Chapters in total, presented in 6 Units:	29	29	29[4]	18	29
Selected Diagram number of points:					
i) Anterior View of Heart	17	26	24	n/a	n/a
ii) Interior frontal View of Heart	29	25	30	15	22[5]
Cadaveric Photographs included:	Yes	Yes	Yes	No	No
Intended Learning Outcomes for					
Chapter included:	Yes	Yes [2]	Yes[2]	Yes[2]	Yes
Learning Checks:	Yes	Yes	Yes	Yes	No
Application to Clinical practice:	Yes	Yes [3]	Yes[3]	Yes	Yes
Phonetic Pronunciation of Anatomical Terms:	Yes	Yes	Yes	No	Yes
Study Aids at end of chapters:	Yes	Yes	Yes	No	Yes
Self Test Activities:	Yes[1]	Yes	Yes	No	Yes
Glossary Included in Chapter:	Yes	Yes	Yes	No	No[7]
Chapter Summary	Yes	Yes	Yes	No	Yes

[1] *Linked with academic levels* [2]*For Each section* [3]*Linked to Homeostasis* [4]*Presented in two Volumes* [5]*Monochrome* [6]*As One Text Box* [7]*Provided at End of Text*

Table 19 Overview of Text Summaries

Components Analysed	Textbook Title				
	Fundamentals of Anatomy and Physiology	Human Anatomy and Physiology	Principles of Anatomy and Physiology	Ross and Wilson Anatomy and Physiology In Health and Illness	Anatomy and Physiology for Midwives
	Martini and Nath 2009	Marieb and Hoehn 2010	Tortora and Derrickson 2009	Waugh and Grant 2006	Coad and Dunstall 2005
Total Number of Words:	524	357	491	362	601
Average Number of words per sentence:	19	21	18	16	18
Average number of Characters per word:	5	4.8	4.7	4.7	5.2
Average Number of Syllables per word:	2	2	2	2	2
Total of Words with two Syllables:	89	64	87	87	126
Total Number of words with three or more Syllables:	107	55	71	56	102
Percentage of Three or more syllable words:	20	15	14	15	17

http://www.readabilityformulas.com/free-readability-formula-tests.php

Table 20 Statistics for Text Section Analysed

	Textbook Title				
Readability Test	Fundamentals of Anatomy and Physiology Martini and Nath 2009	Human Anatomy and Physiology Marieb and Hoehn 2010	Principles of Anatomy and Physiology Tortora and Derrickson 2009	Ross and Wilson Anatomy and Physiology In Health and Illness Waugh and Grant 2006	Anatomy and Physiology for Midwives Coad and Dunstall 2005
Flesch Reading Ease:	40.8	50.2	53.6	48.1	44.5
Gunning Fog:	15.6	14.6	13.1	12	14
Flesch-Kincaid Grade Level:	12.2	11.5	10.3	10.5	11.6
The Coleman-Lau Index:	12	10	10	10	13
The SMOG Index	11.3	10.4	9.4	9.1	10.2
Automated Readability Index:	11.7	11.5	9.7	8.6	12
Linsear Write Formula:	13.2	13.7	11.7	9.3	12.2

Flesch Reading Ease Scores:

0-29   Very Confusing
30-49 Difficult
50-59 Fairly Difficult
60-69 Standard
70-79 Fairly Easy
80-89 Easy
90-100 Very Easy

Tests below Outputs to ⟶ **US Education Grade**
US School Grade Level **Level**

Tests below Outputs to US School Grade Level	US Education Grade Level	Age
Gunning Fog	High School 9th Grade	14-15
Flesch-Kincaid Grade Level	High School 10th Grade	15-16
Coleman-Lau Index	High School 11th Grade	16-17
Automated Readability Index	High School 12th Grade	17-18
Linsear Write Formula	College or University	18-22 (Often but age varies)

SMOG Index Score

5 Readable
10 Hard
15 Difficult
20 Very Difficult

http://www.readabilityformulas.com/free-readability-formula-tests.php

Table 21 Results for Readability Analysis

The overall consensus with regards to the grade and level of difficulty in reading with regards to the sections of text analysed resulted in a decision that:

Textbook Title	Reading Ease	Grade Level	Reading Age
Fundamentals of Anatomy and Physiology Martini and Nath (2009)	Difficult to Read	12 equivalent to Further Education	17-18 years
Human Anatomy and Physiology Marieb and Hoehn (2010)	Fairly Difficult to Read	12 equivalent to Further Education	17-18 years
Principles of Anatomy and Physiology Tortora and Derrickson (2009)	Fairly Difficult to Read	10 equivalent to Secondary Education	14-15 Years
Ross and Wilson Anatomy and Physiology In Health And Illness Waugh and Grant (2006)	Difficult to Read	10 equivalent to Secondary Education	14-15 Years
Anatomy and Physiology for Midwives Coad and Dunstall (2005)	Difficult to Read	12 equivalent to Further Education	17-18 Years

Based on Results from available at:
www.readabilityformulas.com.
Readability Consensus Tool

Table 22 Summary of Text Analysis

6.4 Interim Summary of Quantitative Findings

This section identified the demographics of the student participants utilised in stage one of this study. It has also identified the most popular texts chosen by students, demonstrating that the majority of these had purchased their main textbook for their course. It has been highlighted that the main reason for the choice made was based on a recommendation with the course/module leader as being the main source of this recommendation. Evidence has been found that many respondents had chosen more than one textbook with the second choice being seen as at a lower academic level. Additional evidence was found that the main reason for more than one text besides the requirement for more information was to increase understanding. This suggests that the main text was not providing the information at a level the student could understand and so provided an area that could be explored during the in-depth interviews following this phase of the study. This aspect was also contrary to the finding that students indicated that the main textbook was at the right level for them. The question here is why another text was needed to aid understanding, another area explored in the in-depth interviews. Findings indicated the areas that student liked or utilised the least was the provision of adjuncts which did not affect the decision to choose one text over another.

Statistical associations indicated that there was significant relationship between the course being undertaken and the main textbook chosen. Additionally the academic level of the student's assessment and the textbook chosen was seen as having a strong association though this was viewed with caution as the text choice and academic level may have reflected the course being studied. Further associations have been found with regards to the course being undertaken and the main reason for choosing a text book with students identifying that the textbook needed to be easy to understand. The link with the recommendation from a lecturer was highlighted as being a strong driver to choose a textbook over others that were available. The learning style identified by a student undertaking a learning style inventory (test) resulted in no significant result with the text chosen, however a highly significant association was found when the learning styles inventory (test) taken was compared with the text book chosen this related specifically to the VARK inventory. This however, was viewed with caution since a high number of student nurses and midwives presented as the largest group and this suggested that this test was favoured by this subset and as indicated previously these groups had a specific

preference for identified texts. These aspects provided areas for exploration in stage two of this study involving students.

The final section of this chapter has presented results regarding the analysis of textbook extracts using an array of readability formulae. The results demonstrate that all the texts identified as being popular in the survey were rated as being difficult to read when viewing the Flesch and SMOG results. However the overall consensus of all tests used identified one text as being chosen mainly by students undertaking the biomedical courses and was rated as only being at the grade level of Secondary Education and a reading age of 14-15y. This text was that authored by Tortora and Derrickson (2009) with the biomedical course being at an undergraduate level, contrary to the result obtained. Additionally all results placed the texts at a reading age level of a US high school which in the UK would equate with further education, and which is lower than the course level that many of the students attended in this study. Indeed, authors of the texts analysed indicate in their introductions that they are aimed at undergraduate study in higher education not further education. These results however need to be viewed with consideration of the discussion regarding the use of readability formulae and the lack of inter-formula consistency in chapter two. This would provide the rationale for the diversity of findings in the results presented in Tables 21, 22 and 23 and this issue of a text used in undergraduate study being rated at the level of secondary education as indicated above.

The results presented in this section were utilised to direct exploration and discussion in the in-depth interviews with students in stage 2 of this study.

The next section presents the findings from the thematic analyses of the interview transcripts.

6.5 Qualitative Findings from the Interview Analyses

In this section the findings from the analyses of the interview transcripts is presented commencing first with those from the students. This is followed by the findings from lecturers, authors and finally, publishers.

Section 6.5.1 Students

In this section five themes emerged and in these a number of subthemes were found to be present the first relates to the influences on choosing a text.

Choosing the Textbook

i) Promotion of the text

Supporting earlier survey findings the interview data clearly indicated that the use of a recommendation, either direct or indirect, was a very powerful influence on choosing a particular text. The direct recommendations from lecturers and the production of reading lists has been found to override the need to personally seek out a selection of texts and inspect these to find the most appropriate one to choose and purchase. For instance:

> *"That's where I got Thibodeau and Patten [Anatomy and Physiology by Patton and Thibodeau 2010] from that was recommended by the lecturer." (CP2)*

It was noted that whilst recommendations were identified as coming from lecturers these were at times not for specific texts but that students should look at several recommended ones and make a choice from these for example:

> *"-- er yea well sort of, since there were several that the lecturer er had recommended but he basically said just pick up a few and have a look at them all and just see like which ones your sort of like the look of --"*
> *(AN1)*

The inclusion of the book publishing representatives or retail outlet staff from the University book shop were not seen as being a major influence on promoting texts to students. This led to the suggestion that such agents were not routinely utilised by course lecturers when inducting new students. One student felt that if a text was being highlighted in a scheduled lecture period it was the strongest indication that students should obtain the text:

> *"Yea well for the course to endorse a book so much I thought it's got*
> *to be good --" (OP3)*

The title of a text was also seen as being a promotion to select it for purchase or use but this applied mainly to the midwifery students. If the title of the text contained "Midwives" or "Midwifery" then students felt that the text would be suitable for use in their course. The text commonly in question was titled "Anatomy and Physiology for Midwives" by Coad and Dunstall (2011) for example:

> *"I didn't look at any of them I just literally went "Anatomy and*
> *Physiology for Midwives" -- I said "yes I will have that one" --" (MW3)*

It was found that if the text was not speciality focussed then some students would not consider a long term possession of this text. This was because more specialised texts would be used for the majority of their courses and that general anatomy and physiology would only be studied in the first year of the course. This was particularly evident in the clinical physiology students and student midwives.

Whilst having a speciality indication in the title, it was also found that other key words could have an opposite effect which could dissuade students from purchasing texts. This related specifically to those activity books which had "colouring" in the title and led to the assumption that they were of a lower academic level for example:

> *"I found it a bit erm "childy" [for children], you know like when you're*
> *back at school again but it did also make me take in where different*
> *parts of the body were." (AP1)*

Surprisingly, the library played a minimal part in assisting the students identifying texts for use, suggesting library based staff not being identified as a resource to consult in determining which text would be most suitable for example:

> *"No, no, I haven't [*been to the library] *-- but I have been to the library*
> *lots now -- not in my first year which is when I bought the majority of*
> *my books --" (AN5)*

The presence of recommended texts in the university library did not encourage students to view these prior to purchasing with numerous students found to "blindly"

purchase the text from web based retail outlets without prior inspection. The reputation a text had was also seen as an influence to choose it for example:

> *"-- to begin with it was a source of reference. I would read a paragraph and go "ahh that sounds really good" reword it and then reference it -- literally it was because of its reputation." (AN5)*

ii) Incentives to Choose a Text

As mentioned earlier the inclusion of media or possessing web-based companion sites did not provide a strong attraction to purchase a particular text. Out of all the respondents only one had real enthusiasm for using the web-based content. This enthusiasm was such that the student felt they could dispense with the print copy text:

> *"Yes it's invaluable and I have told every -- everyone in my group to get it [the internet site] -- The actual web site of Marieb [Human Anatomy and Physiology by Marieb and Hoehn 2010] -- to me I might as well have given away the book --" (OP2)*

It was found that students generally had not utilised the CD ROM's provided with texts and, at the time of the interviews, these remained unused:

> *"Yes it has got CD ROMS with it but I haven't actually looked at them yet -- I don't have time -- there is a connection as well to the net but I still haven't tried that I just get the book out, it's just far easier." (AN1)*

Only one student indicated that it had been an inducement to purchase the text but still had not, at the time of the interview viewed the media contents.

> *"Have you used it at all?" (Res)*

> **"No -- No, it's in the box. (laughs)" (AN4)*

Cost was seen as a consideration. However students seemed prepared to spend large amounts money for texts which had not been viewed or inspected, instead relying on the strength of the recommendation that the text would be suitable for instance:

> *"Everything on line -- and I didn't look at Marieb [Human Anatomy and Physiology by Marieb and Hoehn 2010] either and I did not go to the library to look at them." (OP2)*

Blindly purchasing texts and considering price limits was not found to be limited to internet purchases but applied to those supplied at the university when purchased directly from the publisher for example:

> *"Well it seemed like a really good deal -- it was roughly about thirty to thirty five pounds -- I can't remember the price now. It was for a whole raft of things -- you got the a and p [anatomy and physiology] book and thinner one which is just the physiology I think and you got a CD [compact disc] as well." (OP3)*

However it should be noted that not all students blindly purchased their texts, some visited a local or university book store and to view texts. Finances dictated that once a choice was made no further purchases could be undertaken due to their limited resources. Having the latest edition was not seen as an influence to purchasing another new edition. Students felt that anatomy and physiology was not a subject that would change sufficiently to require another text for instance:

> *"Because your anatomy does not change -- your anatomy is your anatomy isn't it? The heart is not going to change to a different way of working -- unless a teacher told me to! (laughs)" (MW1)*

It was found that the midwifery students did identify that knowledge in anatomy and physiology can actually change, for example in relation to the female breast, and also texts could include other aspects not included previously, e.g. increased links to health and illness. Such new aspects or inclusions could provide incentives to purchase or select more up to date versions for example:

> *"I have the most recent Coad book -- we are waiting for it to be updated since -- the anatomy hasn't been changed it's just scientists have realised that the functioning of the breast is not how they thought --." (MW1)*

iii)Textbook Possession

Possessing a text as opposed to borrowing was seen as desirable for a number of reasons. One reason for possessing the text was the need to have a text which was readily accessible so reducing the inconvenience of going to library. This was raised as being due to a lack of adequate supply in the university library:

> *"I just wanted to have the book in my room so if I wanted it I had got it*
> *-- yes since there is not enough books in the library to do that." (MW3)*

The possibility of large fines due to late return of texts borrowed from the library was also identified as a reason for purchasing a text:

> *"-- so I just thought, if I got fines of seven pounds I might as well go out*
> *and spend thirty pounds and buy the book myself --" (AP1)*

When students were questioned about the purchase of used texts their reactions were mixed and it was found that some did not favour this way of obtaining texts for permanent possession because they appeared used, suggesting that the physical condition of the text is an important aspect when buying used texts:

> *"I just like them to be nice like when I have my books I will look after*
> *them, I will get them out, I will not fold pages and I will keep them up*
> *there --" (MW4)*

In this next theme aspects related to text use in learning are presented.

Learning with the Textbook

i) Education

The data suggested that students place great importance on the reading list for a course of study. This can be linked to an assessment task. This was highlighted when students attempted to link the successful passing of an assessment with selecting texts from the course key texts list. Some students linked the use of the reading list and diagrams from texts being used in lecture materials, as an indication that it would be in some way linked with the assessment process for instance:

> *"I always think that if they have put it on the reading list the chances*
> *are the exam questions are going to be along the lines of those books*

because that's obviously where the lecture slides have got their information from --" (CP2)

This was coupled with a lack of desire to learn the subject further than what was required for the assessment task. The use was seen as being for a reference source for inclusion in the assessment task e.g. an essay or exam for example:

"No I haven't looked at it I use it more as a reference. Yea I have got an exam coming up at the end of this year so -- I will look at it then." (AN2)

It was found that many students indicated that they did assess the academic level of the book before purchasing it for example:

"The literature wasn't enough for what I needed to read er I found it was mainly set at school level to lower a school level not a university level --" (AP1)

It suggested that students who had prior experience of education e.g. further education, had developed a skill at being able to determine the academic level of the text for use in a programme of study.

It was found that one particular text was seen as being more basic than others, Ross and Wilson by Waugh and Grant (2006). Use of such a text was often seen to be utilised to allow easier comprehension of a perceived higher academic level text for example:

"I sometimes do use the two together it just depends if I want to get a basic understanding of something I will use the Ross and Wilson one [Ross and Wilson Anatomy and Physiology in Health and Illness by Waugh and Grant, 2006]. But if I want to read more or know a bit more in depth I will look at the Marieb [Human Anatomy and Physiology by Marieb and Hoehn 2010] one or compare them." (AN4)

Learning styles had not been found to be associated with the texts chosen however students identified themselves as visual learners and viewed the diagrams in texts to determine if they could be used to assist their comprehension of the subject of the anatomy and physiology. What is of importance here is that when choosing a text the

diagrams were often utilised as a basis for accepting or rejecting it. This was directly linked to the student being a visual learner for instance:

"I would look for just the logical sort of flow to it and erm -- obviously I am a visual learner so I would look for plenty of diagrams --" (AN4)

ii) Pedagogy

The use of the text in the lectures was minimal when discussed, with students identifying a heavy reliance on the materials that a lecturer would supply for example:

"I looked at the slides the tutor gave me and they were nice and colourful and they helped a lot -- I did use Marieb [Human Anatomy and Physiology by Marieb and Hoehn 2010] since some of the pictures were based on Marieb --" (AP1)

A minority of students relied solely on these materials rather than their chosen texts. This was found to be more in the first year of study (possibly due to the front loading of anatomy and physiology in this period) than subsequent ones and even to the point with students feeling that there was no need to consult any texts, unless further information was required

"A lot of my anatomy and physiology I tend to take from the lectures then just use that to back it up and then -- write it out and cross reference it with the lectures--" (AN1)

A general lack of preparatory reading being undertaken to allow students to prepare for lectures was also identified despite students being aware of the lecture subject. This led to a suggestion that the lecture was seen as the central focus not an introduction to the subject requiring further reading to enhance the student's knowledge. The data suggests that students needed a text to explain or assist comprehension of the lecture material rather than expand on this. Such reliance on the lecturer is evidenced as follows:

"-- So in lectures when I was writing my notes, that's is what I needed to know and from the PowerPoint's™ that we were given that is what I needed so then I didn't want to go and be adding extra bits to it from the books and things like that if I didn't need to know it" (MW3)

Having a text which expanded on the lecture content was seen as being more desirable. This again was surprising since the students did not seem to view the relationship of the lecture to the text appropriately, assuming that the lecture was the focus rather than an introduction to the subject for instance:

> *"-- a and p was very, very sort of pushed on us because the first year was made up of so many a and p lectures and having a textbook that kind of explains what the lecturer was talking about in a more simplistic way would have helped--" (AN5)*

The role of the text did appear to become more prominent for students when programmes shifted focus from normal anatomy and physiology to disease/speciality related subjects, where an underlying knowledge of anatomy and physiology was required to comprehend this aspect and make text use easier for example:

> *"-- more now in my second year because we are doing diseases of certain systems, so more now whereas the first year it was just the basic systems, but now because it is diseases it's easier to use the book I think. (AN3)*

In the pre-registration midwifery course it was highlighted that there was a defined module in the first year of study dedicated to normal anatomy and physiology. The focus in subsequent years shifted to pregnancy and related anatomical changes. Pre-registration nursing students also highlighted this change focus with a shift to disease processes in the years following the first year of study. Such students saw the subject of anatomy and physiology as a separate rather than integrated one which saw the normal aspects of anatomy and physiology reviewed only when linked to understanding abnormal physiological functions. This was not seen to be an issue with other students who had normal and applied anatomy and physiology throughout their courses as seen with the student Operating Department Practitioners.

In all the transcripts it was evident that students were operating at levels of development commensurate with the level of their programmes. It was seen that gaining of knowledge and comprehension, with application of this knowledge, as being prevalent in the first years of study. While application of this knowledge was also seen with subsequent years of study, this was interpreted as being at an analytical stage of learning development when considering the responses analysed

in the transcripts. However, what was apparent was that students were utilising their texts when attempting to gain comprehension of the subject matter coupled with an application to their clinical practice, whether this was related to a clinical procedure or disease pathology. It was this area of how such knowledge could be applied which was seen to provide a link with knowledge gained from the text and its eventual comprehension for instance:

> *"-- when I was watching the gall bladder being done [gall bladder removal] I would literally sit there on the -- one of the machines [anaesthetic machine] and I used to have a book there and I used to read while they, because some of them were really good, particularly the professors, and he used to say to me, on the screens [endoscopy video screen] that this is that, that and that, and obviously you see the human body is verrrry different to a textbook --"* (OP2)

iii) Student Approaches to Reading

The first area of importance was found to be if the students felt that if anatomy and physiology was an interesting subject to study then this assisted in grasping the concepts involved and also this would have an effect with regards to reading their selected texts. The majority of the students felt that the anatomy and physiology was of interest to them and that this did indeed assist them in reading the texts for instance:

> *"I find a and p [anatomy and physiology] interesting anyway er and that was -- that's what I've always have found interesting since school --"* (OP3)

Having an interest on the subject focus prompted the student to use the text and read, though it was found that the reading was often at times confined only to those aspects which were needed in relation to a clinically derived question or assessment. However it was found, as indicated previously, that students did attempt to use texts when attending clinical practice. This indicated that some importance was being placed on the need to revise and increase knowledge in order to understand, as previously indicated, disease processes.

It was evident that learning often was reduced to small texts sections or notes being read repetitively to enhance knowledge retention which may have been related to an impending assessment task. Retention of such information once learnt did not become a permanent source of information in the student's memory. Many felt that recall of information was poor once the need for the information had been met and time had elapsed since the learning had occurred. An examples of this reading approach adopted by students is as follows:

> *"I read it and I will write it down, I write down all my notes and then I'll go back and write them all down again -- Because it helps it going in my head as I am writing it -- I can put it into different ways not just the way they put it in the book I can alternate it to make sense to me -- then I will cover it up and try and write it out again." (MW3)*

Note taking and reading however, was seen to develop to become a more effective skill if experience of studying had been undertaken prior to the student's current course for example:

> *"-- I never knew how to revise or, and I always found exams really difficult, and I started reading books just for fun, fiction books, and I found that really helped me learn just by reading textbooks. So before I would just write down everything -- now I can just sit and read and just jot down a few notes rather than try pretty much transcribe the textbook --" (CP1)*

No student indicated that, at any time, instruction had been given on how to use the text effectively. It was seen however that some students did rely on informal reading groups with fellow students where support or guidance was offered from in the group as exampled below:

> *"There were three of us all sitting together and we all had different books so that was quite handy -- in that someone might find it easier in that book and then they would show one of us but I would sit there half the time and say "I haven't got a clue" and then one would say "oh read this and you'll get it."" (MW1)*

The issue of recalling information learnt through reading indicated that this recall was reduced as the need to use the information passed, with students in the Pre-registration nursing and midwifery courses identifying poor recall. The reason drawn

for this was most likely related to the subject being included mainly in the first year of study. Some nursing students felt that the subject area was delivered in a short period of time and that the amount of information was seen as extraordinarily large and difficult to study and remember except when using information for an assessment for instance:

> *"-- I'd memorise quite a lot of it, it was afterwards I would find it hard if*
> *I did it now I wouldn't remember it, I was fine on the day of the exam*
> *and afterwards for a little while, but trying to think back I would never*
> *remember it now." (AN4)*

Nonetheless recall remained poor once the focus of the course shifted from the normal anatomy and physiology. However recall was not poor for all nursing students indeed one highlighted that the assessment had assisted in retaining knowledge which could be recalled later for example:

> *"-- but erm at first I kicked on [complained about] about the exam,*
> *that was obviously a and p based -- it really, really did make things*
> *stick in my mind for the years to come." (AN5)*

Some students identified a cessation of anatomy and physiology teaching as when a module finished or when attendance was not required due to clinical practice being undertaken. Lectures, on return to the university, were seen not to either revisit the subject or even include it when specialist lectures that were delivered. This lack of continuity seemed to promote a disconnect between the need to learn and retain knowledge of anatomy and physiology and clinical specialism teaching. This therefore did not encourage students to identify the importance of anatomy and physiology. This also did not encourage reading of their chosen texts and or highlight the need to retain and integrate this knowledge into other subject areas in the academic component of their courses or link this with clinical practice. This was especially so with the midwifery students where aspects solely related to pregnancy overshadowed other more general aspects of anatomy and physiology. This was despite acknowledging that normal pregnancy affects many aspects of normal functioning systems for instance:

> *"Well we haven't done any anatomy and physiology. All our modules*
> *have been -- like evidence informing midwifery practice -- no need to*
> *go back and look at anatomy and physiology --" (MW1)*

Nursing students felt that anatomy and physiology was mainly related to disease processes and none stated that any further normal anatomy and physiology lectures were delivered following the first year. They did highlight that their chosen texts were consulted if looking at disease processes or if there was a clinical skill taught requiring some revision. This contrasted with the Operating Department and Clinical Physiology students who did undertake defined anatomy and physiology modules with their second year of their courses. This may therefore account for the reduction or lack of evidence in these transcripts of difficulty in recalling information. It should be noted that the course for Operating Department Practitioner students was of two years duration and so had defined anatomy and physiology input in both of these years. However of Clinical Physiology students, only those who were undertaking the first two years of the programme were included in this study with those in years three and four not being included. These students did identify that anatomy and physiology input would become more focussed depending on their specialism choice, this being either respiratory or cardiac. Students also identified that links with other physiological systems would still be made and so supports the conclusion that constant inclusion of the subject in their programmes would reduce the lack of an inability to recall such information.

Another area worthy of note relating to the reading technique was the degree of electronic based reading identified in a number of student discussions. Whilst the design and layout of texts will be covered in a subsequent theme, what is of interest here is the findings related to computers and electronic texts. A number felt that reading from a screen, as opposed to a physical text was difficult. Indeed one student had a particular way of reading which would not translate easily to screen reading for example:

> *"I like it's a book and you can flick to the page rather than always looking at the screen squinting (laughs) I like to have a book in front of me, I like to turn the page myself -- I just find it easier if I put my finger on the book as I have to follow my finger normally -- it blocks all the other text out and I can read it. On the screen you doing this with your finger and you then end up with a mucky [dirty] screen (laughs) -- I just find it easier reading and learning from a book." (MW1)*

This sentiment of not being able to read and learn from a computer screen, but having a preference for a physical text or printed version, was not an isolated case for example:

> "-- because if I can have the book open in front of you, you can flick
> from page to page and so you can look at it quite closely and quickly
> where on the internet you have to scroll up and down --." (MW3)

The next theme identifies those aspects related to the textual content of the text in relation to both illustrations and text.

Inside the Textbook

i) Visual Aspects

In this sub-theme it has been evident that students initially had placed great importance on the diagrammatic and illustrative material in their texts with choice being influenced by the amount of detail displayed in diagrams. When the detail is deemed to be too great then the text is assessed as being difficult to read and seen as a hindrance to comprehension. The data suggests students appear to have developed an ability to determine the amount of learning that they can make from a prospective text choice based on the rapid assessment of diagrams in this text example:

> "When you first look at it, it does look far too busy especially this picture
> (points to own book excerpt) of the heart it looks very -- I think it is
> overload. You look and "aw I can't take that in" and I say "I'll just go
> onto something else" (AN5)

This ability to assess the diagrams and determine if learning would be affected was often highlighted and when students were questioned about diagrams and shown excerpts of texts seen as popular, this assessment of textual difficulty and comprehension was often seen as occurring very rapidly in the interview for instance:

> "My first impressions when I look at this (points to textbook extract), I
> would look at it and think that was busy and I wouldn't look at it and
> think "oooh yes that looks good" -- see that I could read that (points to
> textbook extract) yes I could read that because that to me works and I
> could look at the pictures and I understand the pictures --" (MW4)

The amounts of textual information and diagrams presented were also an aspect highlighted by students. This was the need to ensure that texts had the right balance between the amount of diagrams and length of text, too many diagrams or too much text being seen as a negative aspect. Students were found to place a high degree of importance on the linking of the diagrams with the text suggesting they were well informed that this balance was required to allow effective use of the text. The textual layout was also seen as an important aspect to assess and again this assessment appeared to be made rapidly upon viewing a text for instance:

> *"I usually have a good flick through [quickly browse] and see if it is*
> *going to be readable, some textbooks are just blocks of writing, -- I look*
> *at a page like that and I just can't take anything in so it's got to have*
> *pictures, it's got to be well set out --" (CP2)*

A point raised by some regarded the layout related to how the text was presented either as a single block across the page or dual block text. One student raised a point which identified an issue which possibly could be used to determine the level of ease a text could be read just by viewing the pages and not reading the text for example:

> *"I didn't find the way that it was -- the pages are laid out actually, are*
> *not very useful with this kind of system because you'd expect to read*
> *across the page -- if you were searching through trying to find*
> *something -- having the two columns [columns of text on one page]*
> *your brain automatically does that -- because your brain is hard wired*
> *to read that way." (MW2)*

This assessment was also directly linked to what students felt were the difficulty levels in reading a prospective text. The index and ability to navigate the text was also identified as a property that students utilised in assessing if a text was useful prior to choice for example:

> *"I check the list at the back and if it is easy to find and the bit is where*
> *it said it was and is to the point then I'll say "yes fair enough" I don't*
> *want to spend my time looking through the book trying find what I want*
> *to find --" (CP2)*

Some texts were highlighted as being so well laid out that the use of the index was not required for instance:

> *"Erm just how it reads, to me it makes far more sense AND I can flick*
> *through Ross and Wilson [Ross and Wilson Anatomy and Physiology*
> *in Health and Illness by Waugh and Grant, 2006] without even using*
> *the index --." (OP2)*

The photographic materials included in some texts was found to provide a mixed reaction with those who often viewed internal organs as part of their clinical practice stating these cadaveric representations were not realistic. Other students who were not involved in such clinical procedures felt such representations were helpful in assisting visualisation of actual live internal human organs. Many students felt that such inclusions of cadaveric photographs were also helpful in preparing students for some aspects of clinical practice. Realism was seen as being helpful for instance:

> *"-- all of the diagrams were just really clear, really nicely labelled really*
> *tidy and they have got like the real pictures as well so you can look at*
> *that and then look at that and think "oh that's what that looks like in real*
> *life" --" (AN1)*

Whilst only two students had discussed the use of media associated with the text, many had not realised that such materials were available with some students even having an ignorance of the availability and how to use such media. It did suggest that students did, as identified in a previously, remain very focussed on actual textual content as opposed to the way additional adjuncts could assist in learning from the text. Two students were notable for using the adjuncts with one feeling the text was all but redundant once the web based activities and content had been accessed and a second using the "Podcast" adjuncts for example:

> *"I liked the fact that this one particularly had iPod® things so I could*
> *listen to it whilst I was driving --" (AN2)*

ii) Communicating the Textbook content

The issue of language in the texts specifically relating to differences of spelling when comparing US and UK approaches was not identified as an issue though many students did identify that there was differences. These were largely ignored and none stated that this was reflected in their academic writing. It was thought that students felt that this was an issue to which they had developed an ability to disregard for example:

"I try not to use US spellings too much but I am so used to reading textbooks with US spelling in, that I don't really notice those much anymore --" (CP2)

Whilst not seen as a major issue some did feel that it presented problems early in their courses but improved as they progressed for instance:

"I had to try not to use US [United States] spellings too much but now I am so used to reading text books with US [United States] spelling in, that I don't really notice those much anymore if you like." (CP2)

When discussing this aspect of text nationality it was found that students incorrectly identified that international editions of US based texts, had been corrected for the European markets. Interestingly one student thought that having "International Edition" on the cover meant that US spelling of words had been converted to UK spellings:

"I have not found that a problem -- I have got the European [International Version] edition so it doesn't no --" (AN2)

Having dyslexia did not seem to affect those students when discussing the aspect of differing spelling techniques. Indeed many thought that their disability somehow prevented them from noticing differing spelling of terms for instance:

"I don't think so I haven't noticed any difference erm if it was erm a word different I probably wouldn't notice anyway because of my dyslexia (laughs) I would just read it as -- and presume it was right even if it wasn't -- the American spelling I would probably just think it was me reading it wrong." (OP3)

Navigation was seen as being an important aspect when related to the student's ability to be able to identify textual information with ease. It was found that being able to have all the required information in one place rather than scattered throughout a text, requiring effort in locating and reading text, reduced unnecessary use of time when studying the subject area for example:

"It is just set out really well -- it is really easy to find what you need." (AN2)

This led to a further support that students are well developed focussed readers and that any text which does not allow for this focussed approach was considered unfavourable for assisting the students learning.

The next theme evident relates to those physical aspects that were identified as being important to the student.

Physicality of the Textbook

The tactile nature of the book was identified as being an important aspect and related to issues such as the attractiveness, the size and visual aspects of the text.

i) Visual and Tactile Aspects

The physicality of the text has been seen as an important issue with aspects of a text's appearance being highlighted by many of the students. Size of the text was highlighted as being indicative of content and amount of information that could be found in the text for example:

> *" -- it was (laughs) bigger and chunkier and looked like it really had a lot of information that I would need -- I thought it might be a bit more in depth, it might have a bit more information in there." (AN1)*

with larger text sizes being a discouragement for some:

> *"-- big thick books you are never going to get through and puts me off." (AN3)*

Additionally size also dictated as to where the text would be utilised with many using the text in the confines of their own homes and not carrying it to either their workplaces of university classes:

> *"It is huge it is like it sits on my side it's like so big whereas Ross and Wilson [Ross and Wilson Anatomy and Physiology in Health and Illness by Waugh and Grant, 2006] is half the size so that's more user friendly to sort of transport to work and stuff." (AN5)*

The cover construction was also raised with many identifying that due to cost, the soft cover versions were often chosen. Weight of the hard cover versions was highlighted

as was the fact that using a text with a hard cover could be seen as making this difficult again based on ability to manipulate it for example:

> *"But I only picked it because it was a paper backed and it wasn't hard backed -- they are just too clumpy and heavy and I just find a lot more easier to carry around a paperback and they are a lot more convenient --" (MW3)*

Students did highlight that the use of a soft backed text was more comfortable to use and hold for instance:

> *"I would not pick up a book just because it was a hardback book but if there is a soft backed version I would choose it. It's just more comfortable to hold." (CP2)*

This also this led to another area, that of the text's care and maintenance. Maintaining texts in a near new condition was often seen as desirable by students and also dictated how they were used. Some only utilised their prized texts when demands of their course dictated this with other less valuable texts getting more use:

> *"Definitely I got the hardback -- and there's no way I would ever take that into work, it lives on the top of my book case. And I have specific reasons why I take it down. When my Ross and Wilson [Ross and Wilson Anatomy and Physiology in Health and Illness by Waugh and Grant, 2006] is erm -- well it looks very second hand now -- my Marieb [Human Anatomy and Physiology by Marieb and Hoehn 2010] is kept in pristine condition." (OP2)*

Some even expressed disappointment when damage occurred to their texts which overall highlights the importance that students place on both gaining, possessing and maintaining their personal collections.

How attractive a text was presented was seen as being prevalent amongst the students and an important issue to consider since the physical and visual aspects needed to be attractive to determine choice of the text. This highlighted the importance of the many aesthetic qualities of a text ranging from paper quality, colour, and textual layout to diagrammatic representation in the text for example:

> *"-- it's not quite as bright and colourful as the other one and the texture of the pages is different? That sounds silly but one is like shiny and the others got much more coarse a bit more like A4 paper type pages so -- where the other one's quite nice and like shiny laminated paper."*
> *(CP2)*

This visual aspect was not seen as related to an ability to understand or comprehend a text but if it was pleasing to look at indeed, odour was also highlighted as being a quality to consider.

Whilst these physical characteristics were seen as important in influencing a student's choice, aspects regarding the covers of a text were also highlighted with many recalling individual texts by their cover designs. This ability to recall text cover designs led to a suggestion that if the design was in some way eye catching then the text would be memorable and could be seen as a form of attraction for some. However, while this was not a reason to choose a text, but rather seen as an attraction, it did raise a suggestion that perhaps students were looking at texts for their attractive qualities. All previous indications have pointed to a possibility that the aesthetic qualities of the text are assessed first prior to a choice being made. Students had also identified textual layout as being important along with the structure and presentation of the diagrams. This suggests that many students made such decisions, regarding these factors, very rapidly and whilst comprehension of the textual content could not most likely be made in this short time period, this pointed to the notion that appeal was most likely based on the visual and physical aspects related to the attractiveness of the text. Therefore this can be linked to the aesthetic quality of the physical text an illustration of this is as follows:

> *"But I just like to look -- I don't really read it I like to look at the structure, how it is laid out and erm so if it's coloured, pictures -- it has got decent colours in, if it's not boring something that looks interesting and like you want to go and pick it up." (MW3)*

In the next theme the feelings regarding how a text was chosen and feeling following choice were identified.

Student Feelings Concerning the Textbook

Students raised the issue of trust as being important in the selection of texts to support their learning in anatomy and physiology. This trust has stemmed from the fact that a recommendation has either come directly from an academic, involved in courses being undertaken, or from a key text reading list. This is seen as an endorsement for the text and that the text will be suitable for selection for example:

> "I always look at the reference list and I always get those books out first
> -- I am thinking well they must know best because they're the teacher."
> (MW1)

What has been found however is that this engendered trust has not always brought about the satisfaction for the student regarding the texts they have selected. At times it has been found that this has led to regret and the need to look for other alternative texts. This was found to be more prominent in the midwifery students when a particular text was found to be on the reading list and so prompted its purchase for example:

> *"So are you disappointed with Coad [Anatomy and Physiology for
> Midwives by Coad and Dunstall, 2005] now?" (Res)*

> *"A little bit yes. That is I have not really used it -- I wouldn't be filled
> with confidence if we had another, if another a and p [anatomy and
> physiology] module came up then I would have to buy another book."
> (MW2)*

However other students had identified difficulties in the use of their selected texts and so dissatisfaction with the purchase or choice made. This experience of identifying that the text was insufficient or unsatisfactory manifested in students reflecting on this and the adopting of a different strategy for future text selections for instance:

> *"I will actually look before I buy so I will get them from the library -- I
> haven't gone in blind anymore." (AN5)*

It was found that other students have apparently developed a view, regarding their negative experiences in choosing their text, that this was a step to becoming more discerning when choosing texts for future use. Use of the experience to develop a more effective approach to choosing their texts would seem to allow the suggestion that poor decisions made initially regarding texts can lead to better developed

decision-making in the future. Notwithstanding this others have found great satisfaction with their texts, this was found amongst all student groups and this has led to a feeling that purchase of the text was viewed as an investment for future use:

> *"However, good books that will be on your shelf for years to come are things like Coad [Anatomy and Physiology for Midwives by Coad and Dunstall, 2005], this other book, the big chunky book I can't remember the name of erm and so I thought of the investment then."*
> *(MW1)*

The feelings of trust, disappointment or regret seem to lead to a suggestion that the selection of texts does to some degree involve emotional responses. Indeed some students have raised interest and enjoyment in previous themes and these can be seen as further evidence of these emotional responses that impinge on selection texts. Opening a text and feeling daunted by the amount of detail or being attracted to a text all point to an emotional quality in the process of text choice.

In the next section the findings from the interviews with lecturers will be presented.

Section 6.5.2 Lecturers

In this section there was found to be four prominent themes each having a number of sub-themes.

Lecturer Perspectives

In this theme the perspectives of how lecturers viewed the use of texts in teaching and their influence on students will be presented.

i)Teaching

All three lecturers interviewed had a direct input into teaching anatomy and physiology in their respective courses. One only taught in the first year of an undergraduate course covering all the general components of anatomy and physiology. The remaining two lecturers were found to have teaching responsibilities throughout the courses they taught on with both having a major input into the first year of undergraduate study.

The data suggests that of the lecturers interviewed only one had a strong preference for one text. Of the others no one text was preferred over another for example:

> *"-- I don't have a particular -- er an absolute must use book. I quite like Tortora [Principles of Anatomy and Physiology by Tortora and Derrickson 2009] because that's the one I have sort of grown up with -- erm quite like McVicar and Clancy [Physiology and Anatomy by Clancy and McVicar 2009] from the homeostatic approach." (Lec 1)*

The lecturer who had a strong preference for one text utilised this for curriculum planning, lecture compilation and also actively promoted this to students. The lecturer had utilised this particular text in another teaching post finding it to be useful for the provision of teaching materials for instance:

> *"--the fact that I had used it previously -- I liked it because I actually felt that with the teaching notes, like all the teaching slides, I had all access to the diagrams that were in the book --" (Lec 3)*

This suggests that the influence of this lecturer could account for the high frequency of students choosing the text in the pre-registration nursing course. This lecturer also felt they had a major input into anatomy and physiology component of the curriculum and that they felt the preferred text allowed their teaching skills to develop more than would be possible without it:

> *"--as a book it helped me formulate the curriculum, the applied biological sciences curriculum -- I suppose I liked Martini [Fundamentals of Anatomy and Physiology by Martini and Nath 2009] because it helped me evolve my teaching --" (Lec 3)*

This opposed the view of another lecturer on the same course who identified that their teaching materials were not directly linked to any text however they did acknowledge that some still did base their teaching and materials on a text for example:

> *"-- my lessons are PowerPoint™ driven -- Some of other teachers like to make them textbook driven where they saying "okay we are going to do this section on that, it's chapter so and so in your book"-- " (Lec 1)*

All lecturers had some link with the text and their teaching materials but this was variable from having the text dictate the content and diagrammatic representations to using up to five texts to prepare their materials. The use of the text in teaching was seen to vary from the text being seen as a support for the lecture content and taught session to the text being central to the lecture.

There was no expectation from two lectures that students would undertake either preparatory or post lecture reading, whilst one did expect this. There was some hope that such reading would be undertaken by all three lecturers for instance:

> *"I don't expect them to read but I would love that if they did but it certainly is not an expectation no." (Lec 2)*

As opposed to:

> *" -- each organ or system that we looked at in the context of each module there would always be preparatory reading -- " (Lec 3)*

All lecturers felt that anatomy and physiology was seen as a static subject area. This led lecturers to believe that texts would not be dramatically different when comparing one with another. All felt that anatomy and physiology was a global subject, and nationality of the text author was irrelevant i.e. American or British. It was thought that the text differences were more related to layout and how the information was conveyed:

> *"-- .of course it's not going to change so any book should have the same material in. The only thing that differs is the way it is presented." (Lec 1)*

.

ii) Learning

Learning with the texts was highlighted but the role of the text with each lecturer differed quite markedly. One indicated that the text was a way of supplementing, expanding and supporting the lecture content:

> *"Isn't the book meant to support the teaching? -- the lectures have got to give them the key information and hopefully you encourage the*

student to then go home, get out their textbook and read what they have just learnt -- " (Lec 1)

Another did not see the text as being central to their teaching and learning with it not having a need to be fully read, indicating a need to dip in and out of the content with the role of the lecture to assist in the student learning:

"-- I do get concerned that they think that they have to know the whole book -- they don't need to know the whole of these huge fat texts --"
(Lec 2)

The final lecturer however did place the text as being central to their teaching and learning approach as previously identified, with lecture materials and activities all reflecting the content of the text. These approaches to the level at which a text was linked to the course led to the suggestion that the lecturer was instrumental in how much profile a text received.

Only two lecturers considered learning styles with one choosing a text based on the perceived learning style of the student type being taught for example:

"-- I know from research that I did for my Masters in Education that erm a lot of nurses are er kinaesthetic, erm visual learners." (Lec 3)

It was found that this lecturer felt that the chosen text, whilst not solely relied upon, catered for the needs of such learners following their own experience of using this particular text. The others felt that learning styles was not a consideration rather the students knew their own preferred way of learning and could choose their text appropriately.

iii) Academic Considerations

Texts were considered in relation to the academic level to which they were most appropriate. This was seen to be made when texts were considered for adoption e.g. when inspection copies were received from publishers and their agents. It was seen that one lecturer felt that that their course was at certificate level but that the relevant texts were at degree level. It was also thought that a text for anatomy and physiology

could not be presented in three academic levels (i.e. certificate, diploma and degree levels):

> *"Well they only need to do it at level one anyway so that doesn't kind of arise but there aren't level two or three textbooks as they all seem to go through everything -- " (Lec 2)*

Another felt that the academic level did not lie in the textual content but rather the learning outcomes of the course and the level of the post chapter questions found in the text of choice. This lecturer highlighted a specific text, yet placed it in a particular academic level in that if students found difficulty in understanding material in the text then a lower level one could be utilised. This indicated that they did indeed view texts as having differing academic levels for example:

> *"If I found students were struggling with a concept I would take them back down a level to maybe a different type of text -- Yes Ross and Wilson that was it, yea good old Ross and Wilson [Ross and Wilson Anatomy and Physiology in Health and Illness by Waugh and Grant 2006] -- " (Lec 3)*

It was thought that students needed to inspect their texts prior to choosing or purchasing. Reading and key text lists were seen as useful but inspection was needed. One felt that all the key texts on the list were "excellent" with the others feeling that students should go and inspect the array of texts available in the university library with the key text list being viewed as for recommendations only:

> *"I mean we can make a recommendation that these are recommended texts, on the reading list but please still say go out and have a look." (Lec 1)*

Another whilst seeing the reading list as important, felt that the provision of the list was necessary so as to prevent students feeling overwhelmed with all the available texts whilst at the same time conveying the message that all texts on this list were suitable for example:

> *" -- we have to give a recommended text we usually put a whole list of them and I usually say to the students "they are all excellent" -- I think it is helpful since they do feel a little bit all at sea if they are not guided in some way." (Lec 2)*

Reviewing of the texts by the lecturers was not seen as a requirement in the compilation of reading/key text lists. It was noted however that inspection copies were often seen as a way to get texts recommended to students to increase sales for publishers who supplied such inspection copies.

Textbook Characteristics

In this next theme the lecturers views on the physical attributes and content of the texts was found to be an important aspect.

i) Physical Aspects

It was highlighted that size was a consideration in determining if a text was suitable for student use. Interviewees highlighted the text size was in some way related to the quality of the content in relation to depth of subject matter for instance:

> *"I recommend that they get a quality textbook and that's usually one that's of decent thickness -- if the books too thin it can't have the depth of material in there." (Lec 1)*

The anatomy and physiology text was associated with being large and that this had a disadvantage in relation to students being able to transport the text around. The size also was seen as being daunting to students as it was an indication of the large amount of information that it contained:

> *"-- the big fat textbooks I use, er what the students are supposed to use they are quite scared off by the HUGE detail and sheer volume of knowledge that is contained within." (Lec 2)*

Textual layout and illustrative material was seen as being an area worthy of consideration as it was thought this assisted the student being able to utilise the text. It was thought that textual layout had changed so allowing for the text to be less daunting for a student to read for example:

> *"I think also the fact that it is set out in columns, that's a small thing rather than right across the page it means it doesn't look quite so daunting." (Lec 3)*

Additionally it was felt that the development of texts had led to blocks of pure text being reduced and interspersed with diagrams and illustrations:

> *"I think if you look back say thirty years textbooks have massively*
> *moved on they just, they used to have really turgid text absolute blocks*
> *of text and just a black and white sort of flow diagram -- now they just*
> *bring them to life they put little bits of -- they break it into bullet points*
> *or they have nice headings." (Lec 2)*

The illustrations were thought to be more comprehensive if accompanied with photographic illustrations since these brought a reality to the text:

> *"I do think it is interesting for them to see the real thing rather than just*
> *a cartoon representation." (Lec 2)*

Diagrams were felt to be most effective if they contained the right amount of detail and information with too much detail being seen as a hindrance:

> *"-- erm they put too much detail in it too much unnecessary detail and*
> *they try to make it pretty, pretty it up that's not good." (Lec 2)*

Colour and presentation were also linked with being an effective text for student use. The use of text highlighting was found to assist students both in their reading and also learning of the content:

> *"I like the way the fact it actually highlights certain important words in*
> *terms of -- that's quite important for students in terms of it jumps out of*
> *the page -- " (Lec 3)*

The subject of electronic texts and if this would be seen as being a replacement for the paper based text was explored. It was thought not to be desirable for a number of reasons one being that such a format would not be usable for all students:

> *"I think if it all goes on line you will lose some you will lose some people*
> *because one not everybody has access to a computer all the time."*
> *(Lec 3)*

Other reasons included issues such as the ability to annotate and navigate the text. It was evident that the ability to annotate print copy texts was a desirable feature

> *"I think about the physical copy is you can annotate it yes people some*
> *students do write in their textbooks to illustrate, you know to highlight*

key things they find really important, which you can do on some of the
e books to a certain degree -- " (Lec 1)

The ease of navigating the text was thought to be an important consideration when comparing the two formats and that the physicality of the print copy was important for example:

" -- they need physical and tangible things in front of them, to touch
and feel -- like I said before flicking between pages electronically on
line which is difficult" (Lec 3)

It was felt that it would be disappointing if the print copy text was no longer available since this would require the use of a computer to look for small amounts of information.

ii) Textual Content

The textual content, in relation to the aspect of new editions, was viewed to be related to increasing sales rather than a change in the subject matter of the anatomy and physiology. This attempt to increase sales led to a belief that content was merely changed slightly to give the impression that the text was dramatically different or that a current edition was simply out of date for example:

"I think they are trying to make some more money, they are trying to
say "here is a brand new edition" yea well what's brand new because
I suspect ninety five, ninety eight even ninety nine percent of it is
probably the same -- might be just a means of you know trying to
persuade people that "oh that one's out of date now"." (Lec 1)

It was found that lecturers felt that the unchanging nature of the subject did not require the issuing of a new text edition except if new content was included which assisted learning:

" -- if new innovations come along and you find new things that support
learning that come along then why not produce another version of it."
(Lec 3)

The language and terminology of the content of the text was also highlighted specifically related to the American editions. What was found was that this did not

present an issue with one lecturer feeling that differing spelling approaches could be confusing for some students:

"I mean the letter "u" doesn't get used yea? "oe" doesn't exist yea? And I think that's a bit confusing because I don't know because sometimes students might think that they are actually talking about two separate things --" (Lec 1)

If the textual language was found to be clear and had aids to assist pronunciation this was seen as being favourable for student learning rather than concentrating on differing spelling approaches. The provision of phonetic approaches to word pronunciation was however viewed as being favourable since the language of the subject was seen as an issue for students:

" -- in the text there is phonetic pronunciation of words and in a lot of places when you look when it introduces a new word on a new page it erm -- therefore I felt it helped students grasp some of the language --" (Lec 3)

The final area thought to be relevant was the issue of themes in that if a text contained both normal and abnormal aspects of physiology then this was found to be a valuable quality. The linking of pathophysiology with the normal aspects of physiology allowed for more effective comprehension of the subject matter. Knowledge of the normal physiological aspects and then application of these would reinforce learning. A text which allowed this to occur was seen as being useful:

" -- In the first year they have got to understand the normal before they can move to the abnormal so if there are links there then it's good --" (Lec 1)

Additional features in the text which linked the abnormal and normal aspects was seen as positive and led to a preference of such a text:

"I like the clinical features they put in and sort of relating it to diseases --" (Lec 2)

The highlighting of pathophysiology was seen as being an important aspect in allowing students to understand and apply the normal components of anatomy and physiology.

Lecturers on Student Decisions

This theme identifies the influences that can come to bear on a student choosing a text to support their learning.

i) Lecturer Consideration in Text Choices

Lecturer preferences were found to stem from personal experience of a text and this would be made known to a student if such a student requested which text was the most suitable for example:

> *"If a student pressed me I would still use that same advice, yea I would say it is absolutely a personal choice erm you know -- I like Tortora [Principles of Anatomy and Physiology by Tortora and Derrickson 2009] --" (Lec 1)*

The preferences for particular texts made by lecturers were not viewed as an influence on the choices students made. Utilising a specific text was also not identified by the lecturers as endorsing a text, though this had been identified by students that this was indeed positive support for choosing a particular text.

There was no evidence found that the library was identified as a resource for texts other than being a place to view texts prior to making a decision on which one to purchase. It was found that lecturers could influence the stock items of the library and was not viewed as being a form of promotion of a text or texts. There was a feeling that the library was visited by a large number of students this could have a negative impact on the library service for example:

> *"-- I just say, well look go to the library. There are a lot of students so there is a bit of pressure on the library." (Lec 2)*

However it was identified that the library stock included many anatomy and physiology texts:

> *"The library has got something in the region of about one hundred and sixty different a and p [anatomy and physiology] books in it." (Lec 1)*

At no point in the interviews was evidence found to identify the librarian as being a resource for students in relation to the choice of texts for the subject area or indeed other subject disciplines.

Text utilisation was found to be dependent on making the right choice of text. Only one lecturer assumed that the text they promoted would be utilised both in the classroom and during personal study:

> *"-- it would facilitate students being I suppose more self-directed as well as obviously using it in class." (Lec 3)*

ii) Non Academic Influences on Student Choices

The lecturer and publisher relationship was highlighted and seen as being influential on the choice students made. This influence affected the stocks possessed by the university library and also the stocks of the book retail outlet linked with the university. If a particular text was recommended to students then this was thought to influence the retail shop stock for example:

> *"-- so I might well be pushing Seeley's [Seeley's Anatomy and Physiology by Seeley, VanPutte, Regan and Russo 2011] and the Tortora [Principles of Anatomy and Physiology by Tortora and Derrickson 2009]. So I think the book shop could be stocking both. I haven't made a decision on that yet." (Lec 2)*

This influence was concluded as originating from the negotiation with sales representatives to produce book packages available in the retail unit:

> *"I did contact [Publisher name] and their representative came out and we tried to put together a package for students so that erm they got this (*points to textbook*) a first aid manual and something else together --" (Lec 3)*

This aspect of the provision of packages of texts was acknowledged by the lecturers as being one of value for the student. However the packages were also seen as being a disadvantage since students were seen early in their courses by sales agents who promoted the text packages as such students were felt to have had little experience

of what texts would be most appropriate. Additionally inability to view texts individually, due to these being wrapped up, was also seen as being a disadvantage for example:

> *"-- they can't actually review it a nice shrink pack thing erm so if the publisher -- came in very early on the course they are going to give it their -- sell! -- the students will buy it and they might find it's a book they can't read whereas if they came in perhaps a little bit later then the students could have had a chance to review." (Lec 1)*

The provision of inspection copies to lecturers was also seen as a way that publishers could influence the decision of students. This was found to stem from the fact that lecturers were canvassed by sales agents and that this produced an ongoing influence to adopt texts:

> *"-- so we get publishers nagging us to er recommend."(Lec 2)*

Constant mailing of inspection copies, as new editions were published, was also seen as being a relentless aspect of contact with the publishers in an effort to get lecturers to recommend texts for example:

> *"Er after about the eighth book has arrived I am inclined to think "oh God I have already got Marieb [Human Anatomy and Physiology by Marieb and Hoehn 2010], already got Martini [Fundamentals of Anatomy and Physiology by Martini and Nath 2009], I have already got Tortora [Principles of Anatomy and Physiology by Tortora and Derrickson 2009]" yea this is a new edition you know?" (Lec 1)*

Competiveness between publishers was seen as an important issue with a need to provide students with the texts they required. The competiveness was the force thought to be behind the development of texts and their improvement and if this was not achieved then sales would not be gained:

> *"-- if the publishers want people to go with them they have got to start coming up with some very competitive deals." (Lec 1)*

All were seen to identify that there was a need to consider the issue of text costs and that the level of these were well known as being high in the subject area. There was a conclusion that it was an expectation that all students needed to purchase an

anatomy and physiology text for their courses. The issue of promoting used texts was therefore found to be a solution when student finances were considered for example:

> *"Probably the company won't like this but I also suggested to students that there are second hand copies that they can buy on Amazon [Internet shopping website] --" (Lec 3)*

The use of used texts however was thought to have some disadvantages since such purchases would not have the adjuncts new texts would possess and also may be gained in a less than perfect condition for instance:

> *"-- you can also get textbooks on Amazon [Internet shopping website] slightly used, slightly dog eared, thoroughly mauled for much cheaper prices. The only thing you might not get with those is if there's a CD [Compact Disc] or web link because it's already been used --" (Lec 1)*

In the final theme for lecturers areas thought to impact on student text use were identified.

Lecturer Considerations on Student Text Use

An area which was felt to assist in comprehension was the presence and use of end of chapter tests. This was thought to be an aid to learning and that if the student utilised these self-assessment tasks, then not only would this allow for an assessment of what learning had took place but also that this would result in more text use by the student. It was considered that the inclusion of a summative assessment in the course may encourage the student to undertake post chapter tests and also utilise their texts for instance:

> *"-- try the questions, see how much they know. Because they will see in module one we are going to formatively assess them or summatively assess the biosciences --" (Lec 1)*

Directing students to text portions were what was undertaken and that this was also seen as a way of promoting students in how to use a text. Such use of a text was seen as breaking down the information that students needed and directing them to the relevant parts in the text:

"-- you break it down with your students -- directing them to certain bits of the text and certain chapters erm and getting them to use it --" (Lec 3)

This was seen as the only indication that students were instructed in the use of a text. This use of a text also covered the issue of using the text as a source of referenced material in an assessment task. However it was felt that such use was not indicative of learning since all texts had the same information and that referencing numerous texts was not seen as helpful for example:

"I can't really see the point of referencing a physiology book in terms of -- when they are talking about erm the heart and they reference Tortora [Principles of Anatomy and Physiology by Tortora and Derrickson 2009] or Marieb [Human Anatomy and Physiology by Marieb and Hoehn 2010] or Ross and Wilson [Ross and Wilson Anatomy and Physiology in Health and Illness by Waugh and Grant, 2006] , yea, but it's exactly the same in any other books --" (Lec 1)

An opposing view was that use of referenced material was an indication that comprehension of the text content by the student had been achieved. Additionally no one text was ever complete with its information so requiring numerous texts to be consulted:

"No one textbook is complete. I think you will get a more complete picture by integrating lots together." (Lec 2)

An area found worthy of inclusion was related to the fact that the experience of a lecturer was seen as a disadvantage since they would be unable to inspect a text from the viewpoint of a student with limited experience of the subject matter. It was raised that despite recent experience of being a student the attitude that had developed since entering the teaching profession had changed with regards to the viewing of text. This experience however was seen as being helpful in understanding the issues that students encountered when reading texts so allowed an approach to be adopted which could assist students. However it was acknowledged that lecturers were unable to view texts in the same way as students:

"Erm I think I could look at a book and say yea this is what I like yea I think I can understand it in the way it is written. I like the diagrams. --

> *that's with thirty odd five years' experience and twenty years teaching*
> *experience yea?" (Lec 1)*

Lecturers were found to have specialist interests in anatomy and physiology and it was concluded that these could influence the student on the choice of text. This could lead to the student developing a focus that may mirror the interest of the lecturer. Such interests were found to be areas such as cell biology, first aid or disease and pathophysiology for instance:

> *"-- I must admit I am always trying to bring it down to the cell which I*
> *know I mustn't but I guess I know it is my inclination." (Lec 2)*

Finally it was evident that lecturers were found to consider that the focus of anatomy and physiology was a vast subject to study. The language of the science and numerous areas to consider could present as an overwhelming task for the student but that this should be an expectation held by students:

> *"I think a student would have to accept to a certain degree yea that this*
> *is going to be quite hard to start with." (Lec 1)*

In the next section the findings following analysis relating to the five authors interviewed are presented.

Section 6.5.3 Authors

In this section four themes were identified as being prominent when viewing the interview transcripts with the first presenting findings related to the issues surrounding the authoring of a text in anatomy and physiology.

Authoring the Textbook

i) Author Qualities

The authors who were interviewed all had a background in the higher education system and possessed an interest in anatomy and physiology. The experience of teaching anatomy and physiology seemed to promote the desire to publish in this subject area. The main finding was the enthusiasm that all had for publishing a text which would assist students with their learning. This was the major driving force in

authoring a text and that also there was a need in the market to produce a text which students could use and learn from, something which current texts were not achieving:

> *"it was quite clear from the students they weren't always books that they liked -- we felt we could by pushing this framework idea as a learning tool it would give students something to hang all this detail on, the detail they are struggling with and nobody else was doing it at that time." (Auth 1)*

Additionally entry into publishing was seen to extend from having experience in writing in media other than textbooks and also from undertaking requests to review texts that were being published. Such reviewing was thought to lead to assessment of the skills of the reviewer, by the publishers, with discussions following regarding willingness to author texts for example:

> *"-- came across this request to do some reviews for [name of publisher] and thought that was a pretty good opportunity so I went and reviewed a couple of chapters and they really liked the reviews and they asked me to do more and more expert ones -- then started talking to me about writing a book." (Auth 5)*

The writing of a text was highlighted as being a career development and that if the opportunity presented itself then this should be capitalised upon:

> *"-- a department chair at the time told me that "you know when those sales reps contact you and say are you interested in writing that maybe you should say yes!" -- "(Auth 4)*

Another had had a desire to use both professional and research experience and this provided the necessary impetus to co-author a text:

> *"-- the idea of being able to put my clinical experience and my research experience and my teaching together does appeal to me so I guess they got me that way." (Auth 5)*

Some had entered publishing after being directly approached by a publisher and that this was followed by writing draft chapters to ascertain suitability for authoring:

> *"-- they agreed I could do a trial chapter which I did -- so I did that." (Auth 3)*

The approach to how a text should be presented was also seen as an impetus to author a text and this was related to how anatomy and physiology was viewed when considering others knowledge about the subject area especially in relation to when the human body does not function normally:

> *"-- the majority of people haven't really -- got much of a clue about what goes on under the skin in relation to their own health and well-being until it goes wrong er and that was an important component I think in deciding to write the book, what goes wrong." (Auth 1)*

ii) Author Relationships and Influences

All authors had developed relationships and these included those with co-authors. It was found that such relationships had begun prior to co-authoring with others commencing following the invitation to co-author a text. Such relationships had endured for many years for all that were interviewed and had developed from a shared vision of how anatomy and physiology should be taught and presented in a text:

> *"-- he [co-author] was absolutely convinced that homeostasis provided a framework for understanding physiology -- I have been teaching about homeostasis for a long time as well it was a concept I particularly liked --" (Auth 1)*

It was also found that some viewed the relationship as being both supportive and developmental and was an encouragement to author and further develop authoring skills:

> *"-- he [co-author] was a tremendous mentor I mean he groomed me in the first several years I didn't just come on just fully fledged." (Auth 4)*

All had identified the need for agreement and consensus regarding the texts with the need to have a positive relationship with a co-author. This was in order for the text to be written and was seen as a difficult task needing a mutually agreeable relationship for honest and open discussions to take place:

> *"Oh I don't think you could do it unless it was somebody you could that you could get on with and be quite open with and I mean it's a long and tortuous process." (Auth 3)*

It was found that not all relationships were positive and it appeared that authors in the UK publishing environment seemed to have less positive ones than those in the US. This led to a conclusion that working relationships were in somehow different when comparing the two countries. This was not confined to established relationships but was also found to be present when attempts to establish a working relationship with prospective publishers for example:

> *"-- [Name of Publishing Company], that's who we tried and they were quite dismissive it wasn't er they weren't rude just very dismissive, they just didn't want to know." (Auth 1)*

In established relationships in the UK there was also found to be some unfavourable relationships at times for instance:

> *"-- publishers always think they're right erm I've even heard copy editors say things like "the authors are just such a pain" --" (Auth 3)*

It was also found that publishing with smaller companies led to less static relationships due to numerous corporate mergers leading to the introduction of new members in the publishing process:

> *"-- that a relatively small company like [Name of Publisher] has gone through a number of mergers and every time they merge we get new editors, new publishers actually new people involved in the project --"*
> *(Auth 1)*

This was not highlighted in the US publishing environment and suggests that US based authors tend to publish with large well established publishers. Indeed the influence and relationship with the publisher was seen to be most positive in the US based authoring environments however, this does not imply that those in the UK ones were subjected to a more negative experience.

The influences that US-based authors had regarding their text authoring and publication did seem to be stronger when compared with UK based authors with only one area being identified where US-based authors had the least influence this being text length for example:

> *"The only real influence the only thing they come down on is that they will tell me "you can't go over twelve hundred and sixty four pages"."*
> *(Auth 2)*

All authors were seen to be collaborating on established texts with main issues related to the demands of the edition cycles. This was found to be prominent amongst US-based authors where the edition cycle was more rapid when compared with the UK. The edition cycles in the US seemed to place higher demands on the authors for instance:

> *"-- I been working on this edition for over two years now and then there is a slim version that comes out that I will start working on almost immediately and I mean it just doesn't stop." (Auth 5)*

However this did not show that stress associated with UK authors was less when authoring. Indeed it was found that where the author was an editing author, the stress of collating all chapters was very much elevated for instance:

> *"-- people won't send me their chapters finished either they haven't done or all the excuses of the day -- it's very hard working with people with editorial deadlines." (Auth 3)*

In the next theme those aspects and issues related to the introduction of a new text or updated text edition in the subject area are presented. A number of sub-themes were identified in this section.

Market Introduction of the New Text

i) Introducing a New Text

The introduction of a new text and the influences impacting on this had been raised by the interviewees and were perceived as being issues when publishing a text. The first aspect related to the need to produce a text which either presented the content in a novel way, or provided more text support for the reader. The rationale for introducing a new text was required and highlighted for instance:

> *"-- you have to feel you are writing something which you feel is an addition to what is actually available --" (Auth 1)*

The need for a text which supported students achieved by the adoption of a new format also provided a rationale for a new text development:

> *"-- I tried a lot of different textbooks and they didn't seem to be working and I thought I saw what they were missing which was er a consistent visual support mechanism..." (Auth 2)*

It was thought that at times two related texts were required to be published and that this was found mainly to exist in the US-based markets. The rationale for this was due to the texts being strongly linked to educational establishments and courses they provided. Courses were either delivered over a one or two semester period and this required texts of differing lengths and the need for two publications.

Not all raised the issue that there was a need to look at the competition when publishing texts. Indeed some avoided this aspect where others felt it was necessary to determine what other novel approaches could be developed based on what was currently available for instance:

> *"Yes we do, [name of co-author] does not, -- he refuses to look at the competition because he doesn't want any of that to creep into our text erm but [name of co-author] and I look at the competition and I look to see if anybody did present something differently -- we're really conscious of not copying --" (Auth 4)*

Indeed many did identify that there had been consideration of what was being currently published and identifying shortcomings these current texts possessed for example:

> *"Some of the other books would have these long extended narrative things like they're writing a novel --" (Auth 2)*

This did lead to the conclusion that all did at some point consider and view current publications when considering a new or revised text of their own. Whilst producing a novel approach was seen as important others did raise the issue that success of being published could at times be based on presenting a text proposal at an opportune time:

> *"-- but [Name of Publisher] came back and said "funny you should contact us because our history is in publishing novels and relatively*

small textbooks but we're expanding the health and social care section

and you caught us at the right time, come and talk to us." (Auth 1)

The need to produce text proposals did identify that there was a wide variation in what needed to be presented to a prospective publisher. This ranged from a text outline with a draft chapter to producing a full manuscript with illustrations:

"-- you have to send in a book proposal -- often they'll [The Publisher]

want a proposal for the whole book and a sample chapter and then

they'll send out to people to review."(Auth 3)

It was highlighted that edition cycles were an important issue and were seen to be linked with text adoptions and that this was prevalent amongst US-based texts. Text adoption was found not to be a common factor in the UK but in the US however, was seen to be limited to three years. In order to introduce a new text this would have to occur at the start of an adoption cycle for example:

"-- the market settled on three year edition cycle -- when you're

breaking into a market when you come out with a new edition you have

to er match that edition cycle --" (Auth 2)

Common amongst the US-based authors was that all competing texts would assume the edition cycle production for new texts and that this was seen to be driven by the publishers. However in the UK production seemed to be linked to sales figures, with falling sales being the impetus to produce a new edition rather than an education establishment adoption for example:

"The first one came out in -- it sold very well for a while and the sales

started to drop off...which er that's the time when it normally would

trigger a new edition --" (Auth 1)

Additionally it was evident that in the UK more regular edition cycles have been introduced and that this was in response to the presence of other competing texts especially US -based ones, which had more frequent new edition publications:

"[Name of Publisher] have gone from a five year cycle to a four year

cycle on the last time -- there will be a new edition every four years and

I think that's market driven --" (Auth 3)

ii) Publisher Considerations and Relationships

It was evident that a perception amongst authors existed that publishers needed to consider many issues when introducing a new or revised text into the market. It was seen that all authors identified future sales and production costs as being prominent considerations for a publisher:

> *"-- I think they would take cost as an integral part of being market driven, competitive and cost and I supposed that ultimately is what defines the size [of the text]" (Auth 3)*

It was found that future text size was ultimately dictated how a much a text would cost and so was seen to influence the amount of pages it would contain:

> *"-- all their budgets are locked in to a certain page count." (Auth 2)*

Aspects, such as a rapid production of a text, were seen as being an attempt to avoid a competitor publishing a similar text or reproducing novel approaches developed by another publisher:

> *"-- as one is published we're working at another and the [name of book] and [name of book] the one semester book? -- It is solely driven by the market because [Name of Publisher] is so afraid that we are going to be copied --" (Auth 4)*

Authors also considered the cost to the student regarding a text to an extent they displayed knowledge on how much texts cost in the different international markets. This was coupled with knowledge of how publishers would seek to control this cost to prevent prices falling in a particular market. Such control over the sales of texts in the international market resulted in text covers being presented differently to prevent the introduction of a text from one market into another. The differing presentation would allow for easy identification by a publisher and so prevent sales in other countries:

> *"[Name of* Publisher*] owns corporations all around the world and they price the books differently in every country. So they -- give them different covers and ISBN's [International Standard Book Number] so that they can price them at different prices --" (Auth 2)*

Sales of texts as highlighted earlier was also seen a major issue with regards to the continued publication of a text. The ability and success to publish was thought to be dependent on publishing with a large publishing company:

*"I don't know, if you were a new textbook author, how you would ever
break into the field, if you weren't with one of the big three. You could
have the absolute best textbook out there but if you weren't with the
big three nobody would know --" (Auth 4)*

It was identified that in the US, sales were far in excess of those in the UK and that
this was reflected in the quality and volume of texts produced in the US and the
production resources possessed by these publishers. When assessing to publish,
companies were thought to consider the costs involved and current competition and
what profits that could be gained from publication for example:

*"-- it is based on their profit margins and about what they are prepared
to invest. Big American textbooks have huge profit margins because
the sales they have in America --" (Auth 1)*

iii) Publishing Relationships

Relationships, in the process of publishing, were highlighted and the strength of these
was found to be variable. Some authors were found to have developed the working
relationship to produce an effective partnership in producing the text. This was found
to be particularly evident when considering the use of illustrators:

*"-- when I was approached by a publisher I made it a criterion that I
wouldn't agree to the book unless I could choose one illustrator and do
all of the art with, -- I started working with the illustrator in '85 so that's
what twenty six years we have been working together." (Auth 2)*

Considering the US-based publications, a far closer stronger partnership existed
when compared to the UK. None the less all did identify that the background of the
illustrator was important in gaining the type and quality of the illustrations required.
This was being linked in some way to being a medically orientated one and was seen
as valuable for instance:

*"-- in ours is by a local illustrator in [name of town]. He was a trained
medical illustrator --" (Auth 1)*

This collaborative working the influence with the illustrator was variable with some
authors having less influence on illustrations than others for example:

> *"-- within certain parameters erm and also features and artwork styles*
> *and that kind of thing and the cover you know what goes on the cover,*
> *the colour of it up to a point we have influence over --" (Auth 3)*

Relationship with educational establishments was linked to text adoptions and was seen as important when considering the success of a text. With adoption of a text it was thought that a stronger influence was felt emanating from the adopting institution regarding the textual content and development and if a requirement from a particular part of the market required a change then this was seen as being necessary for example:

> *"-- we have to make a lot of big markets happy so if Texas wants us to*
> *talk about nose hairs we have to put nose hairs in the book (*laughs*)"*
> *(Auth 4)*

The level of text adoption was seen to be either on a faculty/university basis or indeed extend to a whole US state adoption and that this could be related to a chain of state universities for instance:

> *"Canada it's never beyond one department deciding for themselves,*
> *but in the States sometimes it's a whole chain of universities across*
> *the state -- there will be these huge adoptions." (Auth 5)*

The decision for adopting a text was again found to vary ranging from an individual making this decision to the whole faculty group members again not seen in the UK. It should be noted that in the US, faculty is a term which refers to an individual academic and also that such individual members can have an influence on whether a text is adopted or not:

> *"-- all the decisions are made by the faculty either by individual faculty*
> *-- when you have an individual really how the decision gets made*
> *depends on the individual --" (Auth 2)*

Some US institutions were seen to have utilised differing approaches in deciding to adopt a text with student groups playing a part in some decision-making processes:

> *"-- bring in a group of students maybe students who have gone through*
> *the programme already or students who are just starting out. They'll*
> *put a bunch of books on the table and say you know "which one do you*

like" or they'll do a class test and see how the class test comes out --"
(Auth 2)

The role of university book shops was identified amongst the US authors as being an issue since these presented an influence that was linked with the edition cycle where these shops ran buy back schemes, common in the US university institutions and were seen as a profitable venture. More frequent edition cycles could lead to a reduction of the profits in these shops:

"There are university and department rules about how often you can change texts -- in that the universities run the book stores and they don't want to be in a position where they don't get to churn over the used textbooks for a couple of years because their profit is so much higher on the used books than it is on the new ones." (Auth 2)

This demonstrates a close link between universities, publishers, authors and edition cycles.

The relationships with the educational institution was also found to be something which was more prominent in the US authoring environment, where visits by authors were not seen as being out of the ordinary. Such visits were to gain feedback and promote the texts something not highlighted by UK-based authors. It is this undertaking of visits which could be concluded as strengthening the relationship between the educational institutions and the authors and text for example:

"-- when a book publishes, they'll put me on the road -- I was gone I think 50 days travelling with the sales reps travelling throughout the US going to different college campuses and talking to the professors." (Auth 4)

It was seen that there was the need amongst US authors to write to a larger audience than the country in which the text was more generally available. Indeed the readership was found to be an important relationship which was catered for by the way the text was planned and written. There was seen to be a concerted effort to write for a more international readership despite the text having a more US-based market for instance:

"-- I try to write the book more international as I had worked on -- er less away from "Americancentric" to more at least North America if not

international to keep the wording that way and thinking about it that
way." (Auth 5)

iv) Influences on Producing the Text

In producing a new or revised text it was found that feedback was required. This feedback was found to be gained from the student readership and ranged from being formally collected to those relying on less formal methods. Some authors were found to utilise student focus groups and these were at times numerous:

"-- I met with a group of 10 students for an hour every week for two
semesters and we went through every chapter and every figure and --
we talked about was working in this, figure out what wasn't." (Auth 5)

Some feedback was received via electronic formats with less formalised methods using informal discussions regarding a text whilst it was being utilised in the classroom environment:

"-- we would informally ask students what they think. Do they like the
book -- don't like the book -- were there things about it which they don't
really like erm and we were getting feedback all the time, informal
feedback from students." (Auth 1)

It was seen that at times formal feedback was difficult to obtain especially when this had been received by the publisher and at other times no feedback was available:

"-- we still occasionally get emails and letters saying "this doesn't look
right" erm -- it's very hard to get from the publishers -- I always rattle
my assistant and say "I need to see the feedback on the previous
edition" -- and I go "well how can you be telling me you want changes
if you don't know what feedback there is ." --" (Auth 3)

Additionally it was found that formal methods of gaining feedback was more prevalent amongst the US-based readership when compared to the UK. It was seen that active steps were taken to identify student feedback prior to commencing a revision of a text for example:

"Before I start on a revision we get, I get student reviews and I get
student focus group reviews and some of these focus groups I go to

and sit in on and when I am travelling around campuses -- I'll sit in with
classes and just talk to the student --" (Auth 2)

All authors interviewed did raise the importance of reader feedback as being required however this was not the main reason for a revision of the text but rather more due market forces and the publisher requirements for example:

"-- The driver is the market and the processes that publishers go
through --" (Auth 1)

International readership feedback, where texts were being produced for the global market, was not identified as being sought out though it was found some had been gained but from a limited area:

"I meet with students in Australia and er I have met with students New
Zealand -- I don't get to Europe (laughs)" (Auth 2)

Feedback from reviewers and text reviews were also seen as important. One reason was to identify how well the text would be accepted by the readership and if it would be recommended to students. Additionally this was linked to the past success of the text in that if a text was successful, based on the reviews, this would ensure its future edition publication for instance:

"The reality is that when it comes around to thinking about a new
edition they do a trawl of all the book reviews that have been published
on your book -- if they have been pretty bad I think you're in trouble."
(Auth 1)

The use of professional reviewers was seen as a way of identifying issues with a text such as inaccuracies and this led to the conclusion that such reviews were welcomed:

"-- we try to get a combination of professors who are teaching from the
book, professors who were teaching from another book and then
experts in various fields to do expert reviews of the chapters for content
accuracy." (Auth 5)

Reviewers were felt to be useful if their feedback was based on using the text being reviewed and if they produced reviews that were considered to be beneficial. Such reviewers were seen as valuable and in need of being retained for the future:

*"-- but sometimes there'll be somebody does an amazingly good job
and will say hey we would really like to have that person do something
again and or review something else an edition --" (Auth 5)*

The feedback from reviewers was felt to be utilised by the publisher to decide if publication could be undertaken. Such reviewer comments could lead to a change in the proposed text and may not always have been in agreement with the author and it was accepted that a change would be required to ensure that a text would succeed for instance:

*"-- they [name of publisher] also take the criticisms which all these
people have raised very seriously and they want to know what are you
going to do about it and it is no good you saying "don't agree with that
that reviewer missed the point completely" --" (Auth 1)*

The issue of international versions of texts was explored and it was seen that whilst a majority of the authors had international versions there was an incorrect assumption that these had had content changed to adapt them to the international readership. Indeed it was thought that individuals were employed to make changes for instance:

*"-- I thought that somebody actually went through the text and made
those sorts of changes but then when I started getting the international
versions I thought "they're no different"." (Auth 4)*

Some authors felt that the only difference between versions was the text cover. However it was thought that whilst international versions had been changed in the past this was now addressed by the inclusion of additional sections such a glossaries rather than a change of the content for example:

*"They generally have everything the same except for the cover. Erm
for a while the one that was going to the commonwealth had alternative
pronunciations for capillary "norad" [noradrenaline] now, I have put the
alternatives in the regular glossary --" (Auth 2)*

The final issue found to be relevant was related to the official guidance that was utilised in the US when considering text development. This was specifically related to the production of educational learning outcomes and content of anatomy and physiology courses. The guidelines, produced by the Human Anatomy and Physiology Society (HAPS), were found to influence the sequencing of the text

content. The use of the term outcomes as opposed to objectives was found to be prominent in US texts and that this was a direct influence from HAPS:

> *"-- before that it was objectives -- Er but when it came to the outcomes er at that time the Human Anatomy and Physiology Society of the US set about creating a set of model outcomes --" (Auth 2)*

The strength of the HAPS influence was seen as being a powerful driver in the content and sequencing of the text:

> *"So what we do make sure is that the curriculum guidelines established by -- by HAPS if they say it should be in there it's in there -- even the HAPS guidelines, curriculum guidelines, have it in that order --" (Auth 4)*

In UK text production text content and sequencing was a matter for the authors.

In the next theme the authors' views on text production are presented using two sub themes thought to be present when the analysis was completed.

Authors Views on the Textbook Development

i) Textbook Content and Focus

Considering text development it was thought that authors were seen to utilise subject approaches which was thought to assist the student. It was found that amongst UK-based authors homeostasis and pathophysiology were utilised to assist the student for example:

> *"-- was absolutely convinced that homeostasis provided a framework for understanding physiology -- I saw it as a very important concept in er understanding the why. Why things have to work as they do and the consequences when they don't --" (Auth 1)*

The linking of concepts with illness was also felt to be important in assisting the student understand anatomy and physiology but at a basic level:

> *"I guess what we are trying to do is communicate basic points about how the body works and what goes wrong in certain illnesses at a simple level --" (Auth 3)*

Such approaches, whilst not explicit, were felt to already be included in US-based texts following guidance from HAPS including pathophysiology and homeostasis. However there was the belief that the level of inclusion of pathophysiology was felt to be in greater detail in UK based texts when compared with similar US authored ones.

It was thought that some subject areas in the teaching of anatomy and physiology should or could be excluded from texts and that it was felt that there was an attempt to teach all the sciences through this one subject area for example.

> *"-- what I would like to do is get rid of some of these chapters that I don't think belong in an a and p [anatomy and physiology] book -- Chemistry, what's that doing in an a and p book? Nutrition I mean it's like we're trying to teach all the sciences through a and p." (Auth 4)*

This was not an isolated occurrence since it was a reoccurring issue that too much information, requested by publishers, was being included in texts for instance:

> *"-- then the publishers will expect the new edition to come with a whole load of extras and someone once said to me "[own name] it's like a car you buy all that stuff on it and you never use it" --" (Auth 3)*

It was recognised that some information in a text, whilst not taught or was not required by all students, would be included in some courses and would teach a particular area and this needed to be a consideration before excluding a subject area from the text:

> *"Well nutrition is in there and I quite like it! Even though we don't actually teach that to our own students because we don't have time. I still think it's so important to have it there and at least it's there for reference and some people do teach it you know?" (Auth 5)*

It was raised that some felt that the subject area of anatomy and physiology was not a static subject and that developments in the area had been evident for example:

"Let me argue with you first about the anatomical not changing because even though there is a change in the cranial nerves in the last edition that was quite a major thing right?" (Auth 5)

This was seen as requiring that texts needed to be updated with this new information and it was felt that there was a need to address healthcare education requirements and changes to healthcare in the future:

"-- there's much more on genetics and er what used to be called the nature nurture debate in er more recent editions -- because genetics is going to be huge in future healthcare." (Auth 1)

The language utilised in the texts was explored and it was evident that some felt such language was difficult for the student. Attempts were made by authors to address this by using approaches which simplified the language and content. It was also raised that some students were not adequately prepared for studying the subject area and this presented issues when writing the text:

"-- er the language was bad enough but trying to understand some of the science concepts and constructs when they haven't had any formal or very little formal science education erm is extraordinarily difficult." (Auth 1)

The introduction of concepts required that the language and wording used in the text needed to be simple and easily understood for example:

"-- I particularly think about what words I want to use and simple sentence construction to try and keep it as simple as possible -- I don't think you'll find any flowery language at all in [name of book] just factual simple language" (Auth 3)

Additionally it was thought that some authors felt students were not prepared for the language in the text and that this required thought to be given for future editions:

"-- there are students who struggle very much with the language level of the book -- so we've been trying really hard in the last few editions to make the language easier --" (Auth 5)

The issue of students whose first language was not English raised the importance of the diagrams utilised in the text. It was identified that difficulty with the text would lead

to students using the illustrations and if these were complex then student learning would be limited:

"-- I had a fair number of ESL [English as Second Language] students as well as traditional students and what I found was they if they had trouble with the language they would go to the art and if the art wasn't consistent they were totally, hopelessly lost right?" (Auth 2)

Additionally differing cultural aspects were also identified as issue and that some did identify that there was a mindfulness of these so as to allow the text to be sensitive:

"-- what we consider is sensitivity to issues for example using words like Inuit versus Eskimo --" (Auth 4)

It was seen that the use of a translator was evident though this was not universal and again this was linked to cultural differences:

"I know that our French translator is very cognisant of the cultural differences -- there are other people are actually doing just basic translation for them but they are the ones who oversee that and they are very interested in the cultural and making it fit that context --" (Auth 5)

However the issue of spelling considered by authors was seen as only minor consideration in relation to the use of differing spelling approaches:

"I know organization is an s instead of a zee those sorts of things so we don't pay attention to those." (Auth 4)

Whilst spelling differences was an easy obstacle to address it was raised and identified as being a perceived impediment into breaking into the established markets of the US especially when looking at the issue of alternative terminology:

"-- it is incredibly difficult to break into the American Market er and anecdotally people will say "well I am not surprised as they spell things differently from what we do and they call adrenaline epinephrine etc.etc. --" (Auth 1)

Terminology was another aspect thought to be relevant and that international change in terminology was seen as being an important when authoring new editions.

Changes were seen as being needed to be reflected in the current texts and required constant observation to detect whenever changes took place:

"-- so "Terminologia Histologica" just came out before this last edition so we have had to revise a large number of our histology terms to be consistent with the international committee that's decided on what terms we should use --" (Auth 5)

The currency of the text was identified and being an issue with some feeling that texts could become outdated in a short time frame:

"It's amazing how fast the texts starts to become looking, tired looking so er it was put to us probably about a six year life span for each edition." (Auth 1)

This was found to require constant research and exploration of the subject field so that when new discoveries, treatment approaches or novel pathophysiological discoveries were made these could be included in the new edition of the text:

"-- I'm constantly reading through you know "The Scientist", "The Science Daily" and those kind of things to see in "Medscape" to see what developments are --" (Auth 5)

Learning activities was another area found to be prevalent amongst the US-based texts. Authors included such activities since these were seen as a vehicle for students to assess their own comprehension. Such activities were planned to be strategically placed throughout the text to ensure learning had taken place for instance:

"-- we call them little speed bumps so you read a section -- I tell my students if you can't answer these questions in 3 min or 5 min you didn't get something so go back and read that section before you move on." (Auth 4)

In the UK it was found that activities to promote learning were offered differently. These activities tended to be included in internet based platforms. However there was the conclusion that despite development of these internet based activities the use of these by students was minimal and as such prevented further development:

> *"-- the idea was to have review questions on there, review questions in the book with the answers on the web site. We've done all of that and the uptake really hasn't been that good --"* (Auth 1)

The primary intended reader audience for all the authors was seen as the nursing student. However differences highlighted showed that in the US anatomy and physiology was designed to be taught in the first year of a programme of study and that the text was developed for this group:

> *"-- that would be pretty much what my own students are so first-year university they're straight out of high school and they are either in the nursing programme already or want to get into nursing --"* (Auth 5)

Whilst this was found not to be reflected in the UK, it was found that all identified that the reader audience was not restricted to the nursing student but also included other professional groups and differing educational level students.

ii) Textbook Construction

Text construction was an important area and was found to show that some authors possessed a strong influence on the text production and construction. Such influence was seen with regards to the layout of the text and was a condition in accepting to author a text for example:

> *"-- we were quite clear from the outset what er how we saw the chapters being structured and how we would write it and how we would do it -- they gave us quite a bit of a free rein on it."* (Auth 1)

This control was found to be so valuable that some did raise concerns that this could cause relationships between the authors and publishers to be affected. This was especially so with   regards to the way the pages were developed and presented for example:

> *"-- there's more friction between us and the publisher than anything else is how the pages are laid out."* (Auth 4)

The influence was seen throughout the editing process and as such was considered to be a lengthy process often involving other co-authors with the goal that the final product met with the intended aims of the authors for instance:

"-- we read the dummies [drafts] so that the compositor comes out with the dummy [draft] -- where the art is supposed to be and basically we redo huge chunks of that and make sure that the text and the art correlates as closely as possible --" (Auth 5)

It was thought that if an author joined an established team of a text which had already gained recognition, then such influence, with regards to instigating changes in the new edition was less. The influence of the original authoring team was found to be ever present when a new edition was being complied for example:

"-- I'm the caretaker on the book -- I suppose when [name of new author] started I would pass on the erm the knowledge from [name of original author] about things I knew she liked to prefer --" (Auth 3)

This was not universal amongst all authors with most identifying equal influence and having a collegiate approach to the editing process of the text. In respect of the editing process it was found that reader contact could identify errors and this was an important aspect in corrections for future editions. This was despite proofing being carried out and was seen as being an important though not all feedback resulted in changes being made for instance:

"-- offer suggestions or tell me there's an error and that's when [name of co-author] and I delve into something -- they are right as often as they are wrong --" (Auth 4)

Another area worthy of note was that authors would attempt to avoid producing a text which had similarities to other texts. The search and effort to produce a unique approach was an important aspect. It was highlighted by UK-based authors that US-based texts were similar in their approaches and this was to be avoided for instance:

"-- we have tried desperately hard not to do is to go down the route and produce something that looks like Marieb [Human Anatomy and Physiology by Marieb and Hoehn 2010] or Tortora [Principles of anatomy and physiology by Tortora and Derrickson 2010]. -- to my mind they look very, very similar --" (Auth 1)

The way a text was laid out and inclusion of learning outcomes was also thought to be an important consideration since this could assist with the learning process for the reader:

"-- decided that when students look at a book chapter they can't really break it down on their own so we created this roadmap whereby the learning outcome is linked with the particular section --" (Auth 4)

Text progression and learning outcomes were seen as being influenced by the HAPS organisation in the US and so would account for the text similarities. However in UK texts it was seen that the theoretical approach adopted dictated how a text would be presented:

"-- what we had was a book which not only sectionalised but we introduced this, this homeostatic graph which is a graphical representation of regulation of change -- I think the logical thing is going straight for the lungs and heart they are so fundamental to the well-being of the body and sustaining life -- " (Auth 1)

The illustrative material included in a text was seen as important. In the UK illustration development relied on authors sketching their diagrams prior to editing. Inclusion of extra detail and colour was seen as being limited by the cost to the publisher. Additionally the success of a text also determined if more resources could be found to develop the illustrative materials for instance:

"-- the publishers are quite happy to say "well yes we can do coloured sections yes it's the third edition now and we are prepared to but a bit more money into the presentation of the book" (Auth 1)

This was not reflected in the experience of the US authors. It was felt that higher investment allowed such texts to have more colourful and detailed illustrations. Teams of authors would work closely with illustrators in the production of the diagrams for US texts, something which was not identified with UK authors. The development of the illustrative materials however was found be an improving aspect with each new edition. This was thought to be valuable in communicating information to students and enhance their learning:

"if you look back a few editions erm you really get a picture of the evolving erm increase in detail and three dimensionality and realism of the anatomy figures --" (Auth 5)

It was seen that the illustrations were planned to a point as to how a reader would view the page ensuring that there was an effective integration of the text and illustration:

> *"-- we're looking at how the eye moves on the page, what's the easiest way to follow something er and so layout and merging the text and the art has always been a big focus --"* (Auth 2)

It was also found that use of photographic materials was also a common feature amongst US texts and not UK texts. The level of detail a diagram possessed was also raised and this related to how a diagram would be viewed by a student. Too much detail was seen as confusing and there was a need to achieve the optimum level of detail and this was felt by both US and UK-based authors for instance:

> *"-- not label everything that we can possibly label, every anatomical structure -- We try to identify what's the major thing that we want the students to get out of this figure -- keep them as clean and simple as we can --"* (Auth 5)

Comparing the level of labelling with other texts was also seen to be undertaken and that this was seen as a driver to reduce the levels labels to an optimum for instance:

> *"-- we were also conscious about how much detail we wanted to put on it – Tortora [Principles of anatomy and physiology by Tortora and Derrickson 2010] we felt was a case in point if you look at the level of labelling on just on something like the skeleton it's incredible it's phenomenally detailed --"* (Auth1)

The visual aspect of the text was seen as important and that this was seen as being a support for the student when considering the learning of concepts in anatomy and physiology:

> *"I do believe in the power of seeing it -- all of my books are focussed on giving a lot of image support to the concepts."* (Auth 2)

With regards to the text cover whilst there was limited influence on the design what was raised by one was that the cover chosen was seen as reducing intimidation that a student would feel in approaching the subject of anatomy and physiology:

> *"-- it is er it is partly attraction and partly not intimidating because there's enough intimidating in this course, if it's intimidating on the cover as well as everywhere else it's just that much more off putting --"* (Auth 2)

Another important area related to the e-book and the future of the print copy text. Whilst some did feel that e-books were gaining popularity it was felt that students in higher education relied on the use of a print copy version. The reliability to predict if the print copy text would survive was called into question:

> *"You know if you'd asked me 10 years ago I would've said it would*
> *have gone by now and so it's still here so now I don't trust my ability*
> *to predict that anymore --" (Auth 5)*

It was thought that during pre-higher education environments texts were loaned and as such students' could not annotate these since they would need to return them. This led to student favouring the e-book yet in higher education students purchased their own texts and the ability to annotate texts was seen as being possible and hence the preference for this medium. This was in addition to a perception that students wanted to physically possess and feel the print copy text for instance:

> *"-- I still have students that they want that textbook in hand and what*
> *[Name of Publisher] tells us is that high school students don't want the*
> *textbook, college students want the textbook and the difference might*
> *be that in high school they can't really use those textbooks there*
> *because they're not allowed to write on it, -- once they get to college*
> *they wanna hold that book in their hand." (Auth 4)*

This preference for the print copy text was evidenced in the classroom where students were seen annotating such texts despite having access to electronic versions for example:

> *"-- a lot of our students do carry it round which is really interesting*
> *because they have access to the E version [Electronic Version] right -*
> *- so they don't need to carry it around and still they do and they're*
> *highlighting in it --" (Auth 5)*

This preference was seen despite authors' concluding that students were more conversant with current information technology. This was seen as students being born in the early 1990's where technological advances had been made so leading to this perceived ease at using technology. Despite this there was a need to still want the print copy version of a text:

> *"I mean our students coming up now er they were born in what 93?*
> *They are so conversant in technology and yet they still want that book,*
> *I can see it and I talk to them they want it physically they don't just want*
> *the e-book." (Auth 5)*

US-based authors did conclude that the text in its current format may change with the issuing of loose leafed texts where students purchased single chapters only relevant to their courses. It was however felt that the development of such formats would present problems in that if information was required from other chapters in order to make sense of the current chapter being read. Such chapters may not be included in the loose leaf folder this being a disadvantage:

> *"-- they make it in a small loose leaf binder and just take one or two*
> *chapters with them but then there's the problem well you want to use*
> *the glossary or if you want to go back to an earlier chapter --" (Auth 2)*

The future of the print copy text was felt to be assured, when considering the ease at which a physical text could be navigated when compared to an e-book. The editing of the text, in its print copy format, seemed to confirm that some aspects of text use could not be duplicated when looking at the same use of an e-version of the text:

> *"-- when I'm working on the book I have an open book in front of me*
> *despite the fact that everything we do is on the computer -- it can never*
> *be as easy just as flipping with your thumb versus clicking and you*
> *can't fold the page over and look." (Auth 4)*

Finally the issue of text size was considered by authors and this was linked to including more information based on feedback from users and that this needed to be considered in light of the text becoming too large. The text size increase did raise questions as to how such a text would be viewed in that was it a reference or classroom text. This led to the need to consider that increasing of text size in new editions could not continue for example:

> *"-- you can see the progression over the years it has just gotten*
> *bigger...until finally we said "we have to stop" because you have to*
> *consider at what point is this a resource in the class versus a reference*
> *for the discipline --" (Auth 4)*

The text development did not always lead to an increase in size and that construction, regarding materials used, was seen to allow a text to remain at a relative stable size despite having more content. These thinner pages with an increase in page numbers resulted in a smaller increase in text thickness:

> *"-- I think over the years it's probably not significantly bigger than er*
> *the eighth edition -- it might be slightly thicker in that the pages might*
> *be slightly thinner and there's more of them --" (Auth 3)*

In the final theme the authors views on the text in the learning process and student use is presented using a number of sub-themes.

Authors Views of the Textbook in Education

i) The Text in the Education Setting

Authors had considered the issue of the academic level when writing a text. There was a differing approach when comparing US and UK authors in that the provision of the anatomy and physiology lectures were designed to be delivered in the first year of a student's course in a higher education institution in the US as indicated previously. The texts therefore were aimed at this level whereas in the UK this was not well defined. One UK-based author did view their text as being aimed at a lower academic level student with little prior knowledge. It was also seen that nursing students were mainly the intended audience for the text and that the level of the text was thought to be commensurate with the knowledge levels of qualified nurses:

> *"-- it's sort of mainly aimed nurses arguably the very lowest level -- I'm*
> *quite happy where [Name of book] is focussed for a nursing course --*
> *if you know what's in [Name of book] inside out you're gonna know as*
> *much as a lot of nurses out there --" (Auth 3)*

With regards to the application of this knowledge authors felt that this would be undertaken following the initial period of anatomy and physiology lectures. Again this was more apparent with US-based authors where such teaching took place as indicated previously. This would provide a basic knowledge base for subsequent years in their courses:

> *"Who was your intended audience I mean which was your traditional type of student you was aiming for?" (Res)*

> *"Er undergraduate first year er no "pre-reqs" [pre-requisites] and erm sometimes sophomore with intro bio but really -- in the US two thirds of the courses there are no "pre-reqs" [pre-requisites] the students take it right out of high school or first thing when they return from college -- " (Auth 2)*

The academic levels were, however, felt to be more apparent in the learning activities that were found in the latter sections in each chapter of the US texts:

> *"--we called it a three level learning system and it's loosely based on Bloom's taxonomy so we had fact, active recall and then concepts and application." (Auth 4)*

In one UK text the author identified increasing academic levels in each chapter which dictated the format of the writing. A systems approach was adopted and each chapter started with the basics and then became more detailed as it progressed, referring back to the basic sections as outlined below:

> *"-- every chapter had an overview at the start of the chapter which sought to present the basic principles -- then pick up on that in more detailed section referring back --" (Auth 1)*

Learning styles were found not to be accepted amongst the US-based authors who stated that little research was available to support their consideration and use. It was felt that learning was an inbuilt desire to learn and that assessing a style was of no use for example:

> *"No I think learning styles is hogwash (laughs) erm -- because if somebody could show me some bona fide research where you had a control group and you had a treatment group that could show me a difference in how people learn then I would buy on --" (Auth 4)*

and

> *"-- we didn't evolve to have a learning style, the universe does not present itself to you in particular styles -- it doesn't matter whether it*

smells bad or looks good or you hear it you gotta learn -- there isn't

any peer reviewed literature that supports any of it." (Auth 2)

One UK-based author felt that the issue of learning styles could not be addressed by a text due to the differing styles available. It was felt that the lecturer was to be seen as interpreting and assisting the student learn the material of the text, being described as their craft:

"--.the craft of the author is to produce something that students can

understand. The interpretation and facilitation of the learning of said

material I think is the teacher's craft --" (Auth 3)

There was a sense that the student was seen as more central to the US text when this was being authored. This was reflected by the increased use of student focus groups and feedback with regards to the text development for future editions with writing being seen as for students only:

"-- I got it into my head that "this is for my students their professors

know their stuff we can write academic papers for them" but this is for

my students." (Auth 4)

The choice of the text was also felt to be determined by how lecturers viewed the needs of the student, with some being seen to decide the text based not on what the student could use, but what the lecturers felt centred on the course teaching components and content. The disregard for the student needs seemed to be contrary to the author's view above:

"There are faculty [Teaching academics] who say "I don't care what

students think, I remember how I learnt this and that's the way I am

going to teach it." I had a guy say "I don't care what the students want,

I teach what I like to teach" (Auth 2)

Additionally it was evident in the US, the text was seen as a course in itself, inextricably linked with the lecture content. In the UK no such strong linking was found to be present, instead what was identified was the ability for the student to be presented with an array of texts to support their study in anatomy and physiology.

When discussed with a US author regarding the differing use of the text in the UK and the US, it was felt that the text focus needed to be considered as to whether it was to

support a course, as a reference or to present a course in its entirety in the contents of the text:

> *"--.again I think this goes back to the question is this for a course or reference for the discipline." (Auth 4)*

ii) The Text as a Resource

The strong linking of the text with the courses in the US also highlighted the importance of accompanying teaching materials supplied with an adopted text. Such materials were found not to be confined to the US but also in the UK however their primary role was intended for the US-based courses. The provision of such materials was found to increase the chances of an adoption. The inclusion of these was seen as a necessity to deliver a teaching session:

> *"-- you would not teach a course in the US anyway if you didn't have a text which provided all of the PowerPoint™ materials to support your lectures --" (Auth 2)*

Provision of teaching materials did lead to the finding that change of an adopted text would be difficult as this would require the overall change of the teaching materials as well. It was raised that if there was use of a range of texts then more generic teaching materials could be utilised:

> *"-- here the professors tend to tailor their notes towards the book -- so then once you've done that you've got your PowerPoint™ presentation for the lecture ready right? Erm it's harder to change books you know it's harder -- you know if the students were using whole bunch of textbooks then it wouldn't matter so much I guess then would have to do more generic stuff and lecture notes." (Auth 5)*

It was raised by one author that use of their own text in their teaching did not extend to the inclusion of the text teaching materials in their classes. It was found that the requirement of such materials, by the publisher, had led to too many slides for use or be able to utilise in a teaching session:

> *"I have my own set of Power Points™ -- what the publisher wants you to put in -- sometimes there are over 200 slides!" (Auth 4)*

This was not an issue in the UK where lecturers were thought to produce their own. Indeed it was considered that when texts were in their earlier editions teaching materials were supplied on computing media and as such were seen as not being utilised due to a lack of knowledge on how to extract information from this media:

> *"-- my first edition came with a five and a quarter inch single sided double density floppy [Data storage Disk] for the instructors and it had all of my lecture notes and how much time it would take to deliver each lecture. Nobody knew what to do with the floppy [Data Storage Disk] --" (Auth 2)*

For one UK author, it was felt that many experienced lecturers had built up their own teaching resources and would not access web based teaching materials despite the publisher requiring these be produced:

> *"-- you're a specialist in a and p, you've clearly not got any use nor want for what's on the web site for the lecturer -- but we were told this is what everybody wanted." (Auth 3)*

The provision of internet based resources was seen as being an expectation amongst US authors however this was not the case for UK-based ones.

The provision of student focussed resources had been identified as not being accessed by the student readership. This reluctance to use web based resources was raised in the student findings however, authors felt that encouragement by lecturers to use such resources could in fact lead to it less multiple text use and assist learning when undertaking anatomy and physiology studies for example:

> *"-- my students never ever used them despite me encouraging them -- then they realised "okay we are humans we're going to take the path of least resistance" and this is when I was finally was able to convince my students "all those extra books you are buying a and p for dummies and A and P simplified you don't need those anymore now it's all these tutorials on a nice platform for you" so --" (Auth 4)*

The provision of physical optical media, containing resources for use by the student, seemed confined to the UK where in the US this relied on the internet based platforms. However in the UK the provision of print copy adjuncts such as study

guides were made available. If sales could be increased with a provision of a CD ROM then this would be provided though if the internet site was available then there was an expectation by the author that the optical media would not be available:

"Well they've got this free web site with it now and there's also a study guide, accompanying study guide, paper based study guide erm I think they probably didn't go for a CD ROM -- this new edition has got quite a big web site --" (Auth 3)

iii) The Authors Views of the Student and the Textbook

The choice of texts by students was seen as being reliant on the lecturer and this was based on the experience of the authors, who for the most part were still actively engaged in teaching. One author did identify that they were expected to recommend texts from a selection of texts:

"-- we were encouraged to recommend -- we were encouraged to recommend one or other or more of these books --" (Auth 1)

Whilst verbal recommendations were identified, the use of materials from texts, in lectures was also seen as an endorsement of a text by the lecturer. This was also found to link with an author's own experience as a student where choosing a text used by a lecturer was thought to allow greater learning to be undertaken:

"-- I wanted to have the book like the teachers used or would recommend because I knew that if I learned that I was likely to get a lot more right than if I bought some other off beat book I fancied in the book shop --." (Auth 3)

The production of a text and then subsequent employment of the author in an educational establishment was seen not be an assurance that the text would be endorsed by their colleagues. It was felt in the US that there was a reluctance to endorse such texts and that any proceeds in the form of royalties could not be earned on texts that were authored and subsequently sold to students with one's own institution for example:

"There's, actually, at most universities, there's a policy that you can't keep the royalties generated by sales of your textbooks at your

> *institution er and some -- at some places faculty may feel*
> *uncomfortable about mandating a book written by somebody who's a*
> *colleague." (Auth 2)*

The freedom for a student to choose a text was limited to the UK though it was observed that students did not want a choice but be given a recommendation. It was thought that students did not want a list of texts from which to choose:

> *"-- we always provide a list of choices, the students don't really want a*
> *list of choices --" (Auth 3)*

In the US it was felt that if such a choice were to be given then this would lead to no texts being chosen or that students would have difficulty in deciding which text to purchase. This suggested that student would be unable to select the most appropriate text and an assumption that students wanted the assurance of being recommended a text for use in the subject area.

There was an acceptance that many students use multiple texts in order to assist their understanding of a central or main subject text. Such additional texts were thought by authors to be one which had a lower academic level and such use would allow for information in a higher level text to be more easily understood. Such multiple text use was seen by one author as being a driver to re-examine their text to see if improvements could be made since use of other texts was counter to what the authors had intended. Alternatively it was thought that the use of other texts could present information differently and could assist the student and that this was actively encouraged by one author:

> *"-- if students are struggling with something and I can't explain it any*
> *better than my book I will go to another source and see if maybe they*
> *said it differently." (Auth 4)*

It was found that attempts to capture how the text was utilised in the classroom had been undertaken and was viewed as being part of the role in authoring a text. Introducing new material in a class was seen as a way of evaluating how such material would be received and understood in a text. If a text was being utilised and it was found that certain aspects were an issue for students this led to the re-examination to ascertain if improvements were needed for future editions for example:

> *"I think it can help me make improvements to the text so if they find*
> *something in the text that is unclear or whether there is a typo' (laughs)*
> *or erm they just didn't get it then if I have students who are not getting*
> *it in my class then that means we have a problem within the books --"*
> *(Auth 4)*

The use of co-authors who also had teaching responsibilities was also identified as being a vehicle to introduce and test new additions in a text for instance:

> *"I have co-authors now er they are still actively full time teaching so I*
> *get to try new ideas in the classroom which helps a lot too." (Auth 2)*

Finally the text was viewed by authors to be an investment for any student purchaser. Such a purchase would provide the student with a reference resource which would be useful after their courses had been completed should further information be required:

> *"Because I think it's a good reference for them to have in the future too*
> *right? -- if they're going to be practising, nice to have a book that shows*
> *you the anatomy so you can look it up again." (Auth 5)*

This was echoed by another author who also thought that such investment in purchasing a text would at least be valid for the duration of a course:

> *"I tell students it's an investment in your future and you're going to use*
> *your a and p textbook at least for the next three years." (Auth 4)*

In the final section of the findings the results of the analysis of two publishers are presented.

6.5.4 Publishers

In this section the findings from the two publisher interviews are presented. Five themes have been identified with the first viewing the influences of the commercial issues in publishing a text.

Commercial Influences

In this theme it has been evident that publishing has been found to be ultimately a commercial business with sales of texts seen as being paramount. The commerciality however was found not to be at the same level with a marked difference when comparing the two publishers interviewed. One publisher did in fact consider the company to be a more commercial focussed publisher when compared to others for example:

> *"-- we're probably the most commercial and I am not going to beat around the bush we are the most commercial sales market focused organisation out there --" (Pub 1)*

It was found that both placed great importance on the existing markets for the texts published and also when considering the commissioning of new texts. It was the identification of market needs and gaps in this that provided the basis for introducing a new text. Differences in the focus of each publisher was apparent when considering the introduction of a new text with one being more directed to what would be commercially viable:

> *"-- so I look at the market all the time -- and I look for gaps in the market and what sells already and what I can develop that I think would be commercially viable --" (Pub 1)*

None the less both were clear that it was about finding gaps in the market where a new text could provide means of achieving viability of a new publication:

> *"Erm so it's about identifying where we've got gaps in our list but also identifying where there are gaps in the market --" (Pub 2)*

The difference between each publisher was identified as having an international presence. One had established international markets where another utilised the services of an intermediary agent in promoting the sales of texts in defined countries.

An important aspect regarding sales of texts related to how students decided on which texts to buy. It was found that publishers identified what was seen as a reading list approach unlike the US markets where text adoptions were common. This presented issues for one publisher in that it was evident that the adoption approach made for easier sales though again this was raised only by the more commercial of the two publishers:

> *"-- I think the differences in the way that the US market works and the local market works are just there ultimately it's an easier sell in the US market --" (Pub 1)*

Of interest here was that this same publisher felt that there was a move in the UK for shorter reading lists and that text adoptions were becoming more prevalent. Such a move was seen as taking away the confusion a student develops when confronted with making a choice from a long reading list:

> *"-- I have seen a shift gradually to more smaller defined reading lists, and we're more actually starting to see more adoptions --" (Pub 1)*

The importance of considering the local market was identified by both publishers and as such feedback from these seen as most important. The feedback was an indication of the success of a text or possible success of a proposed text:

> *"You've got to rely on feedback that you get from the market to judge whether that's suitable --" (Pub 2)*

Sales to the markets were identified as using differing approaches when comparing the two publishers. It was found that the more commercial publisher utilised a sales consultant model where such agent's roles were to achieve sales by encouraging the uptake of texts:

> *"-- what our sales consultants have to do for example, when they going out speaking to lecturers is first convince the lecturer that this is a good*

book to put on their reading list or hopefully for us, to adopt as the text
--" (Pub 1)

The other placed far less reliance on this approach using agents to provide feedback on texts and what the needs of the market/student were. This publisher seemed to adopt an approach based on directly communicating with the student and that the use of social media and advertising was seen as a way of contacting individuals through a variety of means:

"-- we do mailings both by e-mail and we do hardcopy mailings as well.
Erm advertise in relevant journals try and get book reviews in the
relevant journals as well. Erm and increasingly try to reach students
directly erm --" (Pub 2)

Similarities did exist between the publishers when considering the sales of texts in relation to how these were achieved with production of text packages, including adjuncts such as internet links. The production of packages were seen as increasing the sales of texts but when these contained internet links safeguards were needed when considering the issue of second hand sales amongst students. Limiting access to a period of time was seen as an encouragement for a student to purchase a new text where access to an internet site could be guaranteed:

"-- like that is a second-hand sale essentially -- so we sort of recognise
that and that what we don't really want to see is that at the end of the
first year that the students sells it on to somebody else -- yes we want
students to buy a new book --" (Pub 1)

The issue of students reselling texts was also raised by the other publisher and identified as a problem:

"Yeah it's difficult for publishers when you know students sell on books
second hand --" (Pub 2)

Limiting access to internet adjuncts with second-hand sales was seen as being linked to the resources required to develop these sites, which was identified as being great when considering the more commercial publisher where such sites were linked with what was seen as premium texts:

"-- we tend to concentrate on the premium ones which is where we
really put our efforts into and money --" (Pub 1)

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The price of a text had been highlighted as an issue and was firstly related to the subject area with anatomy and physiology texts requiring higher production costs due to the nature of the content. This therefore also needed to consider how texts would be sold:

> *"-- they're generally quite expensive to produce because they are full-colour, heavily illustrated, photographs, tend to be quite long, erm bigger page sizes -- we have to bear that in mind against how many copies you're going to sell --" (Pub 2)*

Such costs were seen to be reflected in the price students finally paid. The type of student was also seen as having an effect on price since it was identified that the higher numbers undertaking nursing courses meant higher sales and so led to lower text prices:

> *"-- interestingly we would consider nursing and health care to be an extremely price sensitive and low-priced market which is a difficult one. It's only really the numbers that make it sort of viable --" (Pub 1)*

It was found that a more specialised student type would result in lower levels of purchases and so higher text cost for example:

> *"-- if you take midwives it's actually a very small number erm and producing very highly illustrated very expensive texts for a very small market it means it would cost a lot for them --" (Pub 2)*

It was highlighted that text costs in the US were higher and that this was as a result of the buyback schemes, which were not present in the UK. Such schemes were seen as increasing the reuse of texts and less purchasing of new ones. By increasing the prices this was seen as reducing the loss seen in fewer sales. This had led to a greater price difference when comparing the US and UK costs of the same text:

> "*In the US it's a very high price market a book like [Name of Text] erm [Name of Text] somewhere probably the books would be north of $100 erm over here you're talking about £40 so it's less --" (Pub 1)*

It was also seen that publishers acknowledged that students in nursing and health care had an expectation of paying lower text prices and one publisher identified a level at which a nursing student would not go beyond when considering a purchase.

It was felt that this needed to be considered when determining the prices of texts for example:

> *"-- there seems to be a cut-off of kind of £30 it's kind of the most money they would consider spending on the textbook --" (Pub 2)*

Finally choice was seen as being important with one publisher raising the issue that well established texts led to introduction of other texts being difficult and so reducing the likelihood of new texts being published:

> *"-- when you got a text like [Name of Text] that has been around for such long time the lecturers know it, because they might have used it themselves and it's hard to kind of dislodge that --" (Pub 2)*

One publisher was found to believe that there were only a limited number of publishers and this restricted choice since there was a limited availability of different texts and as such a re-entry into the market for nursing and health care would increase the likelihood of more choice for instance:

> *"-- you know and [name of publisher] certainly in almost in the 10 years since they bought [name of publisher] off us, them and [name of publisher] sort of had the market to themselves -- we've come back into the market --" (Pub 1)*

In the next theme the issues surrounding the viability of text is presented that impact on the decision to publish a text.

Publishing Considerations

Seeking where needs in the market existed was common to both publishers interviewed and the issue of competing texts seen as an important consideration when considering the publishing of new texts. However there was a marked difference between publishers with one seeing commercial viability being the most important aspect compared with whether current texts were meeting the needs of the students and lecturers. The issue that anatomy and physiology produced a similar content for all texts published identified that one publisher often sought to identify novel approaches for a new text. This would lead to the text being more likely to gain a place in the market:

> *"-- if you want to fill that niche rather than just providing another repetition of other books that are on the market -- it's about judging how well it's going to be received --" (Pub 2)*

Edition cycles were identified as another consideration when looking at text viability. Both publishers indicated that cycles were directly linked with sales numbers in that following the first year such numbers fell and that the introduction of a new version would result in increased sales:

> *"--.traditional academic textbooks will be on say a three year cycle erm first-year it's all new and shiny and everybody loves it, second and third years it's more difficult, people are not seeing it as new, you strategically publish it into those second and third year gaps of main competitors --" (Pub 1)*

Having a cycle more regularly would achieve more first year sales. This was raised especially when viewing the US texts where this market had the issue of a well-developed second hand market as identified previously. Such a regular cycle was seen as increasing the income from this increased regularity and hence frequent new editions and was only seen as being a feature in one publisher's strategy.

One publisher did raise the issue of text adaptations occurring where texts published in the US were adapted for the UK audience. However adapting a text was not always seen as being a viable proposition requiring its introduction without any adaptation. This was seen as preferable since the high production investment in the US texts was not seen as being viable option in the UK so leading to the increased reliance on text being sold without adaptations:

> *"-- they can afford to spend a hell of a lot of money on the text that we couldn't do locally so it's not actually commercially viable for me to commission a local version of [Name of Text] or [Name of Text]." (Pub 1)*

The other publisher did not identify this due to having a mainly UK presence with texts developed mainly in the UK. They focussed on producing a text which met the local market only:

*"-- can we produce something as good but that it will be a UK
perspective that speaks to these people's needs rather than them
having to rely on [US texts] --"(Pub 2)*

The adapting of a text was thought to be more inherently difficult than authoring a text
from its conception. The decision to adapt a text was based on the ability to finance
the production of this:

*"-- you know er the US clinical skills textbook like [Name of Text]
adapted the one over here I think we're around about 800 or 900
pages, the US version is about 2000. That's hell of a job for adapting
authors to just cut half a book and to still make sense of it --"* (Pub 1)

Both publishers did identify that reviews were an important aspect in deciding the
viability of a text or text adaptation. As stated by one publisher the decision to adapt
a text for the UK was often undertaken following reviews on how this would be
accepted by the student audience in this country:

*"-- we send the US editions out for review and say "if we did adapt this
what would you want to see changed and so on" you see much
revolves around that."* (Pub 1)

The issue of time resources was raised in both interviews. It was seen that one
publisher felt that authoring texts was often undertaken in a strict time frame. This
was considered when seeking out new authors and assessing if they could author a
text in these limits. It was also thought that undertaking the production of new editions,
of established texts, also required a strict adherence to a time frame where existing
authors would be contacted up to two years in advance of the new edition publication
date. It was thought however, that original authors were at times unavailable to
undertake the writing of a new edition and it was at this point that new authors were
sought:

*"-- obviously that has to be a year or two in advance of when we wanted
to publish, so for example we'd be talking to them next year about
updating the book -- some authors don't want to do another edition
because of various reasons -- then it's a case of bringing in someone
new a new team to take over the book."* (Pub 2)

It was also identified that working with authors who were new to authoring was often seen as more time consuming since draft chapters were seen as being too large when produced by an inexperienced author. Time working with the author in guiding them to produce a text in the required word limits was seen as an issue but that this seemed to become less so as the author became more experienced:

> *"The authors have got parameters to work to -- new authors, ones we*
> *tend to spend a lot of time with, in terms of just going through getting*
> *sample chapters in the reviewing -- once they know what they're doing*
> *it gets simpler." (Pub 1)*

It was also found that publishers were now looking for authors not to just think about the text to be authored but also the adjuncts that needed to be provided. It was highlighted that this is becoming more common since the notion of producing just a text no longer existed but rather now thought had to be given to how it would link with other aspects such as internet resources or adjuncts provided to the student:

> *"-- nowadays I will be looking for authors to be thinking about "the*
> *package" not just "oh here's another textbook" --" (Pub 1)*

Whilst one publisher felt there needed to be an internet adjunct another did question if this did have any value since questions were raised as to whether it would be utilised. Both did however seem to imply that there was a great importance linked to the production of an internet site linked with a text.

The next theme introduces the considerations given to the student readership and how these are important in the publication of a text for anatomy and physiology learning.

Student Considerations in Publishing

Student types were considered an important aspect when viewing the texts produced. Both publishers were found to see nursing as being the prevalent student type that a text was being published for and essentially a target audience:

> *"The way that the [Name of Text] has been designed is for the locals*
> *of the nursing and health care market --" (Pub 1)*

This was concluded as being related to the high numbers thought to be undertaking these courses and so leading to higher purchases of texts. Despite texts being produced for nursing anatomy and physiology one publisher found that texts for advanced undergraduate courses were still appealing to nurses and so being purchased by them.

The inter-professional aspects were also highlighted by both publishers and whilst both recognised that there was a preference for the production of profession focussed texts the varying numbers of differing student groups led to the production of generically focussed texts. It was concluded by one that the more generic a text became the more likely it would not appeal to any student type since it was felt that students wanted texts which communicated directly with their student group:

> *"-- it's difficult getting that balance with a and p [Anatomy and*
> *Physiology], what students tend to say is "we want the book for us"*
> *and "I want a book that is relevant to me --" The more you try to make*
> *that multidisciplinary, multi-professional the less that they're getting*
> *directly speaking to any one profession --" (Pub 2)*

However if a text was more focussed to one student group then the market for a text became smaller and less commercially viable:

> *"Inevitably we get "you're claiming well I'm a health professional where*
> *as I'm a physiotherapist" but you know there's not much of a market in*
> *physiotherapy in themselves they are a much smaller --" (Pub 1)*

It was found that in development of texts the issue of student feedback was necessary and that this feedback related directly to the needs a student had. It was evident that the least corporate focussed publisher was more engaged with the student's needs when developing texts, as opposed to the other publisher who indicated that student needs came via the lecturer for example:

> *"Talking to -- students and finding out if the current books on the market*
> *are meeting their needs -- identifying those kind of needs -- and offer*
> *a book that meets other students' needs --" (Pub 2)*

As opposed to:

> *"-- it does come down to the lecturer -- we look at their needs sort of the needs operation in terms of "you know what do you require and what you teach and what resources you like to use and what results do you want" --" (Pub 1)*

This importance of the lecturer was however raised by the other publisher in that a text was needed which met the requirements of the lecturer:

> *"Erm lecturers also have particular requirements some people like one style and other people don't --" (Pub 2)*

Text presentation was also found to be important in how students used their texts. The textual layout and how information was presented was necessary to consider in that students wanted textual information to be broken up and become more accessible and readable for example:

> *"-- what meets the needs the best, trying to present things in a variety of ways in a textbook -- they don't want really lengthy tomes they want -- short paragraphs --" (Pub 2)*

The issue of larger texts and student use was also highlighted in that one publisher did indicate that students starting a nursing course tended to purchase large introductory texts in their first year. It was observed that in subsequent years texts purchased were often smaller and it was this that dictated the type of books published:

> *"-- we would have a big, what we would call intro textbooks which would be probably very much aimed at sort of first-year modules -- then we would have other books and they tend to be smaller ultimately for the second and third year --" (Pub 1)*

Having shorter smaller texts which possessed only relevant information was found to be preferable and implied that reading larger texts were not a choice a student would wish to make:

> *"But students do say that actually they want shorter texts that they feel are much more accessible and they can relate "well this is the important information I need to know" --" (Pub 2)*

Despite no inclusion of price differentials it was concluded that such larger texts would carry a financial outlay and were being targeted at inexperienced first year students. It was indicated by a publisher that feedback from students however was that they wanted smaller and shorter texts.

The use of multiple texts was identified as being prevalent amongst students studying anatomy and physiology. It was acknowledged by one that this was a difficult area for some students. The use of additional lower level texts, identified as being used to assist understanding of the higher level texts, was seen as being acceptable by this publisher. It was indicated that students did not wish to disclose, to their lecturers, that this approach was being used but it was thought that lecturers acknowledged and accepted that this was occurring amongst students who studied anatomy and physiology:

> *"-- they don't tend to admit that they do use these books but the feedback we've had in terms of anatomy and physiology particularly is that they struggle and they find it really daunting and actually they do use a lot of the more basic materials --" (Pub 2)*

The other publisher whilst acknowledging that students purchased additional texts felt that such texts could at times not be considered academic material:

> *"-- there are books out there that people will still buy they're very cheap, basic and if they want to spend £9.99 then fine -- it's not a textbook it's not particularly a learning device --" (Pub 1)*

Features in a text, was seen as a way of negating the use of other texts to assist in understanding of the information presented a text. The use of these features was seen as a vehicle to assist learning:

> *"When you are producing the big more in-depth textbook it's about trying to get that balance so you have features that make it accessible -- have summaries and key points that just reiterate what the main points of the chapter were --" (Pub 2)*

The use of the text in the classroom environment was found to be an area where opinions differed as to why this was thought not to occur. One publisher was found to view the text as being unwieldy in its size to carry into a lecture with the other

concluding that texts were only utilised in private study. Such private study was seen as supporting assignment preparation only:

> *"I wouldn't necessarily expect them to sit in class -- it's something that they would refer to erm quite regularly in their, in their various activities assignments and so on. It's really aimed at that sort of activity." (Pub 1)*

The internet adjuncts and their use were seen as differing with regards to the expectations of each publisher. As previously indicated one publisher felt that use by students was minimal but that such use was mainly focussed on the use of self-assessment tools which provided immediate feedback once these had been completed:

> *"The students do like the multiple-choice questions and especially where they're interactive and they get feedback erm activities they can do online -- they do use them but to varying degrees I think." (Pub 2)*

However when compared with the corporate focussed publisher it was felt that the internet site should be seen as an integral part of the text when it was purchased. Aspects contained in the text and the internet site was felt to be interlinked leading to the conclusion that they complimented each other and led to increased use of the text:

> *"-- we will advertise the fact that it has got [name of website] on the front cover of the book as well, to indicate that there is more than just a book that you're buying here --" (Pub 1)*

It was felt by the other publisher however that the student feedback led to the belief that the information on an internet-based platform was untrustworthy and so reduced use of this adjunct:

> *"I do find sometimes students have said even when they have material on the website they seem to trust what's in the book much more --" (Pub 2)*

The final area identified as significant was related to the issue of interest. Both publishers were found to be in agreement that interest was an important area to consider when publishing a text. Both highlighted that the writing style of the authors was key to stimulate interest and engage the student in the use of the text:

> *"-- we're asking authors to write in a way that reflects what the student wants -- keeps people engaged -- they need to be interested in what they're reading." (Pub 2)*

The style of the text best at engaging the student, especially nursing students was one which was not too theoretical but achieved the right consistency between knowledge and being in some way entertaining:

> *"-- describes it a bit like Channel 4 News. In that, there something about Channel 4 News that is sort of light-hearted and engaging but sort of serious? -- you know not too fuddy-duddy -- looking at nursing students not too academic but still authoritative erm so sort of got the pedagogical features, the interest, the applied, the application so you know why is this important --" (Pub 1)*

The next theme identifies considerations that are seen as important in how the text published is integrated into the learning experience in education.

Integrating the Text into the Educational Experience

It was identified that the academic level of the text was a consideration since there was a need to match the level of the text with that of the student. This was found to be problematic since, as identified by one publisher, the student's previous experience of anatomy and physiology was from pre higher education sources and that this did not prepare then sufficiently in gaining understanding the content of texts used in higher education courses:

> *"-- some students haven't done biology since GCSE [General Certificate in Secondary Education] and they really struggle so actually they can't cope with the big textbooks at that point and they need some more lower level material --" (Pub 2)*

This was also raised by the other publisher who felt that there was a marked difference in the US and UK systems of education specifically higher education:

> *"-- the American first degrees are at a lower level than ours there's no doubt about that but then err I mean they start school later anyway so they are a year or two behind anyway --" (Pub 1)*

What was of interest however was whilst it was believed that US higher education was at a lower level, when compared to the UK, the text with which UK students were having difficulty with, as highlighted in the findings from student interviews, were in fact published for the US education system.

It was highlighted that where courses had anatomy and physiology, in the first year of a course this was considered as an introductory stage when considering the academic level. It was during subsequent years of a course where higher academic levels were introduced. It was here where it was thought that students had issues with anatomy and physiology since this, in UK courses, had such content which was considered as being delivered throughout a course rather than, as in the US, in the first year of a course. This was identified as being an issue for one publisher who was introducing texts from the US since adapting the text to meet all levels was problematic:

> *"In a and p [Anatomy and Physiology] over here, sometimes it's a module, sometimes it's, in terms of nursing for example, it will be integrated --" (Pub 1)*

This was not however seen as an issue for the UK-based publisher since their texts were considered to be aimed at all academic levels as this was reflected in the text content when authored and edited:

> *"So we would look at where erm at what level the module is taught, so if it's always taught in year one -- that would be a more introductory level If it's taught anywhere between year one and year three or four -- it's got to cover a variety of levels --" (Pub 2)*

It was seen that with this publisher they identified that the text produced could not meet all the information needs of the student. This was underlined by the position that lecturers would direct students to other sources of information not contained in the text, which could be more in depth and be more current than possibly what was in the text itself:

"-- it's about pointing students to further resources that they should be looking at as part of their studies." (Pub 2)

The area of the University Library and librarians was identified as being important by one publisher in that they were prominent in demanding the resources they felt that students needed for example:

"-- I think they're becoming much more involved in demanding the kinds of materials that they know the students want --" (Pub 2)

It was identified that librarians were important in providing feedback on what students felt they needed and also with those areas where students were having difficulties in relation to the texts they utilised. This was found to oppose the finding that students seldom identified the librarian as a source of support and information when selecting texts as indicated previously. The inclusion of the librarian in the other publisher discussions was linked specifically with the sales teams and not seen as a resource regarding student needs:

"-- we do have erm certain members of our sales team that are involved with yea library sales." (Pub 1)

In this final theme the visual aspects of the text are identified as important as is the issue of the future of the text in its current format, that being a print copy text when considering technological advances in publishing.

Textbook Development

It has been identified that the external appearance of a text was thought to be an important factor in the development of a text. Text covers were only considered when the text was ready for publication and that the competing published texts needed to be viewed prior to development of the cover. This was to ensure that an eye catching cover could be developed which would differ significantly from those that were already available. The spine of a text also warranted attention since this was often the first part of a text cover that was viewed and should therefore be equally as attractive:

"-- the first impact is you know the cover actually often they're on their sides so you need to have the impact for the spine, the cover yeah you need a nice absolutely a nice arresting --" (Pub 1)

However there was a difference found regarding how many resources would be utilised in the cover development, but the final design should be sufficiently detailed to reflect the text contents and also attract a potential purchaser.

The visual impact of the texts contents was explored and it was found that editorial preference was at times thought to influence the eventual colour used in the text for example:

> *"I just don't like brown and it just looked muddy and you'll see with the*
> *new edition it will be a lot cleaner and brighter erm less US looking --"*
> *(Pub 1)*

This preference however, was not found to be present in the illustrative materials used in a text. As such it was seen that professional illustrators were utilised to develop authors own sketches and that agreements would be reached between the publishers and authors with regards to the final illustration. However cost was a consideration again in producing these illustrations and could be a limit on factors such as colour. This needed to be considered since the overall cost of the text for the student would be affected by this and other issues. Nonetheless it was acknowledged that the subject area of anatomy and physiology warranted high visual impact with use of colour and detail for instance:

> *"-- we have artists who redraw images for us so either the author can*
> *do a rough sketch themselves and we'll have it professionally redrawn*
> *--" (Pub 2)*

The textual layout was found to be important and as such could affect size of the final version of the text. It was recognised that large texts would adopt a dual column of text with smaller texts not, but remaining with just single column text presentation:

> *"I mean two columns for example we'd use erm that tends to be used*
> *on bigger textbooks because you can physically fit more content on a*
> *page --" (Pub 1)*

It was thought however that students did not wish for texts to be presented as dense blocks of text. It was felt that this should be broken up and presented with a number of breaks to assist reading:

> *"-- instead of having vast amounts of information in long paragraphs,*
> *you know, it's about actually having much more succinct information at*
> *the moment with lots of features." (Pub 2)*

It was also again found that editorial influence could affect the final design of the text layout depending on personal preference of that editor:

> *"-- the whole journey thing seemed to be a bit like I don't know it's like*
> *er tacky -- sometimes these things do come down to personal choices,*
> *you know editors "that's my choice" and another editor might just have*
> *gone with it --"(Pub 1)*

The decision to publish a text would require the need to identify an author or authors and that this was at times addressed by either actively seeking out potential authors or by drawing up agreements to undertake new edition authoring, should this be required:

> *"-- I think in our contracts we say that we will ask them to update for a*
> *new edition if they are unable to do that or don't wish to that then we*
> *can bring in somebody else to update it." (Pub 2)*

The use of editors did make for using other authors easier since the publishing rights of the texts often rested with the publisher. Publishing agreements, for texts using just one or two authors, needed to be acquired should a different author be required to update a current edition.

The subject of custom publishing was raised and it was found that texts could be produced which reflected the needs of an educational establishment. The provision of this service was found to address the issue of how the UK differed in the approach to teaching anatomy and physiology in universities when compared to the US system. Due to the differing approaches in the UK no one text could be produced which would address each individual need. The custom publication approach was found to address this issue since *the text would be more closely allied to the course of the institution for which the publication* was produced. It was also found that this would also address the differing academic levels at which it was taught:

> *"-- that's very much based upon this whole notion of recognising that*
> *every course and module in the UK is very different even though they*

> *may be doing similar sort of things and erm really being able to adapt*
> *to individual requirements." (Pub 1)*

It was seen that new editions of established texts often seemed to increase in size without a rationale being evident for this aspect. This was despite what publishers knew in that students wanted smaller texts for example:

> *"-- new editions have always got bigger and bigger and so you end up*
> *with textbooks that when the first edition there were say 400 pages and*
> *now they're are at 800 or 900 pages erm and that's very common. But*
> *students do say that actually they want shorter texts --" (Pub 2)*

There was seen to be a need to ensure that overly large texts were reviewed and that information contained in the content was relevant and necessary and that this was not based on an author just having a desire to have the information included. It was found that publishers generally had enough experience to have a predetermined expectation on how large a text should be for its relevant discipline:

> *"-- we would generally have an idea of what length a book is*
> *appropriate for that subject -- when the manuscript comes in if it's*
> *vastly over length we would ask people to cut it back --" (Pub 2)*

The final area was found to be linked with the future of the print copy text. The provision of electronic versions of the text as e-books was seen to be limited by the use of the relevant technology. Some student groups such as nursing were assumed to be less likely to have the required resources or to own the technology required to read such electronic resources. It was assumed that information access was limited to the use of mobile technology and no link was identified with regards to less portable forms of technology in accessing the e-book contents for example:

> *"-- people aren't sure how many nurses are using smart phones for*
> *example, do they have iPhones® or iPads®? Erm it's very different to*
> *the medical students who pretty much all of them will have a smart*
> *phone, a lot of them will have iPads." (Pub 2)*

This aspect of ownership of the technology was not raised as an issue with the other publisher and indeed it was found that this particular publisher already supplied texts in electronic formats. They felt the development of the technology to allow the use of electronic information sources was required before the print copy text would have more competition from this information source. The history of the print copy text was

found to support the continued use and production of such formats and that e-book provision would not prevent such production in the foreseeable future:

"-- printed books have been out, around for hundreds of years and textbooks have been out for their probably a post-war phenomenon I suppose if anything but erm they are incredibly well developed for what they do and they do good job in that --" (Pub 1)

The feedback from students had been found to identify that the physical nature of the textbook was preferred over electronic formats and that there were also disadvantages of the e- book such as power requirements

*"That includes this (*points to text on desk*) doesn't run out of batteries and that sort of stuff --" (Pub 1)*

The issue of navigating an e-book was felt to be inferior to the print copy format such as the ability to mark and identify sections in such a text during its use for instance:

"-- as I said a lot of students still want a physical book that they can carry around -- they still do like to be able to flick through a book and you know tag the pages --" (Pub 2)

However the speed at which an e-book could be accessed was found to be superior to its print copy equivalent. The trustworthiness of electronic forms of text was also thought to be an issue and that it was seen that students were assumed to be more trusting of a print copy text when compared with electronic information sources. This was found to be based on the implication that print copy texts underwent review process and that this was thought not the case with electronic information sources:

"-- there is something inherent in the book itself that says that "this has been reviewed, this is appropriate, this is by expert authors"." (Pub 2)

The provision of e-books to universities libraries was already seen as being undertaken and that many titles were being made available and more libraries have increased their catalogues of e-books. Such development of e-book provision was found to be an area that was expected to continue to grow and that the provision of current texts was possible in an electronic format. This was also seen as being a development that would continue in the future which would lead to changes in how the print copy text would be viewed:

> *"-- libraries for example do like having e-books erm and I think over the next few years there is likely to be a lot of change and development there." (Pub 2)*

The provision of texts in this electronic format however, was felt that is should not just to be a reproduction of the actual print copy text but that the expectation was found that this should be about producing an e-book which had more to offer than its parent print copy text:

> *"-- a lot of them just you know pretty much replicate their parent book -- you want something more." (Pub 1)*

There was an issue identified which was found to inhibit the rise of the e-book and that this was related to the author's copyright with regards to the text. This was specifically linked with the ability to copy e-books so reducing the sales of new copies. It was acknowledged that there were tools available that prevented this but that closer collaboration between publishers and libraries was required to address this issue in the future:

> *"-- a lot of authors are quite concerned about it obviously. Erm but there is a lot of technology that prevents that erm I think in the future it's going to be about the publishers working more closely with the libraries and the institutions --" (Pub 2)*

The rise of the e-book popularity was found to have an advantage in relation to the provision of texts that would appeal to specific student groups. As had already been identified the ability to produce an anatomy and physiology text that was for particular student groups was difficult. However it was found that the introduction and production of the e-book would make this an option to consider since the ability to publish a text would be easier as the difficulties seen to prevent this would be reduced:

> *"I think that's something perhaps digitally will be able to be more relevant to different groups of professionals because we will be able to provide different versions --" (Pub 2)*

It was evident that publishers acknowledged that the e-book was now a permanent feature in publishing. The print copy text in its current format would however change to meet the needs of the readership. There was a feeling that it was difficult to predict as to how the text would develop and that changes in print copy texts would be different for each educational discipline. Some areas, it was thought, would adapt and

change at differing speeds but that overall it was felt that this aspect would be an interesting time to see how such development would progress:

> *"-- some subject areas will change a lot quicker than others yes but it's certainly a very interesting time." (Pub 2)*

Finally, the future of the print copy text was seen as being assured however there would be a mix of provision in that the e-book would be part of this mix.

6.6 Chapter Summary

The chapter has presented a complex view surrounding the issues of selecting texts when viewed from the student perspective. The quantitative findings have demonstrated that text ownership following purchase is high in all student groups rather than borrowing a text from the university library and is further identified in the qualitative theme, textbook possession. This has been further highlighted in the qualitative theme regarding textbook choice, related to choosing the textbook, in the student interview transcripts. The identification of five main texts chosen by students in the university where the study was undertaken has allowed the underpinning reasons for text choice to be recognised. The quantitative findings have identified that the influence of a recommendation is high when viewing the rationale for text choice. This main recommendation source has been seen as the course lecturer and the module reading list with friends and colleagues also providing further strong influences affecting choice.

The qualitative findings have demonstrated that the issues students are confronted in the choice and use of texts range from the influences on their choice decisions to those which affect their text usage. This has been shown to be interlinked with the findings related to lecturers, authors and publishers. Here it has been shown that there are close relationships between all agencies which impact on the student's decision to choose a text. These relationships appear to develop on the approach that the text will assist the student in their learning of anatomy and physiology and the academic assessment of that learning. The themes related to textual content, textual characteristics and perceived student text use are all highlighted in the findings from the lecturers and authors with the focus changing from how students use and choose their texts, from lecturer perspectives, to the intention of how a text should be

used from the author perspective. The findings present a contrast in perceptions on text use and text purpose which at times, does not always agree. When considering the two sets of interviewees this leads at times to discordance between intention of how a text should be utilised when considering the author and the lecturer responses.

Additionally the focus of each set of findings whilst seen to be similar have perhaps a differing result in that whilst students seek to enhance their ability to increase the chances of passing an assessment, lecturers seek to enhance students learning with the text assisting in this. The authors have been found to wish to either enhance the student's ability to learn from a text to the text being secondary to the taught material in a lecture. Finally publishers have been found to differ depending on their market position in what is identified as a large market place for producing texts that students will wish to purchase. Whilst students are seen as being a focus for consideration by publishers, the approach is that a text publication is viewed as to how much it will reap rewards for what is essentially a commercial business.

The themes surrounding the text appearance in relation the diagrammatic and illustrative materials along with how the texts looks from its external properties leads into the importance of the aesthetic components. The findings from all the interviewees highlights the aesthetic nature of the text and the role the illustrative material plays in the choice and use of the text, whilst the publishers view these as placing additional burdens on the cost aspect of publication and sales. These aesthetic and illustration focussed themes have been found to highlight the difference between the needs of the student and lecturer and desires of the authors with the constraints a publisher places on a text publication.

This chapter has identified key themes from the qualitative findings which when viewed collectively can be grouped under what are seen as four main overarching themes. These are *Influences on the Perception of the Textbook*, *Choice and Use of the Text*, *Mismatch of Perceived Needs* and *The Place of the Textbook* and it is these which form the focus of the next chapter where they will be explored in the context of the available literature and theoretical propositions contained in the proposed conceptual process framework. This last aspect will be explored further in the discussion Developments of the Conceptual Framework.

Chapter 7

Discussion

7.1 Introduction

This study has sought to explore and identify those influences that impact on the decisions students make in selecting texts to support their learning in anatomy and physiology. A sequential mixed methods design was chosen with a survey being utilised in the first stage of the study. The survey identified the texts which were seen as being the most popular and also explored if there were associations in the type of text chosen and the course being studied as well as identifying issues related to choosing texts. Based on the core findings from the survey students were interviewed to explore in more depth their experiences and use of the texts that they chose to support their learning, drawing on those issues identified as being relevant to the core aims of the study. The interviews highlighted that influences on decision-making came from different sources ranging from "expert" recommendations to how a text could bring success to an assessment. This required a further stage of the study involving interviews with lecturers (the main source of recommendation) authors and publishers (those seen has having a major impact on textbook design) to determine how they impacted on the student decision-making process.

This chapter explores the findings from the quantitative stage of the study and core issues from the student, lecturer, author and publisher interviews in the context of literature utilised in the previous background chapters, as well as literature that has become pertinent based on the study findings. The discussions develop the findings which refine a conceptual process framework initially presented in chapter four, with adaptations being considered as the discussions develop. These will draw on the key aspects of the conceptual process which is put forward as a framework for text choice. The chapter demonstrates that choice is no simple process but is complex and subjective and so open to a range of influences both internally and externally. The chapter is presented under the four main themes that emerged from the findings. These themes, highlighted in the previous chapter's summary, are *Influences on the Perception of the Textbook*, *Choice and Use of the Text*, *Mismatch of Perceived Needs* and *The Place of the Textbook*. A final section entitled Developments the

Conceptual Process Framework presents the changes of the framework based on these preceding discussions.

Prior to commencing the discussion of the findings it is apposite to revisit the conceptual process framework which evolved following the background discussions presented in chapters two, three and four.

The conceptual process on which this study is based is presented again on page 235. As noted previously there are four distinct stages (see chapter four) the first being identified as the internal and external influences that initially come to bear on a student when making an initial selection. The available literature presented in the chapters two and three provided the support for the identification of these influences and so led to their inclusion in this first stage labelled as *Influences*. It is the inclusion of relevant theoretical concepts that impinge on the process of choosing a text to support a student's learning in anatomy and physiology which provided the required conceptual underpinning for the stage two, *Comprehension, Cognition and Level* and for stage three, *Decision-Making*. The literature had provided no evidence of a linkage between what were seen as relevant theoretical concepts for the inclusion in a process framework. This led to the formation of conceptual process to provide structure to the data collection, analysis and exploration in both the quantitative and qualitative stages of the study.

What will be seen in the discussions is that this process is not a linear one but rather one that is navigated individually demonstrating a complex approach which culminates in the choice of a text. It will be shown that progressing from one stage to the next does not rely on the student undertaking this progression in sequential order but there may be a bypassing of a stage which may result in a choice of text, but also could result in a student re-navigating to previous stages when choosing additional texts. These alternatives are often required to utilise texts, as will be demonstrated in the discussions that follow, made in the initial choice selection.

Whilst support from literature discussed in chapters three and four provides a rationale for the individual theoretical components in the process, what will be demonstrated is that little, if any, literature exists which outlines an integrated theoretical/conceptual process that a student navigates when undertaking what is often seen as a simple matter of choice. The discussion therefore will demonstrate the unique contribution that this study makes and the further development of a conceptual process framework which illuminates this complex journey that has been identified in this study. The additional development of the conceptual process framework is highlighted further in the last section of this discussion chapter, but for ease of cross reference of the discussions is shown in Figure 11 page 262.

External Influences
Reading Lists, Key Texts
Assessments, Cost
Adjuncts

Course Enrolment

Preliminary
Selection of texts
Inspection and
Reading

Internal Influences
Reading Age
Motivation
Interest
Academic Background Knowledge

Blooms Taxonomy*
Educational Outcomes
Evaluation, Synthesis
Analysis, Application
Comprehension, Knowledge

Assess
Academic
Level

**Kintsch's Theory &
Hegarty's Theory**
Cognition
and Comprehension

**Decision Making
Theory**

Heuristics

Decision
Making

Aesthetic
Preference

No Choice
made

Or

Choice Made

Stage 1 Influences   Stage 2 Comprehension, Cognition & Level   Stage 3 Decision-Making   Stage 4 Choice
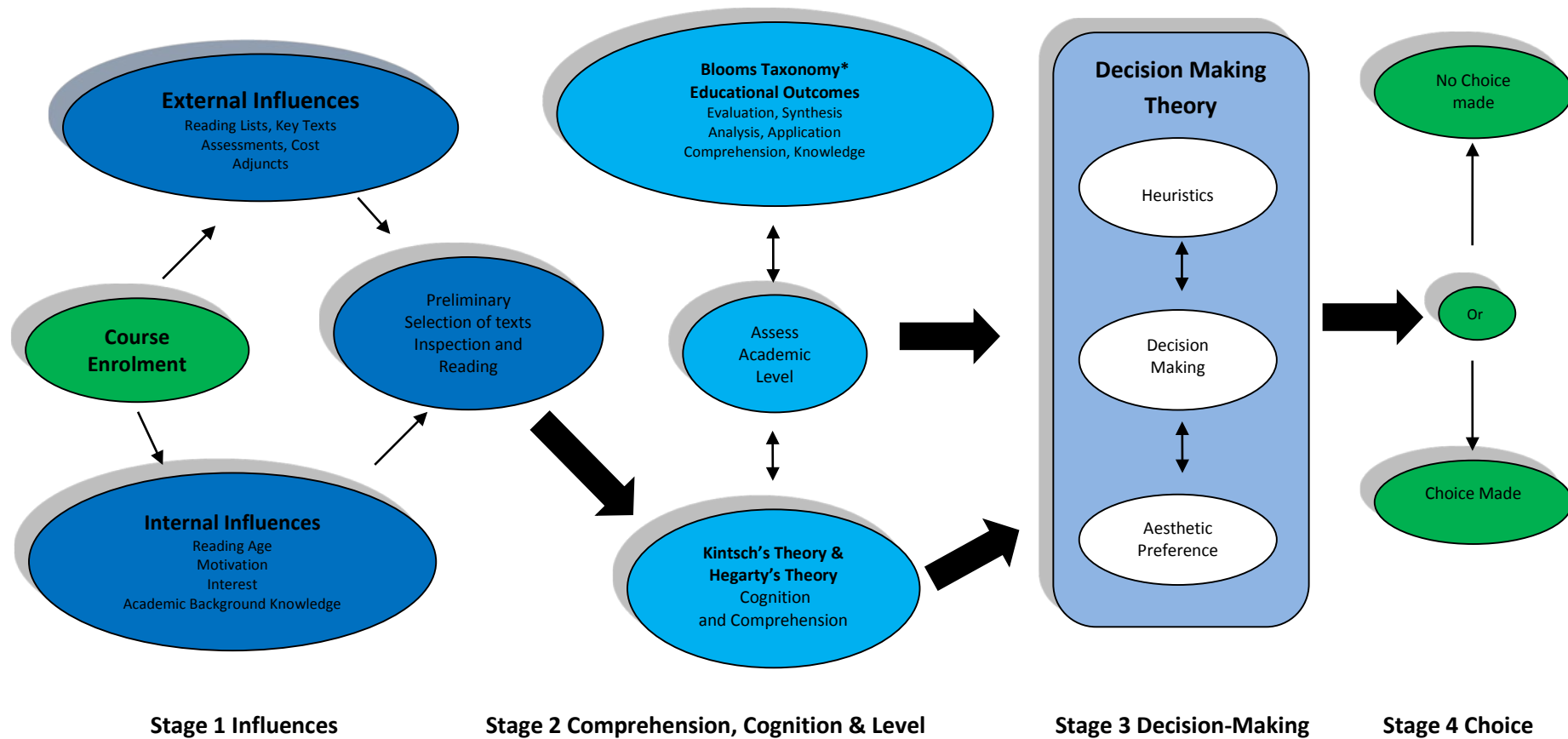
Figure 2 Initial Conceptual Process Framework for Text Choice Reproduced from Chapter 4

*Terminology is based on that used in Blooms original publication of the framework (Bloom et al 1956)

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7.2 Influences on the Perceptions of the Textbook

The choice of title of an anatomy and physiology text has not been highlighted in the literature as a factor but has been shown to have been identified as an influence in this study and as such may be directly linked to possession of prior knowledge. Students in this study placed great importance on the title of a text since if it includes their professional group name then it is concluded that the text will be of use to their professional practice. The perception that such a text will be helpful is suggestive as being linked to the lack of background knowledge that a student may possess in the subject area of anatomy and physiology in that if their professional group name is in the title then all of the content will be relevant and required. Possessing prior knowledge, a core issue here, is inherent in the conceptual process framework in stage one, *Influences*, when viewing such an influence as impacting on student choice and as such seen as being internal in influencing choice. The issue of prior knowledge stems from the assumption that healthcare students, especially in nursing, often have weak academic backgrounds in this area (Courtenay 1991; Trnobranski 1993; Clarke 1995; McVicar et al 2010).

The learning from the text is dependent on the activation and development of prior knowledge in the subject area and without this, attempting to integrate new knowledge will present problems that are quite common with the use of expository texts (Diakidoy et al 2011). This also raises the question that if insufficient knowledge exists, then an appreciation of the content of the text cannot be made and as such the title may be perceived as the only clue as to the content and that it will be appropriate for the student to select. The authors and publishers interviewed in this study indeed indicated that the use of a specific professional group in the title may in fact limit its application for use by other healthcare groups or make a title too lengthy if they included as many professional groups as possible to widen the texts appeal. This resonates with the work of Mellor (2003), discussed in chapter two, who has indicated that expository texts are written around a particular scientific discipline with emphasis on a particular theme or subject suggesting that anatomy and physiology texts will be written differently dependent on their author's background and will have titles that reflect that particular professional group. As such an approach like this may not be useful when undertaking study that looks at a more global approach to human anatomy and physiology as was demonstrated in the quantitative findings with the midwifery students. These were found to have the majority of respondents from this

professional group selecting a text which had "midwifery" in the title. On further exploration such a text was found to be too focussed on midwifery aspects of anatomy and physiology and as such required an additional selection of a more generic anatomy and physiology text. Despite this both authors and publishers in the current study did highlight that nursing students were in fact the intended and by far largest group for the texts being authored and published and was highlighted in the survey stage of data collection and analysis. Whilst the title is considered in relation to the core issue of prior knowledge, the appearance of a text and its content has also been identified as an important aspect to regard during the process of choosing an appropriate text.

The appearance of the text has identified that students are influenced by this aspect and as such relates to the aesthetics of both the cover and content, in particular the diagrammatic representations in the text and how the text is "laid out". This relates to two areas. One is linked with comprehension, as evidenced in Hegarty's work (Hegarty 1992; 2005) with regards to mental animation and the other, to aesthetic preference. This aspect is demonstrated in the conceptual process framework related to *Comprehension, Cognition and Level* (stage 2), and is seen as being an important influence when considering the final choice a student makes. This aspect was also highlighted in the survey stage of the study where great importance was placed on the illustrative and diagrammatic components of a text. The issue surrounding comprehension of the text content is covered later in this chapter and as such it the aesthetic evaluation of the text which is explored here, again another important influence in the conceptual process framework concerning decision-making in stage three. It was not evident that students had prior aesthetic experiences with an anatomy and physiology text but rather, as identified by Marović (2012), more of an aesthetic preference.

From this study students have identified that aesthetic preference was applied not only to the pictorial and diagrammatic representations but also to the actual layout of the written text. Whilst McAuley (2005) identifies that illustrations should be carefully considered when being drawn, with the more important information being visible, students did not identify this aspect as being important. Rather, more students viewed the illustrations to determine that they are not "too busy" implying that they do not explore the content of the materials but undertake a visual sweep of the text to

determine the amount of information that is included. There appears to be no suggestion that students attempt to comprehend the information but simply exert this aesthetic preference. This is contrary to the assertion by McAuley (2005) that the illustration is viewed from a holistic viewpoint as opposed to a linear fashion as when viewing textual information, since the implication here is that some comprehension is required which was been found not to be the case with students who possess little or no prior knowledge of the subject area when viewing these texts. Nonetheless diagrams have been identified as requiring to be being aesthetically pleasing.

The recognition that illustrations are viewed by students based on how much detail they contain would seem to concur with the study findings of Leyssen et al (2012) where illustrations were evaluated based on the semantic relatedness of the objects and the balance of the composition of the pictures. Indeed in the current study this would link with the notion that students are able to evaluate the text to allow for an aesthetic preference to be made viewing the illustrative content. It would appear that this is based only on how the illustrations are presented, rather than any consideration related to the comprehension of the content of such illustrations. It is this ability to view the illustrations for their apparent construction and presentation that contributes to how a student to makes a decision on whether a text is suitable or not.

Based on the authors' interview transcripts it has been seen that little consideration has been given to UK-based texts in this aspect of textual and illustrative layout, whereas more consideration is found regarding these aspects, by authors in the US where more control is employed. Certainly this was evident where the final layout was considered by US-based authors and would certainly link well with the work by Leyssen et al (2012) who identifies that text and illustration must be well integrated and related in presenting a meaningful whole. This does not however illuminate if students view the text in the same way as these authors intended when making a choice or whether they are just looking at the layout for the aesthetic properties rather than one of being able to determine if understanding and utility of the text will be easier. Of importance here is an approach to the appreciation of beauty and to go beyond this concept to the components of interest and stimulation (Leder et al 2004). From current findings it therefore appears that students view the personal value of the text according to whether or not it they find it pleasurable to view as this brings

about both the stimulatory and interestedness responses required for them to subsequently use the text.

Stimulation and interest evidence that the student is "experiencing the text", as in aesthetic reading prior to a choice being made, as opposed to comprehending it in "efferent reading" as explored by Choo (2010). Indeed this again points to the aspect that authors should arrange their textual presentations using multimodal approaches in that students utilise the text in studying the visual signs or semiotics of the text when reading changes from one mode to the next i.e. aesthetic reading to comprehending the text. This may be true for those authors who have greater control on the presentational style adopted by a publisher, but not so for those where this is absent or minimal as in UK based texts. This difference in textual appearances is supported by the fact that UK texts are not as well developed when considering colour and graphical components (Hartley 2004) and may point to the level of strength regarding influence an author brings to the development of the text and its final presentation. Additionally if students are indeed "experiencing the text" at the time of choice this indicates that a prior knowledge base of the subject is required. This would also negate the text author's intention regarding how a text is presented in order to aid understanding of the textual "content" as identified by Choo (2010).

If a student lacks prior knowledge of the subject area then perhaps the results identified by Linsen et al (2011) may be applicable. In that study the preferences of readers were for texts with illustrations containing objects which represented their canonical or actual size. However this would require a prior knowledge of the canonical sizes of organs in the human body and as such leads to a stance that aesthetic preference may again be present when prior knowledge is absent. Indeed in the findings chapter, related to the student transcripts, it was seen that choice made on aesthetic preference alone did not always result in a good/useful choice being made leading to regret and the need to purchase or choose additional texts. Additionally this was highlighted in the quantitative results which indicated many required an additional text following selection of their primary text. In the conceptual process framework this would indicate that students bypass the *Comprehension, Cognition and Level* (stage 2) in the process and enter *Decision-Making* (stage 3) since entering the previous stage would require some knowledge of the text content. Prior knowledge therefore would again appear to be an important influence in this

aspect of text choice being linked not only with the title of a text, but also with other aspects of the text content.

If students do have prior knowledge of the subject matter then the conclusion by McAuley (2005) would seem to support the findings that some students scan the pages of a text and then make a decision based on that scan. As McAuley (2005) pointed out illustrations which are effective possess a structure which emphasises their most important aspects, allowing the illustration to be viewed holistically. This, coupled with the linear nature of the narrative component, may support the observation by those students who are able to decide on the usefulness of a text based on visual inspection coupled with their prior knowledge. This would account for why some students state a dislike for illustrations which are "too busy" as well as the ability to read the narrative with ease. This would support the assumption by Gregory (2004) that scanning texts for relevant important information is aided by content design and format. However it should be noted that Gregory's work viewed guidelines for the development of internet based media and did not cover aspects such as use of textual and illustrative design to aid decision-making in the choice of textual media.

The findings suggest that perhaps the choice of text may relate to both aesthetics and ease of locating information depending on the levels of knowledge that the students possesses in the area of anatomy and physiology, with individual students with prior knowledge viewing informational properties whilst those without looking at aesthetic ones. This would indicate that students differ in how they navigate the conceptual process with some entering *Comprehension, Cognition and Level* if prior knowledge exists and others bypassing this to undertake *Decision-Making* as indicated in stage three. However publishers would appear to consider the issue regarding attractiveness of texts as important and as such this influence is relevant here.

The high prominence and popularity of US-based texts in the UK may have some connection with the fact that US texts pay more attention to the outer presentation where, as identified by Miller (1996), UK texts include little illustrative inclusions beyond the title, author and publisher names. However in this study attractiveness of the covers was not a prominent feature in influencing the student choice. As found in

the findings from this study, both in the quantitative and qualitative stages, students were not identifying with eye catching features of text covers such as recognising prominent US athletes. Textbooks have been identified as having various visual displays to aid learning of what is seen as a difficult subject area and as such whilst it may appear helpful to include decorative colour representations, they are present only for selling purposes (Cook 2008). If internal colourful representations are viewed in this respect then there is no reason therefore not to assume that this can also apply to the external appearance of a text i.e. whether it is colourful and attractive to promote its purchase. Additionally the tactic of publishers to supply adjuncts such as DVDs to make the text an attractive option to purchase also had little influence in current findings related to the student choice. Indeed this was highlighted in the first stage of this study where the majority of students indicated that this was not a deciding factor in selecting a particular text to purchase. This would however account for the indication that students have found such texts to be expensive and this is most likely related to the fact that such adjuncts increase text cost due to the resources required to produce these (Silver et al 2012).

The higher cost of anatomy and physiology texts may seem not to be such an issue when the students desire to physically own a text, rather than loan it from the university library, thereby indicating that look, feel and size of a text may actually become important influences on the student when they make their choice of text. The inclusion of extras i.e. adjuncts, would then seem to be important despite the fact that students have been found to rarely utilise these in their use of the text. Whilst the US text adoption approach in attracting teaching staff to adopt a specific text relies on "ancillary ornaments" (Sewall 2005), publishers have most likely equally identified that such adjuncts might also provide a means of attracting students in the UK to draw a choice in favour of their publications. Additionally the production of newer editions seems not to have been an influence on students' choice.

Students questioned the need for newer editions due to the perceived lack of major new discoveries in anatomy and physiology, but the need for up to date references seems to have been identified as being a driver for the student to gain the most up to date text. In contrast the US approach is based on the adoption cycle of texts, this being every three years and being the main driving force for the publication of a new edition whereas this has not been the case in the UK. The edition cycle in the US

however has been linked to the tactic that producing new editions at an ever increasing rate was in some way to make earlier editions less desirable (Iizuka 2007). However as such in the UK this has not led to decreased sales in second hand texts as indicated by those students who have purchased these, which in the survey stage of this study indicated only a small number of students overall . The issue of currency however does need to be included when considering new editions.

Bruce (2001) when looking at student concerns in literature reviewing found that currency was one such concern since this is critical to their assignment marks. Such concern resulted in questioning as to when new developments are identified and that no clues are provided as to how "current" should be interpreted: does it mean the immediate present or pertaining to the last one two or three years (Bruce 2001). As to whether currency applies to anatomy and physiology texts then there is a need to consider that students may decide that new editions are not required, due to the fixed nature of the subject, despite that a perceived major change actually having been made was identified by one author in this study. The assumption therefore is that students are concluding that previous editions of text are no better or worse than new editions. Despite publishers undertaking new edition publication to gain optimal sales, whilst being aware that too rapid a edition cycle will shorten the life expectancy of the text, consideration needs to be aimed at the fact that students are all too acutely aware that in static subject areas, despite changing presentation, much of the actual content in past texts may still be current. This was evident in student comments in this study. Indeed this increased interest in older versions of texts is demonstrated and there is evidence of an increase in sales of used texts leading to a fall in purchases of new text editions (Tivan 2007) contrary to the results of this current study's stage one where few students purchased second hand texts. Nonetheless this provides further influences on the decisions students make when selecting their texts and as such it may indeed by suitable to purchase used older texts in static subjects such as anatomy and physiology, but if reliance on aesthetics and titles is adopted by students, then those without prior knowledge of the subject area may still select and purchase a text which will not support their learning.

In this section the core issue on the perception of the text by students is shown as their prior knowledge in the subject area and that areas such as viewing a text title or aesthetic preference may be relied upon to determine a text choice when there is a

lack of this knowledge. This would indicate that students enter and traverse the conceptual process differently and that this depends on this aspect of prior knowledge. Currency of the text has also been highlighted along with enticements such as the provision of adjuncts to lure the student in to purchasing a text but this still does not override prior knowledge as the main concern, and therefore its inclusion in the influences of the of the conceptual process framework. Choice and use of the text, whether a new or an older edition, is the focus of the next section.

7.3 Choice and Use of the Textbook

In exploring the choice and use of the text and the influences on the choices that students make, the perceived "role" of the text has to be explored. It was found that there has been a strong link with text choice and use and the assessment tasks a student undertakes. This links well with the conceptual process framework where assessments tasks are seen as an external influence to the choice of text a student makes. In considering assessments this relates to the notion that the text in some way will provide sufficient understanding and the necessary answers a student seeks in order to pass the assessment task. This reflects the study conclusions by Horsley et al (2010) where engagement with a course text increases as an assessment task looms. Additionally in the current study, students identified that successful passing of their assessments was linked strongly with selection of texts recommended on the reading lists. This is coupled with a lack of desire to read beyond that required for passing the assessment and would seem to resonate with the conclusions drawn by Klymkowsky (2007). However this does not indicate the impact this has on a student's choice of text but rather its use once chosen.

The scanning of text prior to choice may in fact have some strong linkage with the identification that students seldom read the full chapter, instead relying upon the chapter summary (Clump et al 2004). Again this viewpoint can only be accepted if there is possession of some prior knowledge of the subject area and, if the student does read only the chapter summaries, then the scanning of texts prior to choosing indicated by some in this study would seem to point to the assumption that students are looking for texts which will give the required support for assessment success.

This again would indicate that following a preliminary selection of a text students would bypass *Comprehension, Cognition and Level* (stage two) and *Decision-Making* (stage three) and enter *Choice* (stage four) of the conceptual process if they perceive that acceptance of a text would result in successful assessment completion. This would avoid taking time to assess the academic level or assess the ability to comprehend the text content or undertake any decision-making process. Acceptance that the text's inclusion on a reading list is commonly viewed as assurance of assessment success. Recommendation of a text by the lecturer was seen as a strong influence and requires that it is represented in the external influences of the conceptual process framework. This was indicated primarily in the first stage of the study where a large majority of the students indicated that the source of the recommendation was linked to the course/module leader, and then further highlighted again in the student transcripts from the study's second stage. This heightened the relevance of including the lecturer as a strong influential force in text choice.

The blind acceptance of the recommendation made by the lecturer, as indicated by some students in this study, would seem to suggest that some students do not undertake any strategy in choosing their texts beyond this acceptance. What is of relevance here is the application of heuristics, mental shortcuts (Hardman 2009), where students, based on success from previous courses, apply the same approach to selecting their anatomy and physiology texts. This is based on the perceived link between assessment, the text and the recommendation made by the lecturer, viewed as expert guidance. Such linking reduces the complex task of choosing a text from a multitude of anatomy and physiology textbooks. This represents another influence on the decision-making students undertake in selecting their texts. This further demonstrates the variable navigation of the conceptual process in that some students may not always enter *Choice* (stage four), but may enter *Decision-Making* (stage three) and use heuristics in undertaking the decision-making to select their text. Another aspect also of relevance here is related to what has been termed "herd behaviour" mentality.

In herd mentality, or "herding", behaviour is adopted which sees a convergence of the actions of individuals occurring when confronted with the same or similar decision issues (Bikhchandani et al 1998). It is posited that when confronted with information, alternatives and payoffs which are the same, the decisions made by group members

also result in the same decisions being made by each member of that group. This is seen as reducing what can be a time consuming and costly approach. Time is seen as being one of the resources which increases the cost and that herding behaviour appears to be a rational concept when considering cost reduction (Lemieux 2003). This relates to what is known as a "cascade theory" where attempts have been made to answer questions regarding the phenomena of people "falling in line with the crowd" (Lemieux 2003). Cascade theory is seen as a way of explaining "herd" behaviour by indicating that there is a link with rational choice approaches, in that individuals rely on information conveyed by others which cascades through "herd" members. This approach resonates with the current study in that it has been highlighted by students, both in stages one and two of the data collection, that choosing texts was often based on the fact that they were popular with other students and as such was taken to indicate that they must be of value and so should be chosen. This external influence, not previously considered but now included in the conceptual process framework, provides an indication that students using such behaviour could bypass *Comprehension, Cognition and Level* (stage two) and *Decision-Making* (stage three) and choose a text based on the choice made in that student group overall. In doing so students are expressing a reliance on the judgment of peers.

Interestingly the use of an incentive not to follow the "herd" and to make an alternative choice can also be a powerful inducement. However, the herd behaviour attraction remains strong and so biases an individual to follow the crowd (Lemieux 2003). This would to some degree provide the rationale as to why publishers produce texts with numerous adjuncts, despite the fact that this does not necessarily increase the likelihood that their text will be chosen by a student. These aspects of the herd behaviour are worthy of being included in the proposed conceptual process framework for this study since it suggests a rationale as to why students, as indicated by Lemieux (2003) "fall in with the crowd" and so present a further external influence. It should be recalled that students have been identified as "professionals" when using texts (Spooren et al 1998) and as such they may use learned behaviour gained from previous experience in selecting texts for study undertaken in their courses.

Spooren et al (1998) has indicated that when specific information is found in a text then the text becomes of use to the student and this was evident in the findings of the current study. Students identified that a link exists between the lecture materials,

assessment and the text and as such indicates that once the text is identified, i.e. used for the lecture materials, choice and utility of the text is assured. This again highlights the link between text choice and assessment. This interest however is only limited to the ability of the reader to identify the use of the text being linked with their purpose and as such reading the text for reasons beyond this interest, for example to increase knowledge in the subject area, was not a universal finding in the current study.

This lack of interest would appear to reflect the conclusion of Lord (2008) where little interest is found in reading a text for its content rather for just finding information for an assessment task, as indicated previously. This also demonstrates the lack of critical analysis and a development of a lower level of understanding inherent in such reading tactics (Larson et al 2011). Additionally it is appropriate to include the conclusions of Michael (2007) who indicated that the learning of physiology is seen as difficult by students arising from their inability to apply "causal reasoning" when considering physiological processes. This may result from a lack of prerequisite knowledge but also the difficulty students have to transfer learning from one context into another, for example, from secondary and further education to higher education. Such lack of prerequisite knowledge and reasoning skills may lead to a focus purely on finding information for the course assessment. However it should be noted that not all students in the current study adopted such attitudes to their texts, a small minority actually indicated that they read a text based on an interest of the subject matter and not a total focus on an assessment task for their studies so requiring its additional inclusion as an internal influence in the conceptual process framework. This however does not provide a rationale as to why students choose a number of texts, rather than one text, for their studies in anatomy and physiology.

In the findings of the current study, from both the quantitative and qualitative stages, it was identified that multiple texts are often utilised by students to enable understanding of what are seen as being higher academic level texts. This would link with the conceptual process, this being *Comprehension, Cognition and Level* (stage two), where students are able to assess the academic level of the text and hence decide what are lower and higher academic level texts. These levels are determined by the student, based on the academic level of their course being undertaken. It has already been indicated that the use of Blooms taxonomy in higher education is quite

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prevalent in courses, and the assessment of students, due to its linking with learning outcomes and utilisation in teaching (Seaman 2011). However as has been indicated, the taxonomy levels build on the previous ones, so in order for the student to assess the academic level, they must have already acquired the first level of knowledge. Additionally, as already highlighted, this may be deficient so leads to the question as to how the student progresses to determine if a text is at the required level for their course? This is especially relevant if they do not possess the first level of knowledge, since this will not lead to the next being obtained, that being of comprehension, and therefore the ability to be able to comprehend the textual content to determine its academic level. This therefore leads to a suggestion that both visual components and the representation of textual layout may play some important part in the conscious assessment of the academic level of a text, such layout being more balanced in the levels of verbal and visual information (McTigue and Slough 2010).

Whilst McTigue and Slough (2010) consider the texts of pre-higher education, it is of relevance here since those texts that students in this study chose to supplement or illuminate their understanding of their key course texts were considered as being at this lower educational level. This suggests that perhaps the levels of comprehension of lower level texts included application of mental animation and comprehension of visual representations, as outlined by Hegarty (2005). The reason for this stems from the discussions by McTigue and Slough (2010) that textbooks for young readers, and hence lower educational levels, in recent years offer a balance between verbal and visual information with a shift to visual dominance. This would link effectively with stage two of the conceptual process framework and that whilst selection of the initial text may have bypassed stages two and three as previously indicated, additional texts may indeed lead a student to utilise these stages in assessing these supplementary materials.

As indicated in this study's findings, students identified that some texts are seen as having too much information relating to both visual and textual information and, in relation the visual, the less information that a visual representation possesses indicates that the student is the more likely to be able to mentally animate it and so comprehend the lower level text and perhaps leads to its selection. In children the textual information in lower level texts tends to be narrative with only more expository texts being consulted as higher levels of education are experienced (Kent 1984).

Indeed textbooks written with a specific style which hold interest and are comprehensible are often chosen by readers (McTigue and Slough 2010), and lower level texts may provide the evidence as to the rationale of how and why students ascertain the academic level of a text. Specific use of language, where a student can easily make links between abstract concepts as seen in anatomy and physiology texts, and the textual information in a text, may be chosen over the more traditional textbooks. These tend to apply a specific form of language of being univocal and non-dialectic (Avraamidou and Osbourne 2009) or being written in a voice being a *"flat lifeless tone of a disembodied authority"* (McTigue and Slough 2010). The recognition of this specific language in a textbook may also provide evidence as to how a student can determine the academic level, as indicated in the *Comprehension, Cognition and Level* stage of the conceptual process, and so choose other perceived lower academic level texts to supplement the key text they are asked to use in their higher education course.

The textual layout as opposed to the content may also provide evidence as to how students can perceive the actual academic level of a text. These assumptions comes from the fact that lower academic level texts are viewed as being used by younger non-higher education students and so possess far more illustrative material, which also provides more colourful representations. Indeed children's texts, specifically story books, contain many colourful pictures (Crawley et al 2012). Size of the typeface is also larger (Hartley 2004) and contributes to the evaluation that the book is for lower academic level learning. The logical assumption here is that as the academic level rises there is less reliance on colour and numerous illustrations and the typeface and layout changing with this becoming smaller and denser. However this is countered by the fact that of the texts highlighted as being popular in this study contained highly colourful and detailed illustrations, the difference here being that there is a higher degree of differentiation of detail in what are seen as being complex illustrations. Nonetheless lower academic level texts may not have such complex illustrative detail and so provides support for the stance that the student may indeed be well versed in providing an astute assessment of the academic level of the text.

The selection of such lower academic level texts can lead to the collection of a number of texts being chosen to assist in the understanding of the text indicated as being key in their course. It was noted that some students with prior knowledge did not require

additional texts, or that if there was a selection of numerous texts by these students this was only done in order to provide additional reference sources. Those with difficulty in reading chosen texts were those who required these lower level texts and again the recurring core issue from this study is one of prior knowledge. This approach is not uncommon since there is value to using one text to understand other texts. Readers bring experiences from other texts to those that are currently being read (Lenski 1998). This reading from texts to understand other texts is given the name of "intertextuality" and is highlighted by Lenski (1998) as being used by all readers but more so by those who are less expert in the subjects being read. Readers of previous texts store these as "models" in their memory using them to make intertextual links with new texts and so bring meaning and comprehension to the current text or indeed provide a basis for revising comprehension of previous texts.

Activation of prior knowledge by providing previews of information prior to reading an assigned text could result in significant increases in learning and comprehension (Christen and Murphy 1991). This provides support for the observation in this study that students utilise multiple texts. The use of "intertextuality" is seen as being the most effective pre-reading strategy where a connected text is used as a preview to another (Brown 1995). This should be viewed in relation to the overall experiences of students as they undertake their courses and relates not to what Lenski (1998) describes as a one dimensional definition of texts but rather to two or more dimensions of other auditory and visual information sources. It is this which is seen in the postmodernist view as seeing the term "text" possessing a wider interpretation (Lenski 1998).

Evidence was found to support this notion that students often adopt a stance for multiple text usage and whilst the rationale for this has been outlined above this may also be due to the adoption of the stance identified by Issit (2004) that texts promote a passive style of learning. If this is accepted then students may expect that lower level texts will indeed in some way imbue them with the required knowledge to progress and understand higher level texts further supporting this passive learning style that texts promote. This is despite the current study findings that some authors of texts, specifically US-based authors, were found to produce texts which provide a means to promote active learning by the introduction of learning checks in the textual information. Alternatively some authors may be writing the texts from one of assuming

prior knowledge and an expectation that understanding will be an inherent attribute a student possesses. This position stems from the fact that many expository texts, such as anatomy and physiology genres, are written by experts or practicing scientists in the subject area (Mellor 2003). This may then lead to mismatch in student reading comprehension and the authored level of the published text.

7.4 Mismatch of Perceived Needs

Key texts, on lists provided by lecturers for students has led to what can be seen as a mismatch for some students leading to dissatisfaction or regret in their choice of purchased text, when this is based simply on selection from a lecturer authored list. Students have expressed that at times the selection of a text recommended by a lecturer has led to its purchase but followed by an inability to utilise it. Initially this can be seen as being due to two issues, first the assumption of the students ability on entering the higher education system and secondly selection of texts by lecturers seen as key and recommended to students and perceived therefore to be the most appropriate to help students pass their assignments.

The first issue is that there is an expectation that when students are accepted onto a programme of study they will possess a level of background knowledge and adequate reading ability (Miller 1999). This assumption is based on two aspects the first being that students will be attending the higher education institute to gain academic learning skills and that this is in the purview of the lecturer to assist this development but not to develop reading skills. However, the second, most relevant issue raised by Miller (1999) is that there is an assumption by lecturers and the institution that a student already possesses a developed skill to read, this being gained prior to higher education entry. The issue of pre-existing knowledge and ability still continues to be debated and the study by McVicar et al (2014) regarding the difficulty of nursing students to grasp the concepts of basic and applied bioscience indicates that there is strong evidence that possession of pre entry qualifications in science will support the students in being able to engage with their course content. This implies that there still exists an assumption that students who join courses, will possess the requisite knowledge and skills required to study and that whilst McVicar et al's 2014 study applied to nursing students the results and conclusions reached resonate with other courses such as those included in this current study.

However the possession of prior knowledge may not guarantee progress in the study of anatomy and physiology and issues of other confounding variables such as English being a second language may affect the use of prior knowledge. The work by Rydland et al (2012) supports this assumption since they concluded that not only was comprehension constrained by a limited knowledge of the second language but also were less able to use prior knowledge in comprehending textual information written in the second language. This is an aspect which was not identified as an issue in the current study where it was found that the majority of students identified that English was their first language. The study by McVicar et al (2014) does however strengthen the inclusion of prior academic knowledge as being a strong internal influence in the influences stage of the conceptual process framework.

It is therefore this aspect which can provide support for the finding that some students did not inherently possess the ability to comprehend their recommended or key texts. This leads to a mismatch between the text chosen by the lecturer and the student's ability to understand the content to a level expected in their courses. Further support for this assumption arises from Railton and Watson (2005) who also raised the issue of a student's inability to determine what to read when directed to texts for supporting classroom teaching. Indeed it has been shown here that no student identified that there was any instruction regarding how to read texts or of preparatory reading undertaken prior to a lecture. This therefore exacerbates the mismatch between what lecturers expect/anticipate and what students actually did. This also points to how the text is at best only loosely connected with classroom teaching and learning in the UK when compared to the US style of text use where lectures are strongly linked to an adopted text and so directly linked to the class material.

The evidence seems to point to a fact that the reading ability of students has not reached the level required on commencing higher education (Socash 2007) and that this has been evident in findings of this study and may also explain why students choose additional texts with a perceived lower academic level, to assist in comprehension of course key texts as previously indicated. However there is the second issue of texts being chosen by lecturers for inclusion on a key text reading list or recommendation to students to choose a particular text.

The lecturers in the current study identified that the texts chosen by them to recommend to students have what they considered to be of particular value for the student. However none identified that the use of a text is undertaken from the position that requires both knowledge and insight into the subject area of anatomy and physiology. This aspect was apparent when considering those students who possessed little or no knowledge of this subject area. Such selection by the lecturers, assuming students possessed knowledge and insight, may have followed what Harder and Carline (1988) found in that selection of texts would seem to reflect the background of those undertaking this selection, in this case the lecturers and not their students. With their insight and knowledge into the subject matter lecturers are unable to view the text from a student's viewpoint, therefore leading to students not being able to use the text as recommended by the lecturer. Additionally findings in the current study would seem to support this aspect, since the selection of texts differed based on the type of course being taught e.g. nursing versus biomedical or clinical physiology students. This was highlighted in the quantitative data where there existed a strong association between the text and the specialism to which the students belonged.

What is surprising here is that whilst a strong association existed between a specialist group and their adoption of a particular text, such a text being produced by US-based authors utlising the HAPS guidelines in the US, these texts possessed very similar content and format. The US-based authors indicated that the HAPS guidelines and learning outcomes dictate how texts should be produced and as such allows them to be chosen for adoption (it should be noted that all US based authors interviewed in this study were active members in the HAPS organisation). This has therefore resulted in them possessing a similar style (Carroll 2001), as has been indicated earlier, yet there seems to be some perception by students that these texts differ in some way and so link to a particular specialism. This is despite the fact that these texts are written to support generic anatomy and physiology education in the first year of US-based college/university health care courses. It has been highlighted that the authors intended audience was nursing as being the largest consumer group amongst healthcare based students yet in the current study students from non-nursing courses have identified that a single text from this group of US authored texts is more appropriate for their course when compared with others. This does raise a question

as to why this occurred with the answer perhaps coming from the discussions by Cassata and Cox (2009) regarding the links with a text and the specialist background of the lecturer.

This aspect of specialism is highlighted as an issue when the selection of such a text relies on a small number of individuals in a teaching group (Cassata and Cox 2009) or, as intimated in this study, to just one lecturer. Such a task may be undertaken by an individual based on prior experience of a text or their own professional background and so leading subsequently to dissatisfaction from students regarding the selected text. This may have been further compounded by what Cassata and Cox (2009) found in that pressures of academic life for a lecturer may lead to them choosing texts which they consider as appealing/attractive for students rather than what are the most useful that a student will be able to utilise. Additionally the choice of text by a lecturer may have been affected by their own knowledge-base focussed on a narrow field of science (Seton 1998) and so affect how students would utilise a text in the broader context of their study. This would again lead to a mismatch in the student's needs and the text placed on a reading list.

An interesting notion arises in that if a student identifies a text in their specialism based on the strong recommendation by their course lecturer, does this link become self-perpetuating? The reason for this stems from the fact that some students of today will become the lecturers of tomorrow and as such the recommendation and link of a specialism with a text may be so influential that the recommendation of that text to future students will remain. This was evident in the findings where for one text its popularity remains high and on the course reading list, despite the lecturer who had recommended it had left the university where the current study took place.

Another aspect here is that those texts which have been found to be linked to a particular professional group, mainly because if a title included the profession's name e.g. midwifery, then this has led to it being included in a key text list by the lecturer, and/or or the student choosing the text. However what has been seen is that the utility of such a text for anatomy and physiology was not as anticipated leading to additional texts being required. There is little in the literature that has addressed this issue but

again the evidence provided by Cassata and Cox (2009) may provide a rationale for why this particular issue arises. Indeed if such texts are aimed at specific professional student groups then the focus of authors may be insufficient when considering the more general human anatomy and physiology concepts, with emphasis being limited only to those aspects linked to that professional group. This is further supported by the work of Harder and Carline (1988) which, whilst not seen as contemporary, still has relevance where the selection of text for promotion to the student, reflects the professional background of the lecturers. This was quite evident in the findings of this study in relation to midwifery based students who were specifically diverted toward a midwifery-focussed text. This resulted in students finding that the text was insufficient for study in the general aspects of anatomy and physiology. Differences in other courses did not highlight the selection or recommendation of texts which reflected a particular professional group.

Such reliance by the student on the choice influenced by the lecturer suggests that, quite reasonably, a trust is placed in the lecturer's ability to identify the text most suitable for the student to choose. Despite this reasonable approach such recommendation may not always be the correct one to make to a student as shown in this study. Additionally there is a suggestion that the choice of a lecturer recommendation will in some way ensure success, if students using texts do so primarily for passing course assessments as highlighted previously. Another aspect to also consider is the mismatch between lecturer's intended use of the text by the student and the student's actual use.

The situation in the US provides an interesting contrast. As has been highlighted, there exists a strong link between texts and the courses delivered in US higher education systems, where textbook adoption is prevalent and this is accompanied by an expectation (i.e. not a choice) that students will undertake preparatory reading before attending lectures (Socash 2007, and Kumar 2005). However there is no such link in UK courses utilised in this study where students have identified key text lists but as to how the texts link with the lectures is not implicitly made. Students were unlikely to read prior to lectures but rather to use a text in or after the lecture, to assist understanding. This however was not universal in the participants. Interestingly the use of lecture materials were seen as being more useful to fill in those aspects which were not included, rather than the text as being more authoritative than the lecturer.

This again raises the issue of the trust that students place in the expertise of the lecturer, whilst not seen as questioning the lecturer's knowledge base but rather suggesting the placing of the text as being secondary to this knowledge. Little has been found to provide a rationale for this issue of trust although it seems logical that a student would anticipate a lecturer as knowing what was best. What is clear however is that lecturers had an expectation or hope that students would use their textbooks to read prior to the lecture or most certainly after to reinforce the lecture materials rather than the reality that a text is consulted largely to prepare for an assessment task.

The final issue with regards to the trust that students place in the recommendation of a text by the lecturer relates to the regret that arose when a text either was not understood or that it was found to be insufficient for the needs of the student. Little evidence has been found which supports or illuminates this aspect in text choice and as such indicates that there may be a close relationship between a lecturer's recommendation and the satisfaction a student gains when a text is chosen and it meets many of their perceived needs. This issue of trust should be further highlighted in that if a text was appearing on a reading or key text list provided to the students and such a text was in the library catalogue, this may have led to students over-estimating the value of text recommendation. Indeed students have been found to place much trust in the library and it has been indicated in the literature that if the text is in a library catalogue or database it is considered both trustworthy and reliable (Hernon et al 2007). This then could lead to the rationale that such choice based on this source leads to a sense of regret if it is found to be a text which does not meet the perceived expectation and needs of the student.

Regret should also be viewed in the light of students who have to make choice from a large amount of texts available and that with impending course assessments may find that the choices were made with haste and so lead to increased regret (Inbar et al 2011). The issue of regret is acknowledged in stage four of the conceptual process framework by inclusion of two possible outcomes following choice of a text, this being satisfaction or dissatisfaction/regret. Whilst a mismatch in perceived needs made has been highlighted as a possible cause of regret in the value of the choice made, the place of the textbook in the classroom also has to be explored in relation to the findings of this study.

7.5 Place of the Textbook

Whilst the textbook has been shown to be highlighted as important in the preparation of assessment tasks, the issue of availability of electronic or digital textbooks, and their apparent dislike by students, has also been highlighted in this study. Students identified that the possession of the physical print copy text was (for many) preferable than owning a digital or electronic text. This is despite the fact that more people today have been raised in a digitally-based culture (Gregory 2008). Indeed the World Book Day held on the 5 March 2015 in the UK, recognised the continuing preference of print copy by promoting it with the provision of book tokens from the National Book Tokens Ltd Company, for all children under the age of 18, estimated at 14,000,000, to allow them to purchase a text from selection of ten titles (World book Day Ltd. 2015). Audio versions were identified as an alternative suggesting this may be to cater for students with a disability e.g. impaired sight. Nonetheless this highlights that print copy texts are still seen as popular amongst the young as evidenced during the news reports of the day on the British Broadcasting Corporation News (BBC 2015). This heightened popularity of print copy texts, despite the age of the reader, resonates with the findings of this study where students preferred their print copy versions despite the availability of electronic texts. They indicated that the use of the print copy text allowed for easier navigation and the ability to be able to highlight text and be able to go backwards and forwards with greater ease when compared to an electronic text.

This utility of using print copy textbooks continues to be highlighted as being the main reason for their popularity (Rockinson-Szapkiw et al 2013). The reason for this lies in the experience of an electronic text which differs from the print copy text, and that the latter offers readers a more constructive reader experience (Woody et al 2010). The purchase of print copy texts is still undertaken by the majority of students (Ertl 2014) and as indicated in this study the reading from a screen is not considered conducive with an acceptable experience in text use. Only one lecturer in the study highlighted the aspect of technology required to use the electronic textbook and that despite improvements in technology, to store and display electronic textbooks, use of this format is not valued above the choice and use of the print copy text.

The improvement in technology means students can access electronic texts anywhere and at any time. Students do indeed place great importance on portable devices but report that these devices do not allow for sustained reading (Duncan Selby et al 2014). It is this which may allow an assumption to be drawn as to why the lure of the print copy text remains despite electronic devices, e.g. tablets and smart phones, becoming far lighter to carry. The fact that some students have been found to take a heavy text into class, as indicated in this study, strengthens the value that is placed on the printed text over its electronic rival to the extent that even printing off sections from an electronic source appears to be preferable. This surely increases cost but despite the lower unit costs of electronic texts when compared to their print copy counterparts, students have still been seen to prefer the initial financial outlay for such expensive print copy text formats and that this may be due to the issue of ownership. It was evident in the findings of the first stage of the current study that a significant number of students had purchased a copy of their text in print copy format.

The outlay of an expensive text which results in a physical ownership of the item seems to outweigh the ownership of something which is electronic where no physical ownership of an item exists. Little has been found to illuminate the rationale underpinning the need to own a textbook, but the experiential values outlined by Chen and Granitz (2012) would seem to be appropriate here. What has not been evident in the current study was that the experience of visiting the university library, an example of an experiential value, was not a prominent aspect highlighted by the student sample, therefore negating the experiential value of sharing and meeting in this environment. The scant visiting of the library by many of the student sample or indeed their use of the library in selecting their texts, reduces the likelihood of the choice of an electronic text as such versions would be highlighted in an on-site library search. This non-selection of electronic texts also suggests a lack or minimal advertising of electronic texts, either by a library or lecturer, thereby minimising exposure of students to such media. In this way it is unlikely that students will encounter such texts (Hernon et al 2007) and indeed when the current study took place little emphasis was placed by lecturers on the identification of electronic anatomy and physiology texts for use by the student.

Possessing a text has aesthetic value, in that some students in this study highlighted the visual pleasure of seeing the text on a book shelf in their domiciles. This also links

well with the conceptual process framework in that at the *Decision-Making* stage (stage three) aesthetics may invoke a strong influence in that the visual qualities of the text and the desire to own it may sway the student to choose a particular text and not even consider its electronic version. The poor use of either digital media or electronic adjuncts, supplied with the texts, has been highlighted in the study findings and warrants exploration.

Adjuncts supplied with a text were not seen in this study as being a key influence for students in purchasing or choosing a text. Indeed many indicated that optical media or the access to "on line" content was minimal. Many stated that the optical media supplied with a text had often remained sealed in its original packaging suggesting that they provide little value to the educational experience (Silver et al 2012). This demonstrates that far from promoting a text and maximising the sales (Sewall 2005) the provision of adjuncts may indeed by a relic from what was seen as a planned addition for teaching and learning when such "stunning arrays" of adjuncts were first introduced in the 1990's (Lichtenberg 1992). Few of the authors were seen to view the adjuncts of being vital to the use of the text, as indicated by their comments in the current study, and that the actual content was seen as being much more important than additional components, though these were perceived by the publishers as being a vehicle to enhance the use of the text in learning (and as a selling point). An issue worthy of consideration however is the potential value of adjuncts to reinforce a link between the students' clinical practice and the anatomy and physiology.

All student groups in the study had clinical practice links and had identified to some degree that linking of the text to their clinical practice was desirable, though the result of this was unfavourable as seen in the midwifery students where a defined midwifery text in anatomy and physiology was deemed insufficient for their needs. Nonetheless this does highlight that perhaps the strong linking of text with a specialism may increase the value of the text beyond passing an assignment. The reason for this assumption is based on one author's statement, in this study, that perhaps the subject of anatomy and physiology is being utilised to teach all of the sciences (i.e. immunology, pharmacology, genetics etc.) and that this attempt to be all inclusive produces approaches which reduces the learning that students can achieve from such a comprehensive text. By linking a text with a speciality this may reduce the need to include all aspects of anatomy and physiology, and so include only those

aspects which are considered relevant. Indeed this should be considered in the backdrop of courses which seek to present vast amounts of content in the curriculum such as nursing (McVicar and Clancy 2001) where students may only focus on those aspects which they can fit into their studies. Additionally the suggestion here is that if a text is seen as being linked to a professional group, then an assumption by the student or lecturer could be made that the content of a text will only provide the information required that is relevant to being learned and taught. This is supported by the fact that texts written by practicing science authors or educationalists will produce texts that are specific to their discipline (Mellor 2003).

7.6 Summarising the Key Issues

The discussions presented have identified that the main overarching key issues are that of prior knowledge and recommendation. If prior knowledge is not possessed then alternative means of assessing a text have been shown to be utilised. There are a number of areas which have been shown to exert an influence on the student's initial choice decision, these being related to the core issue of "recommendation". This recommendation has been shown to be most influential if this originates from either the lecturer or a reading list for the course, and has a strong perceived link to course assessment success. Such is the strength of this that bypassing of all the proceeding stages, in the conceptual process, may lead to the selection of the text despite difficulty in using it due to a lack of prior knowledge in the subject area. Another strong influence has been the issue of "herding" which again has been shown to potentially result in selection of a text which presents difficulties in use for the student again due to a lack of subject prior knowledge. This "herding" behaviour can also be seen as a form of recommendation since the actions of fellow students indicate that the text choice they have undertaken is a recommendation of its usefulness.

The assessment of the text title is a powerful but potentially misleading influence. Lack of knowledge of the subject area may leave the student using the title as the only means in deciding on a text to purchase. Again this can be to the detriment of the student where the title which reflects their professional group leads to its selection over other more generic texts. Such a selection has been shown not to cover the wider subject area of anatomy and physiology in as much breadth and depth as required by a student's course.

If the title has not been informative for the student then the textual appearance of the text appears to be influential in the selection. It has been shown that prior knowledge once again plays a major role in this assessment. If prior knowledge does not exist then aesthetic preference is likely to be employed, whereas if prior knowledge is present then comprehension, cognition and appraisal of the academic level of the text may be undertaken prior to deciding on a choice of text. Possessing this knowledge can allow a student to make a rapid assessment of the text in deciding if it possesses those qualities the student requires to meet their needs.

The use of multiple texts has been identified as a prominent action undertaken by students. The underlying rationale is that such additional texts were required to assist in the comprehension and use of the course recommended text. The discussion has shown that this additional text selection does require the student to navigate the conceptual process in the identification and assessment of these additional texts. Gaining the required knowledge therefore will lead to the student being able to use the recommended text.

The selection of texts by lecturers for student use is based on an assumption that students will be able to use such texts. Consequently a perceived mismatch in needs may arise and as such it has been shown that lecturers cannot always view the text from the viewpoint of a student and assumes prior knowledge. Additionally the choice of text by the lecturer reflects their own professional background. Coupled with the strong link between the reasonable trust placed in the lecturer by the student to advocate/recommend the right text, this has been shown to be another issue in what is a mismatch in student need versus course demands. This can lead to a regret in purchasing a text by the student since this leads to additional cost of selecting other texts to aid use of the recommended course text, and wasted time in grappling unsuccessfully with the book content.

Finally the issue of electronic versions of text have not been shown to be popular with students. The aesthetic qualities of a print copy text, the need to possess the text and the need to have something to physically own following what is seen as an outlay of

a large amount of money, has been a hindrance to the electronic text been an option for the student. This is despite the advances and improvements with information technology providing convenience in transporting and using large texts when compared with the heavy tomes of the print copy versions.

The key issues have therefore now been identified as: recommendation, in its many forms, and prior knowledge. Both of these have been shown to have a powerful influence on how a student progresses through the conceptual process providing an underpinning component which has the ability to affect how a student makes a choice. The literature has shown that such aspects underpin differing actions in the conceptual process but little, if any, has been found which demonstrates a coherency as displayed in this study which supports the further development of the conceptual process framework.

Whilst previous sections have placed the influences on student decisions in the context of available literature, the proposed conceptual process framework constructed for the study requires exploration since it is here that the addition to current knowledge, thinking and theory will be illuminated.

7.7 Developments of the Conceptual Framework

In this chapter the findings of the study are placed in the context of the available literature and whilst some issues are shown to be amenable to current theory and thinking what has not been found is how all these disparate components can be linked together. It is here that the study illuminates what is a novel approach by exploring the pathway or journey underpinned by relevant theory. It is this pathway which is proposed as a conceptual process framework, initially presented in chapter four and again at the commencement of this chapter and as presented in Figure 11 following revision based on the results of the study, on the next page.

External Influences
Reading Lists, Key Texts
Assessments, Cost
Adjuncts, Fellow Students
Lecturers, Herding

Course Enrolment

Preliminary Selection of texts
Inspection and Reading

Internal Influences
Reading Age
Motivation
Interest
Academic Background Knowledge

Blooms Taxonomy*
Educational Outcomes
Evaluation, Synthesis
Analysis, Application
Comprehension, Knowledge

Assess Academic Level

Kintsch's Theory & Hegarty's Theory
Cognition and Comprehension

Decision Making Theory

Heuristics

Decision Making

Aesthetic Preference

No Choice Made

Or

Satisfaction

Choice Made

Dissatisfaction or Regret

Stage 1 Influences   **Stage 2 Comprehension, Cognition & Level**   **Stage 3 Decision-Making**   **Stage 4 Choice**
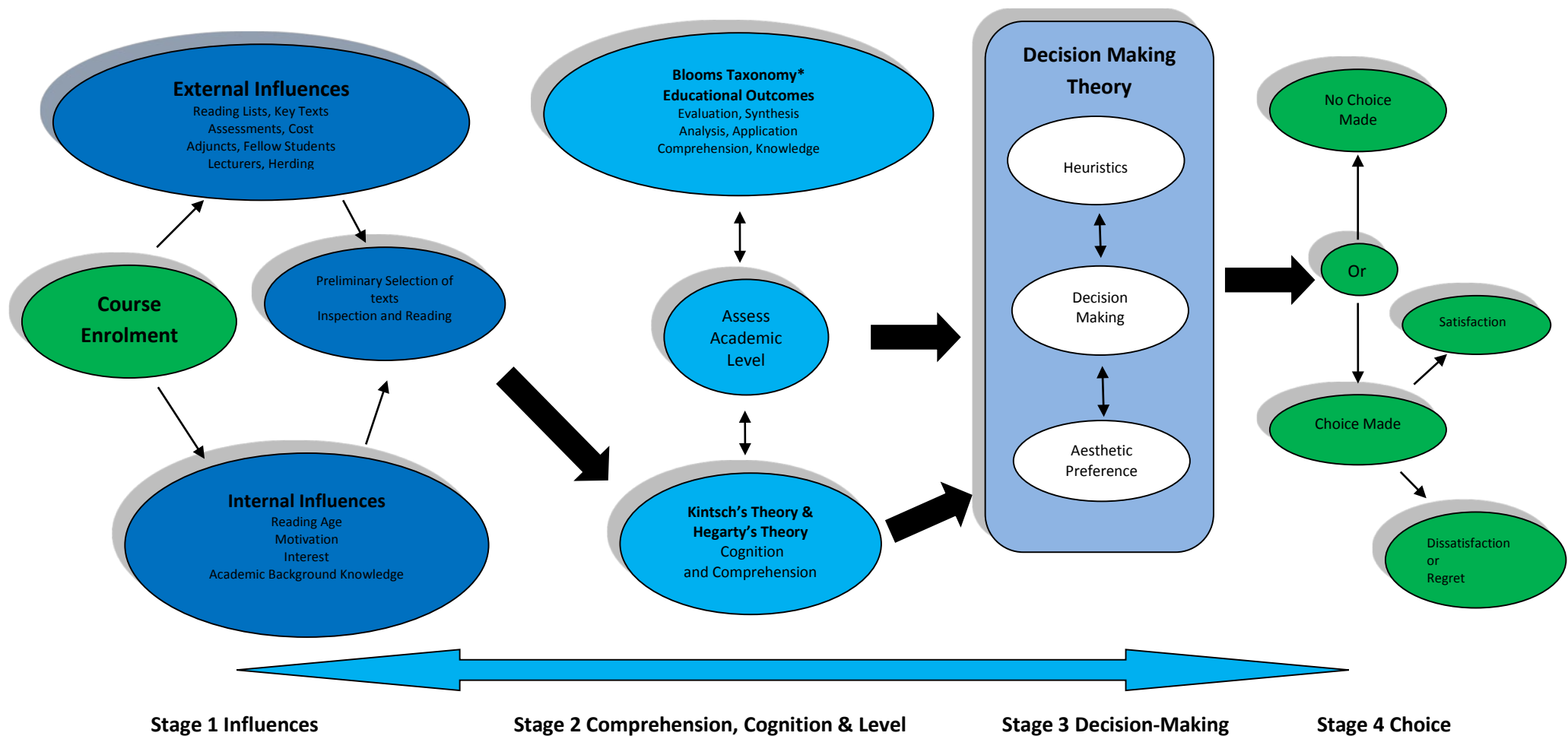
Figure 11 Conceptual Process Framework for Text Choice (Revised)

*Terminology is based on that used in Blooms original publication of the framework (Bloom et al 1956)

The first stage of the proposed framework, *Influences*, has been demonstrated to relate to numerous external ones that impact on a student's decision to choose a particular text (see chapter four). Initially the most prominent of these was the key text reading list being also seen as the most powerful. However the role the lecturer has played also requires a place in these influences and should be viewed in light of the key reading list, which may have been completed by the lecturer him/herself and so the two are strongly linked. It is also the case even if another lecturer had previously compiled the list, as the student perception and trust remains the same. In addition to the lecturer, the "following of the herd" by observing the behaviour of others (Bikhchandani et al 1998 and Lemieux 2003) has also shown to be a powerful influence and cannot be overlooked as an external influence in the proposed conceptual process framework. Whilst these concepts are included, the issue of the assessment tasks and its importance in the selection of a text also remains another strong external influence. However, in the current framework, this weakens the issue of cost of a text and its adjuncts which are highlighted as being less important in comparison to those other influences in this section of the framework. If course assessment remains the core reason for selecting a text, this suggests that it will be selected and even purchased despite the cost aspect. The weakening of the adjunct influence is supported by the fact that despite incentives to choose a different text from others, the herding influence will remain significant to overcome the incentive so leading to the choice reflecting the overall "herd behaviour" (Lemieux 2003) by selecting the most popular text. Regarding decision-making, *Influences* (stage 1) presents a superficial passive approach to choice with little or no investment of effort by the student. Inevitably, the value of the text cannot be guaranteed yet this approach seems to be the most likely to be followed. In recognising this university faculties might be expected to encourage a more active selection process, but this does not appear to be happening.

Additionally this focus on successfully passing an assessment task has been found to link to a text included on a key text list and used by the lecturer in their lecture content. Such linking by the student suggests that it imbues a level of trust in the lecturers "recommendation" since the text has been highlighted as key, and so success at assessment will be linked in some way to the possession and use of this text. This trust in the ability of either the lecturer or the key text list to illustrate which is the most useful text is what causes *Comprehension, Cognition and Level* (stage 2)

and *Decision-Making* (stage 3) of the conceptual process may in fact be bypassed all together by relying on non-comprehension of the text from either a visual or textual aspect (see Figure 11). In comparison with the original framework proposed external influences have required additions identified from the findings and discussions but, the internal ones have remained as proposed.

The influences of reading age and academic background knowledge remains but while this may impact on the students' choice it is most likely that deferring to the trust placed in the external influence of the key reading list, and lecturer support for a particular text, will prevail. If a more reasoned approach is taken however, even if a choice is made of other texts at a lower academic level will still require students to undertake the *Comprehension, Cognition and Level* (stage 2) and *Decision-Making* (stage 3) in the proposed conceptual process, and this will require an assessment of the level of the text to be chosen and how well it is comprehended.

The assessment of illustrative material requires that concepts in the illustration are comprehended both in function, as indicated for mental animation (Hegarty 1992), and from the link with and comprehension of, the textual information. This will require meaning being gained at both the micro and macrostructure levels (Kintsch and van Dijk 1978) if an overall understanding of the text is to be gained. However it may be that such comprehension may be from the illustrative material only and so comprehension of the text and its link to the illustration will only be gained once the text is chosen and then utilised in the student's study. The illustrative material in the text and its application has developed to look and function very differently when compared to texts from 60 years ago (Bezemer and Kress 2008). This supports the proposition that the two components are integral to each other and as such the student may indeed be correct in assuming that the illustration has importance when deciding if it has value in being chosen. Additionally the academic level has been shown to be an aspect that students may well be able to determine based on the layout of the text and those visual cues such as the type face and size will aid in this determination. The influence of the key reading list however does dictate that students must make a choice from a number of texts that are presented on the list but have not necessarily been specifically recommended by the lecturer.

If the choice is required to be made from the list then the assessing of the academic level may not take place since the student will assume that all are at the right level due to their inclusion in the recommended texts. The assumption may be misplaced whilst this aspect will be bypassed in the conceptual process shown in Figure 11, the issue of comprehension still remains. Students may undertake this evaluation, but if not then the aesthetic qualities may be influential. A more active decision-making process must then take place. However when confronted with a task of selecting a text from numerous others, students may use *adaptive* decision-making tactics, with heuristics being utilised to simplify the decision-making when there is limited capacity for processing information (Payne et al 1993). It has not been clear as to which heuristic the students in this study might have been utilising but if the link with the assessment process and text is strong then a "habitual heuristic" (Payne et al 1992) may have significance here since in similar circumstances in the students' past they may recognise that specific texts can lead to assessment success. Such use of heuristics has been shown to have a high degree of accuracy when associated with decision-making (Gigerenzer and Gaissmaier 2011). Whilst no evidence has been found here to indicate that students failed to make a decision in the text they chose, the issue of choosing those texts which support or aid comprehension of their first choice still remains and as such supports the cyclical nature of the conceptual process.

The inclusion of this aspect in the conceptual process framework is supported by the finding that some students did identify a return to stage two, *Comprehension, Cognition and Level*, and subsequently undertook the later stages in deciding on the next text to choose. This next text will allow them to develop a comprehension of the key text in the first pass through the conceptual process framework. Additionally the conceptual process framework is adaptive in that if a student does indeed possess background knowledge then their ability to progress through the framework will be easiest at the stage 2, i.e. *Comprehension Cognition and Level*. However difficulty may arise when confronting the decision-making process in stage 3. If the process of deciding between two or more texts is based on deciding aesthetic value then this may lead to an easy choice decision. The reason for this assumption is that most anatomy and physiology texts generally have a similar design and content due to the domination by what are seen as four large major publishing companies in the US and the "flooding" of the international markets with their publications (Silver et al 2012).

Therefore if the texts appear too similar, students may then look to the aesthetic qualities as being the deciding issue.

If a choice is made then this may have denigrated other texts so as to provide support for the actual choice made (Schrift et al 2011) from what are basically very similar texts. Indeed students in the study raised such criticisms of texts such as having diagrams which were "too busy" despite these being published by the same company and not being too dissimilar from those in other texts.

The influence of prior knowledge and possession of comprehension, even if at low levels can have the effect of raising the decision-making into an active process. This will combine the aspects of external influences and aesthetics with a more considered approach in the decision-making stage to increase the likelihood of success in choosing a text.

The final aspect of the framework, as indicated previously, is that there has been an addition of the actual outcome of decision-making. This is introduced to reflect those students who indicated that if the text was not linked with their own speciality then a general anatomy and physiology text would not be purchased or even chosen as an alternative. In addition even when students have purchased, or chosen, a particular text then dissatisfaction may still ensue if they subsequently are unable to comprehend the text. This leads to the process framework being re-navigated again to determine a different text required to assist in this aspect. Such 'Regret' is also included as this was seen with one text which was specifically for one professional group, but highlighted that such texts may not actually be useful in the support of more general aspects of anatomy and physiology. As such it is seen as an expensive decision resulting in the regret in relation to its purchase.

Finally the critical point in the conceptual process framework is the stage following the preliminary selection of texts since it is here that students display differing entry points onto the subsequent stages of the decision process. The inclusion of the large bidirectional arrow on the conceptual process framework indicates that far from being

a linear process for students, dependent on how the identified influences affect their decisions, they will traverse the stages with the result that a choice may potentially lead to the stages being revisited until a satisfactory text is found. This critical point will provide a basis for some of the conclusions drawn in the final chapter of this study, however its identification is important as it is at this point that the dynamic nature of the conceptual process framework presents itself, and so signifies that transition from passive, accepting decision-making to one that uses higher level application based primarily on (i.e. individual) preference.

The proposed conceptual process framework supports the literature identified for use in this study but as stated previously the contribution that the results and discussion have made to the issue of students selecting texts is that a journey clearly is evidenced and this is theoretically contextualised by locating this in the stages. In doing so these stages demonstrate that whilst appearing disparate the concepts indeed are closely linked with the students undertaking a choice of a text to support their learning in anatomy and physiology. The next chapter concludes by outlining the contribution this study has made in more detail to this process of text choice.

Chapter 8

Conclusions

8.1 Introduction

This study has explored the influences and issues surrounding the choices students made with regards to a textbook or books to support their learning in anatomy and physiology. I have identified that students have an array of texts from which to choose and that as such choices are influenced by many external agents. Such a choice has been shown as not always meeting expectations or needs of the student and can lead to a mismatch in what may be seen as a simple process in choosing a text. The study findings demonstrates that whilst this is so for some, others have been found to be more reflective. I have found little in the literature which indicated that the issue of choosing texts from a student perspective has been explored though separately and unrelated, several key theoretical areas had been identified in the background chapters of this study. The key issue that I have identified in this study is that there is a linking between the relevant theoretical perspectives and it is here that there has been found to be a gap in current thinking and published literature. This elevates the importance of the focus of this study and it is in this chapter that I will draw conclusions which will provide a connection between what are seen as disparate concepts and demonstrate a cohesive framework, conceptualising the numerous considerations and influences that impinge on a student's choice of text.

In this final chapter I demonstrate how the study has allowed the creation of a conceptually based framework in which students decisions, in choosing their texts, can be placed and understood in what has been shown to be a complex process. The theoretical underpinning of the framework is placed in the context of its application in the understanding of the process a student undertakes in choosing their texts.

Finally I identify the limitations of the study and explore avenues for further development illuminating those aspects which have not been addressed and so provide foci for future research.

8.2 The Study Question

In identifying the relevant literature it was apparent that there were numerous considerations and influences to include in the study and explore in relation to the central question "What influences the decisions students make in choosing texts to support learning in anatomy and physiology?" As such the boundaries which this question placed around the study need to be stated. My aim was not to investigate issues surrounding "learning" of human anatomy and physiology from textbooks, but rather those processes that were found to be relevant when selecting texts to support this learning. This a marked difference and needs highlighting. Whilst learning has been broached in the form of the use of learning outcome indicators, when I constructed and applied the process framework, the process of learning from a text has not been the focus of the study. Additionally the decision, made by a student, regarding if their learning could be assisted by making a correct choice has been identified as an influence, this does not extend beyond the initial decision-making process.

The findings of my study, based on the above question therefore can be summarised as follows:

- A non-linear process exists in the choice of text
- Recommendations provide a strong influence to choose a particular text
- Prior background knowledge influences assessment of texts and choices made
- Prior knowledge leads to Comprehension and Cognition allowing academic level to be determined
- Aesthetics and heuristics assist strength being determined by level of prior knowledge
- A simple process of choice does not exist in text selection
- The construction of a Process Framework for Text Choice

The study I have undertaken has identified that whilst the process is non-linear there a numerous influences which impinge on the student decision-making processes with two being identified as the most influential. The first being that provided by the lecturer and prescribed key text lists. This is linked to the overarching issue of "recommendation". Such is the strength of this influence, found to be linked with

perceived success in the assessment process, the selection of these texts has been undertaken resulting in difficulty in using these. I have shown that some, though not all, students have utilised little thought into how a text will meet their own learning needs. I have also found that there is a requirement at times by students to select additional texts to assist in the comprehension of a "recommended" text. The choice of text from the perspective of the lecturer appears not be undertaken from the viewpoint of student need but will always be based on having a developed prior knowledge that surpasses that of the average student. This therefore presents a mismatch in the text recommended and the needs of the student who may not have the required prior knowledge to comprehend the prescribed text leading to an inability to utilise the recommended text.

The possession of "prior knowledge" of the subject area I have identified as the second over-arching influence in the selection of a text. What has been shown is that whilst students often choose an additional lower academic level text such actions can indeed lead to better comprehension of a higher level text as seen in "intertextuality" approaches. This approach can provide the required prior knowledge and whilst not deliberately adopted by a course of study, students have been shown to utilise this albeit unconsciously. I have shown that available literature and research demonstrates this approach should be actively pursued, in that students faced with a text they are unable to use, due to a knowledge deficit, should revert to using texts of a lower academic level to assist in the comprehension of higher level ones. I have established that students may already possess an inherent ability to acknowledge that the use of "intertextuality" can indeed assist in their comprehension of more difficult texts. This study has indicated that this should be actively supported amongst students when choosing their supplementary texts.

Lack of prior knowledge affects those aspects of a text will be evaluated in order to determine if the text should be chosen. For example confronted with numerous texts as displayed in a key text list, the issue of a text title has been found to have a strong lure for the student in making a choice. Inclusion of a professional group name in a text title can lead to its selection based on the perception that it will be of use for their studies as found in the midwifery group of interviewees. However this approach clearly has limitations as the focus of such a text relates only to those aspects which a professional group would be most interested in rather than, as in anatomy and

physiology, the whole human body. If the title has been found not to be revealing students have turned their attention to the textual contents.

In this study I have illuminated that the influence the layout and the illustrative materials places on the students decision-making is strong and again is affected by lack of prior knowledge. I have demonstrated that textual layout can lead to a student making an astute assessment of the academic level of the text and also the difficulty this will present in using the text to support the student's learning. These visual assessments have not required that the student possesses or has comprehended the information in the text, but is based on the visual cues the texts has presented. Additionally I have shown that aesthetic preference is at times the only component that a student has utilised in deciding on choice of a particular text.

The look and presentation of the text has been identified as important, and publishers have been shown to provide a myriad of approaches to text presentation in the hope that these will lure a student in choosing a text indicating that text sales are the most important aspect in relation the publisher considerations. The author involvement in such aspects has been found to differ markedly between the UK and US based authors with more control being seen in US based authors with regards to textual content and illustrative materials. Such texts in the US have been seen as relying on providing a comprehensive approach which will appeal to Colleges and Universities so that they are adopted for the three year period to which most institutions subscribe. Such an approach is absent in the UK and with most US texts having to rely on authoring a text which meets the HAPS guidelines leads to a high similarity in the published texts available. This presents an issue in the UK where such texts have been found to rely on adjuncts which has been demonstrated as not being utilised by the student once the text is purchased. Such provision has been shown to be a factor in the choice of a text but a far stronger influence has been demonstrated as being due to the "herding" nature of student behaviour.

I have identified that students are prepared to follow the example of others in the choice of their texts another example of recommendation. If a text is seen as being popular then again this demonstrates that the students accepts that there is a

recommendation of value in gaining the text without the need to view it prior to purchase. This is despite the fact that when gained the text is found to be too difficult to understand and as such required another text being purchased. The implication of the rising cost of text purchases has been identified as an issue confronting students and this is despite the fact that loan copies are available in the university library. Loan copies have been demonstrated as not being open to have on a permanent basis for use beyond the course or module. Students have placed great importance on the possession of a copy of the required key text.

Students in my study have also been shown to reject the choice an electronic textbook. The issues of use related to navigating an electronic text versus a print version, the need to possess a physical copy when considering the high price paid, the electronic copy being seen as only available in some electronic ether where physicality does not exist, all point to the physical text as being more desirable. This is also despite the fact that many students have been raised in the "digital age" and possess digital equipment which makes for easier transportation and access when compared with its print copy text cousin.

8.3 Contribution to the Discipline

In the background chapters of this study, I have demonstrated that little was found in the literature which indicated that a complex process existed when exploring the influences on and actions of students making a choice of text in anatomy and physiology. In undertaking this study the results and analysis have led me to undertake the development of a conceptually based process framework for text choice which details such actions drawing on theories which underpin the stages presented in the Process Framework. I have found little in the literature with respects to the subject of text choice by students to support their learning in any discipline and it is this development of a conceptually based process framework that identifies my unique contribution to the discipline. It details the non-linear nature of a process which is both complex and indicative of a journey a student traverses. This journey may only require one passage but, as has been found in this study, students have often found themselves revisiting stages in the journey as they select texts which will eventually lead them to understanding the texts prescribed by a key text reading list or recommended by a course tutor or lecturer.

The conclusions I have drawn have identified that a crucial point exists in the conceptual process framework, this being the point where preliminary selection of a text is made and that this is most likely where influences are brought to bear. It is here where students make their decision to either assess the content of the text or blindly accept that such a text will be useful and progress to the final stage of the process where a decision is made and the student may be confronted with disappointment. A consequence of this may be the selection of yet another text. The two overarching issues of recommendation and prior knowledge are the greatest influences which decide if a student progresses along the process framework. Whilst prior knowledge has been shown to be required to navigate the stage two of *Comprehension, Cognition and Level*, stage three, *Decision-Making*, can be navigated if a decision is made based only on heuristics and aesthetics. Nonetheless the success of gaining a text which will bring satisfaction would need to have a student possessing prior knowledge and as such this crucial point in the process framework, the preliminary selection of texts for inspection, provides an opportunity for lecturers and teachers to influence the student in a more positive way. Unfortunately this is unlikely as I suggest that unless there is recourse to accept that students may not possess the level of knowledge required to utilise a text recommended in a reading list. Such acceptance would allow the student to be guided more effectively in selecting a text which can eventually lead to the comprehension of required course texts.

I indicate that the issue of recommendation therefore needs to be viewed more critically than it is at present in that acceptance by a student, requires them to link learning and the text more strongly, and so go beyond any fixation with the assessment task. In this study I have shown the strong link with this issue and that the text of choice does not always lead to success but results in the need for additional texts following regret when the text recommended is found to be difficult to utilise.

I have shown that text appearance and design influences the way a student decides in choosing which text to support their learning. Little has been found in the literature which points to how or if, this assessment is undertaken. In this study I have provided important insights into how texts are designed, and identify that there is a need to go beyond simply the physically attractive offering. How textual information and

illustrations are linked in texts in the UK indicates that unlike their counterparts in the US, greater influence needs to be exerted by authors so as to consider the way the student needs to use a text to assist their learning. Paying attention to the presentation can be a major consideration in the choice the student eventually makes.

An important finding I have identified from this study is that far from providing students with a simple task of choosing a text to support their learning, the provision of recommendations and course reading lists may in fact complicate the process. This study has allowed me to provide an insight in what was an unknown arena where the student far from being subjected to a simple act of selection is thrust into a task of selecting a text from an array of recommended alternatives. Texts are viewed by the lecturers who, with greater subject knowledge, have decided that such texts will be easily understood and utilised by those with less knowledge. An assumption that students enter a university course with the required background knowledge is erroneous, though not always, as indicated by the majority of students in this study whose prior knowledge was not up to the level anticipated by their courses. This serves to further complicate the task that the student must undertake in selecting a text to support their learning in anatomy and physiology since anatomy and physiology is ordinarily a significant component early in a student's course, and they have to commence their learning of anatomy and physiology almost immediately after joining the course.

8.4 Limitations of the Study

This study was conducted in the East of England and as such the sample used was relatively small and drawn from what was seen as having the majority of students being white and British. The lack of inclusion of a wider variety of respondents and interviewees from more varied cultural backgrounds has reduced the ability of the current study to be able to determine if these aspects are indeed important and whether they provide additional influences which can impact on text choice. Whilst culture can arise from the background of the student there also needs to be a consideration of the culture of the higher education establishment when considering those which are situated in other parts of the UK. Regional variations in student population and backgrounds of academic staff could all have the potential to exert

influences on the choices a student makes. As such this study relates only to that student population in the university where it took place.

The inductive nature of the study limits the ability to generalise the findings to other disciplines with regards to the selection of texts. This is especially so with those disciplines where the reliance on ever changing information requires new inclusions in existing texts or more frequent re-authoring so as to remain current to the discipline to which it links. However the ability to view the study findings in relation to those areas which possess a high level of illustrative content and also a relative stable theoretical base is possible. The process framework for text choice has been developed from induction and as such the reliability and validity of this requires a deductive approach to test the theoretical hypotheses that evolve from the application of the conceptual process. This study has been limited only to human anatomy and physiology and as such could limit the findings only to this particular discipline.

In this study I have only assessed the use of texts from a narrow range of the available texts in anatomy and physiology however, this was based on those texts which were locally recommended and as such authors of those texts were interviewed from both the UK and US. The insights that authors from other disciplines and from a greater number could have allowed for saturation of the data to explore if there existed additional issues and influences which could have been applied for inclusion in the conceptual process. Additionally the use of only three lecturers in the data collection could also have the ability to limit the findings, since these were from those who came from only two disciplines whereas the students were drawn from variety of courses. Inclusion of lecturers from other courses would have given the opportunity to determine if the findings and conclusions drawn have applicability beyond the speciality of the lecturers included in the study.

The study was undertaken in the East of England and as such needs to be highlighted when considering the results being applied to the UK as a whole. In the locality where the study took place a reading list is traditionally utilised, this used to be the general approach in the UK but it is possible that textbook adoption may operate in some other universities. Considerations such as ethnic, regional, cultural and institutional

variations all can have an effect on the outcomes observed in this study and as such present a set of limitations regarding the generalisability of the study conclusions.

8.5 Avenues for Further Research

In this study I have only looked at the influences that impact on a student undertaking a choice of text, and whilst it has illuminated that a choice can result in either a success or one which requires further assistance from other texts, this study has not looked at how the text can assist learning. The use of a comparative study looking at text adoption and strong linking of the text with lecture and course content as compared with text recommendation and key text list production from which students choose, with little linking of the text with course content and lectures. Such a study could allow for a conclusion to be drawn if one approach is superior to another. The exclusion of a student needing to make a choice, as seen in textbook adoption could reduce the complex process that has been identified by the current study.

Whilst this study has allowed me to construct and present the process framework, further research could be undertaken to see how the student can be facilitated through the process and if this could allow for the selection of a text which meet the needs of the student. As I identified there is a crucial point in the process where intervention or facilitation could affect the outcome of the whole text selection process. This point being at the preliminary selection of texts for inspection in stage one, *Influences.* Further study could allow for identification of the type of intervention/facilitation that is effective in choice selection. The delaying of the selection of the text until new knowledge had been gained from the commencement of the student's course could be explored to ascertain if application of this this would affect the outcome of the final selection of a text for the student to utilise.

Another area which would warrant further exploration is the need for having course text lists and if students could navigate to those texts which they find more useful, rather than relying on those identified by a lecturer. Furthermore if students are indeed the focus of any course then exploration of the viability of involving students, who have undertaken a course, being placed in the position of producing a list of texts which they have found to be useful for prospective students. Exploration of the

satisfaction and achievement levels amongst students could highlight if such an approach can assist in the complex process of choosing a text. By involving past students a wider variety of texts may be identified which catered for students at all levels of prior knowledge and as such recommendations could be reviewed each time a new group of students enrolled onto the course. Research in to this area could provide valuable insights if indeed students are better placed to provide assistance to others in selecting the best texts for use in a course of study.

Finally as indicated previously my study has only looked at students undertaking studies in anatomy and physiology and those texts related to this subject. Further research looking at other disciplines could be undertaken to determine if the Process Framework for Text Choice has applicability beyond those students included in this study.

8.6 Final Thoughts

I have identified that there exists a complex process through which students traverse to choose a text which will assist in their learning of the subject of human anatomy and physiology. I have highlighted the importance of texts throughout this study and the need to own and possess a text was strong in those students interviewed. This has allowed me to highlight that the textbook is far from being seen as a relic in the classroom. Indeed Stephen Fry's comment "Books are no more threatened by Kindle than stairs by elevators". (2015) highlights the important and enduring place that the print copy text occupies. Texts have been seen as providing the required knowledge that students perceive they need to be successful in their courses and so prefer books over their electronic cousins. Perhaps this importance is summed up in Julian Barnes work where he writes:

> "Books say: She did this because. Life says: She did this. Books are where things are explained to you; life is where things aren't. I am not surprised that some people prefer books" (2009 p 95)

Books in learning are still popular because they present information, they explain and they allow students to learn. It's just a matter of the right choice!

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Appendix 1

Survey Questionnaire

PLEASE RETURN WITHIN 2 WEEKS TO:

NIGEL HENDERSON
Faculty of Health and Social Care
4th Floor William Harvey Building
CHELMSFORD

Study Title: What Decisions students make in selecting texts to support learning in Anatomy and Physiology

Please read each question carefully and make your choice(s) using a tick (√) or cross (x) in the boxes or place a written answer in the spaces provided. Please complete the form in black ink.

1. Which course are you currently attending?

   a) ☐ Pre Registration Nursing
   b) ☐ Pre Registration Operating Department Practitioner
   c) ☐ Pre Registration Biomedical Science Degree
   d) ☐ Pre Registration Midwifery
   e) ☐ Associate practitioner Foundation Degree
   f) ☐ Forensic Science and Medical Biology Degree
   g) ☐ Clinical Physiology Degree
   h) ☐ Post Qualifying Course Please state: 1.0 (Pearson r) 1.0 (Alpha)

   _____

   i) ☐ Other Please state:

   _____

2. Is the anatomy and physiology within your course a

   a) ☐ Subject Strand or b) ☐ Dedicated Anatomy and Physiology Module   .692   .793

3. At what level are you studying anatomy and physiology?

   a) ☐ Level 1 b) ☐ Level 2 c) ☐ Level 3   .34   .765

4. What is the main text book you use when studying human anatomy and physiology?

Please give the title and author only   .986   .993

5. With reference to Q4 have you: .623   .75

   a) ☐ Purchased your book
   b) ☐ Loaned from the University library
   c) ☐ Loaned from a public library
   d) ☐ Loaned from a workplace
   e) ☐ Loaned from a friend/colleague

6. If purchased is the book: .736

   a) ☐ Hard backed edition b) ☐ Soft backed edition c) ☐ Purchased second hand   .848

7. i) Considering your choice of anatomy and physiology text what were your reasons for choosing this particular book? Please tick all that apply

a)	☐ Easy to understand	.774
b)	☐ Large amount of diagrams and pictures	.747
c)	☐ Familiarity of author(s) names	.000
d)	☐ Familiarity of title of book	1.00
e)	☐ Availability of book	.784
f)	☐ Appropriateness of book title to course/module undertaken	.742
g)	☐ Other reason. Please state:	.625

_____
__

  ii) Which was your **main** reason from the above? Please tick one.

       a) ☐ b) ☐ c) ☐ d) ☐ e) ☐ f) ☐ g) ☐   .637   .785

8. i) If your choice of book was chosen based on a recommendation, who gave you this recommendation? Please tick all that apply

a)	☐ Course/Module Lecturer(s)	.724
b)	☐ Personal Tutor	.880
c)	☐ Friend or Colleague	.738
d)	☐ Taken from module reading list	.714
e)	☐ Student from another year or course	.815
f)	☐ Librarian	1.00
g)	☐ Book shop assistant	.000
h)	☐ Internet source	1.00
i)	☐ Publisher representative	0 variance
j)	☐ Other source. Please state:	.000

_____
_

  ii) Which was the **most** important from the above list? Please tick one

       a) ☐ b) ☐ c) ☐ d) ☐ e) ☐ f) ☐ g) ☐ h) ☐ i) ☐ j) ☐   .629   .799

9. Do you find your choice of anatomy and physiology book helpful to your studies?

    a)   ☐ Yes b) ☐ No   0 variance

10. i) If you find it helpful can you say how? Tick all that apply

a)	☐ Easy to understand	.880
b)	☐ Layout easy to follow	.793
c)	☐ Ease at which information can be applied to my situation	.718
d)	☐ Ease at answering my own questions	.788
e)	☐ Ease at helping me with my assignments/studies	.382
f)	☐ Other reason. Please state:	.000

  ii) If more than one choice made which was the **most** important for you? Please tick one

    a)   ☐ b) ☐ c) ☐ d) ☐ e) ☐ f) ☐   .636   .693

11. Was the main attraction for first considering the book you currently use, the detail on its cover?

    a)   ☐ Yes b) ☐ No   .674   .784

12. Had you purchased or loaned an anatomy and physiology book prior to choosing this one?

    b)   ☐ Yes b) ☐ No (Please go to question 14)   .664   .798

13. If so which one?   .964   .879

a) Please give author and title

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b) What made you change your mind to choose the book identified in Q4

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14. To satisfy all your studying needs do you need

    a)   ☐ One book or b) ☐ Several books   .747   .855

If you answered b) above why was one book not sufficient for you?

---

15. i) What qualities do you feel a book should possess when considering anatomy and physiology text books? Please tick all that apply

    a)   ☐ Language easy to understand   0 Variance
    b)   ☐ Diagrams which aid understanding of text   0 Variance
    c)   ☐ Ability to apply to own situation   .708
    d)   ☐ Answers the questions I have   .590
    e)   ☐ or Another quality not listed. Please state: .000

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ii) Please rank in order of importance, if more than one choice made, with the first being the **most** important.

1. ___ 2. ___ 3. ___ 4. ___ 5.___   .785

16. i) Considering the anatomy and Physiology text book you identified in question 4 above what are its qualities you like the **most**? Please tick all that apply

    a) ☐ Layout   .758
    b) ☐ Diagrams and pictures   .793
    c) ☐ Language easy to understand   .784
    d) ☐ Other quality. Please state: 0 variance

  ii) Please rank in order of importance, if more than one choice was made, with the first being the **most** important

1. ___ 2. ___ 3. ___ 4. ___   .585

17. i) Considering the anatomy and physiology textbook you identified in question 4 above, what are its qualities which you like the **least**? Please tick all that apply

    a) ☐ No Qualities disliked (Please go to Q18)   .951
    b) ☐ Layout   .625
    c) ☐ Diagrams and pictures   .913
    d) ☐ Language easy to understand   .707
    e) ☐ Other quality. Please state: .625

  ii) Please rank, in order of importance, if more than one choice was made, with the first being the **least** desirable quality

1. ____ 2. ____ 3. ____ 4. ____   .687

18. Does the anatomy and physiology book you utilise the most possess internet links?

    a) ☐ Yes b) ☐ No (Please go to Question 22)   .588   .716

19. If yes did you find these helpful?

    a) ☐ Yes b) ☐ No c) ☐ Didn't use them (b or c Please go to Question 22).500   .561

20. If yes how often do you use them?   1.00   .810

    a) ☐ 1-2 per week
    b) ☐ More often than a)
    c) ☐ Less often than a)

21. i) How do they assist in your learning from the anatomy and physiology text book they link with? Please tick all that apply

    a) ☐ Allow greater understanding of the text   .446
    b) ☐ Access to information not included within the book   .793
    c) ☐ Animations found on website   1.00
    d) ☐ Self test exercises found on web site   .625
    e) ☐ Another reason. Please state: .000

ii) Please rank, in order of importance, if more than one choice was made, with the first being the **most** important

1. ____ 2. ____ 3. ____ 4. ____ 5. ____   .741

22. If you purchased your anatomy and physiology book did the internet links, and/or accompanying DVD or CD ROMS prompt you to buy the book?

    a) ☐ Yes b)☐ No (Please go to question 24)   .617   1.00

23. If the book came with CD ROMs or a DVD do you utilise these in your studies?

    a) ☐ Yes b)☐ No   1.00   1.00

24. In considering your main text book for anatomy and physiology, how would you describe your ability to understand the language used e.g. difficult or easy

    a) ☐ Very Difficult for me b) ☐ Difficult for me c) ☐ Just at the right level for me .857.901
    d) ☐ Easy for me e) ☐ Too easy for me

25. In considering your current anatomy and physiology text would you consider the level of the book to be appropriate to the course you are currently undertaking?

    a) ☐ Appropriate ☐ Not Appropriate ☐ Undecided   .841   .906

26. If not appropriate why not? Please state reason

27. Are you a

    a) ☐ Full Time Student
    b) ☐ Part Time Student
    c) ☐ Open/Distance Learning Student   1.00   1.00

28. Have you ever undertaken a test to determine your learning style?

    a) ☐ Yes b)☐ No (Please go to Question 29)   1.00   1.00

If yes which test was this? Please indicate if known

                                                        1.00   .953

What type of learner were you identified as being?

                                                        1.00   1.00

29. Which Age range are you within?   1.00   1.00

    a)   ☐ 18-24
    b)   ☐ 25- 34
    c)   ☐ 35-44
    d)   ☐ 45-54
    e)   ☐ 55 and over

30. How would you describe your ethnic origin?   1.00   1.00

    a)   ☐ White
    b)   ☐ Black African-Caribbean
    c)   ☐ Black African
    d)   ☐ Chinese
    e)   ☐ Asian
    f)   ☐ Mixed Race. Please state:

_____

    g)   ☐ Other. Please state:

_____

31. Is English your first language?   .889   .940

    b)   ☐ Yes b)☐ No

32. What is your gender?   1.00   1.00

    a)   ☐ Female b) ☐ Male

The next stage of this study will be to interview a sample of students. If you would like to volunteer for being interviewed please provide your Student Identification Number (SID) and contact will be made via your student email should you be selected. The choice of volunteers will be made on a random selection basis and as such you may not be chosen for inclusions within the interview stage of the study however thank you for putting yourself forward.

SID Number _____

Thank you for your assistance for providing the required information in this survey. Should you have an interest in the summary of this survey's results then these will be available from Nigel Henderson by contacting him on nigel.henderson@anglia.ac.uk or telephone 0845 196 4115 after date……...

Appendix 2

Survey Questionnaire

PLEASE RETURN WITHIN 2 WEEKS TO:

NIGEL HENDERSON
At your Local i Centre in the envelope provided

Study Title: What Decisions students make in selecting texts to support learning in Anatomy and Physiology

Please read each question carefully and make your choice(s) using a tick (√) or cross (x) in the boxes or place a written answer in the spaces provided. Please complete the form in black ink.

1. Which course are you currently attending?

   a) ☐ Pre Registration Nursing
   b) ☐ Pre Registration Operating Department Practitioner
   c) ☐ Pre Registration Biomedical Science Degree
   d) ☐ Pre Registration Midwifery
   e) ☐ Associate practitioner Foundation Degree
   f) ☐ Forensic Science and Medical Biology Degree
   g) ☐ Clinical Physiology Degree
   h) ☐ Post Qualifying Course Please state:

   _____

   i) ☐ Other Please state:

   _____

2. Is the anatomy and physiology within your course a

   a) ☐ Subject Strand or b) ☐ Dedicated Anatomy and Physiology Module

3. At what level are you studying anatomy and physiology?

   a) ☐ Year 1 Diploma   b) ☐ Year 2 Diploma c) ☐ Year 3 Diploma
   d) ☐ Year 1 Degree   e) ☐ Year 2 Degree   f) ☐ Year 3 Degree
   g) ☐ Year 1 Certificate h) ☐ Year 2 Certificate

4. What is the main text book you use when studying human anatomy and physiology?

Please give the title and author only

_____

5. With reference to Q4 have you:

   a) ☐ Purchased your book
   b) ☐ Loaned from the University library
   c) ☐ Loaned from a public library
   d) ☐ Loaned from a workplace
   e) ☐ Loaned from a friend/colleague

6. If purchased is the book:

   a) ☐ Hard backed edition b) ☐ Soft backed edition c) ☐ Purchased second hand

7. Considering your choice of anatomy and physiology text what were your reasons for choosing this particular book? Please tick all that apply

   a) ☐ Easy to understand
   b) ☐ Large amount of diagrams and pictures
   c) ☐ Familiarity of author(s) names
   d) ☐ Familiarity of title of book
   e) ☐ Availability of book
   f) ☐ Appropriateness of book title to course/module undertaken
   g) ☐ Other reason. Please state:

_____
__

   ii) Which was your **main** reason from the above? Please tick one.

      a) ☐ b) ☐ c) ☐ d) ☐ e) ☐ f) ☐ g) ☐

8. i) If your choice of book was chosen based on a recommendation, who gave you this recommendation? Please tick all that apply

   a) ☐ Course/Module Lecturer(s)
   b) ☐ Personal Tutor
   c) ☐ Friend or Colleague
   d) ☐ Taken from module reading list
   e) ☐ Student from another year or course
   f) ☐ Librarian
   g) ☐ Internet source
   h) ☐ Publisher representative
   i) ☐ Other source. Please state:

_____
_

   ii) Which was the **most** important from the above list? Please tick one

      a) ☐ b) ☐ c) ☐ d) ☐ e) ☐ f) ☐ g) ☐ h) ☐ i) ☐ j) ☐

9. Do you find your choice of anatomy and physiology book helpful to your studies?

   a) ☐ Yes b) ☐ No

10. i) If you find it helpful can you say how? Tick all that apply

   a) ☐ Easy to understand
   b) ☐ Layout easy to follow
   c) ☐ Ease at which information can be applied to my situation
   d) ☐ Ease at answering my own questions
   e) ☐ Other reason. Please state:

   ii) If more than one choice made which was the **most** important for you? Please tick one

   a) ☐ b) ☐ c) ☐ d) ☐ e) ☐ f) ☐

11. Was the main attraction for first considering the book you currently use, the detail on its cover?

    a)   ☐ Yes b) ☐ No

12. Had you purchased or loaned an anatomy and physiology book prior to choosing this one?

    a)   ☐ Yes b) ☐ No (Please go to question 14)

13. If so which one?

a) Please give author and title

_____

b) What made you change your mind to choose the book identified in Q4

_____

14. To satisfy all your studying needs do you need

    a)   ☐ One book or b) ☐ Several books

If you answered b) above why was one book not sufficient for you?

_____

15. i) What qualities do you feel a book should possess when considering anatomy and physiology text books? Please tick all that apply

    a)   ☐ Language easy to understand
    b)   ☐ Diagrams which aid understanding of text
    c)   ☐ Ability to apply to own situation
    d)   ☐ or Another quality not listed. Please state:

_____

ii) Please rank in order of importance, if more than one choice made, with the first being the **most** important.

1. ___ 2. ___ 3. ___ 4. ___

16. i) Considering the anatomy and Physiology text book you identified in question 4 above what are its qualities you like the **most**? Please tick all that apply

    a)   ☐ Layout
    b)   ☐ Diagrams and pictures
    c)   ☐ Language easy to understand
    d)   ☐ Other quality. Please state:

---

ii) If more than one choice made which was the **most** important for you? Please tick one

a) ☐ b) ☐ c) ☐ d) ☐

17. i) Considering the anatomy and physiology textbook you identified in question 4 above, what are its qualities which you like the **least**? Please tick all that apply

    a)   ☐ No Qualities disliked (Please go to Q18)
    b)   ☐ Diagrams and pictures
    c)   ☐ Language easy to understand
    d)   ☐ Other quality. Please state:

---

iii) If more than one choice made which was the **most** important for you? Please tick one

a) ☐ b) ☐ c) ☐ d) ☐

18. Does the anatomy and physiology book you utilise the most possess internet links?

    a)   ☐ Yes b) ☐ No (Please go to Question 22)

19. If yes did you find these helpful?

    a)   ☐ Yes b) ☐ No c) ☐ Didn't use them (b or c Please go to Question 22)

20. If yes how often do you use them?

    a)   ☐ 1-2 per week
    b)   ☐ More often than a)
    c)   ☐ Less often than a)

21. i) How do they assist in your learning from the anatomy and physiology text book they link with? Please tick all that apply

- a) ☐ Access to information not included within the book
- b) ☐ Animations found on website
- c) ☐ Another reason. Please state:

---

ii) Please rank, in order of importance, if more than one choice was made, with the first being the **most** important

1. _____ 2. _____ 3. _____

22. If you purchased your anatomy and physiology book did the internet links, and/or accompanying DVD or CD ROMS prompt you to buy the book?

- a) ☐ Yes b) ☐ No (Please go to question 24)

23. If the book came with CD ROMs or a DVD do you utilise these in your studies?

- a) ☐ Yes b) ☐ No

24. In considering your main text book for anatomy and physiology, how would you describe your ability to understand the language used e.g. difficult or easy

- a) ☐ Very Difficult for me b) ☐ Difficult for me c) ☐ Just at the right level for me
- d) ☐ Easy for me e) ☐ Too easy for me

25. In considering your current anatomy and physiology text would you consider the level of the book to be appropriate to the course you are currently undertaking?

- a) ☐ Appropriate ☐ Not Appropriate ☐ Undecided

26. If not appropriate why not? Please state reason

---

27. Are you a

- a) ☐ Full Time Student
- b) ☐ Part Time Student
- c) ☐ Open/Distance Learning Student

28. Have you ever undertaken a test to determine your learning style?

- a) ☐ Yes b) ☐ No (Please go to Question 29)

If yes which test was this? Please indicate if known

What type of learner were you identified as being?

---

29. Which Age range are you within?

- a) ☐ 18-24
- b) ☐ 25- 34
- c) ☐ 35-44
- d) ☐ 45-54
- e) ☐ 55 and over

30. How would you describe your ethnic origin?

- a) ☐ White
- b) ☐ Black African-Caribbean
- c) ☐ Black African
- d) ☐ Chinese
- e) ☐ Asian
- f) ☐ Mixed Race. Please state:

_____

- g) ☐ Other. Please state:

_____

31. Is English your first language?

- a) ☐ Yes b)☐ No

32. What is your gender?

- a) ☐ Female b) ☐ Male

The next stage of this study will be to interview a sample of students. If you would like to volunteer for being interviewed please provide your Student Identification Number (SID) and contact will be made via your student email should you be selected. The choice of volunteers will be made on a random selection basis and as such you may not be chosen for inclusion within the interview stage of the study however, thank you for putting yourself forward.

SID Number _____

Thank you for your assistance for providing the required information in this survey. Should you have an interest in the summary of this survey's results then these will be available from Nigel Henderson by contacting him on nigel.henderson@anglia.ac.uk or telephone 0845 196 4115 after April 30 2010

NB. Please place your completed questionnaire in the addressed envelope provided and drop off at your local **Anglia Ruskin University i Centre**

Appendix 3

Indicative Interview Subject Guide

Prompts will be further refined through a pilot of the schedule and the core themes derived through the analysis of the student data provided in phase 1 of the project.

Students

Prompts:

Exploration of answers given within first stage data collection

Reasons for choice of book identified

Influences on choosing the text book including recommendations

How the chosen texts have assisted in learning

Exploration of why more than one text is utilised within the subject

How books met needs in relation to Anatomy and Physiology learning

Likes and dislikes of main text book chosen

Utilisation of adjuncts in learning e.g. Internet links CDROMs included with textbooks

Discussion of opinions regarding short excerpts from main text books in relation to textual and graphical representation

Lecturers

Prompts:

Particular favourites regarding Anatomy and Physiology texts

Reasons for selecting particular texts both for recommendation to students and for inclusion in reading lists

Influences that impact on selecting texts including supply of review copies and marketing by publishers

How texts reviewed prior to adoptions

Likes and dislikes of main texts adopted

What decision-making process is undertaken to identify text books that are suitable for recommendation

Decisions regarding academic level of students

Decisions regarding academic level of books

Specific speciality linked texts

How additions of learning adjuncts e.g. CDROMS and internet links influence choices

Advice regarding one or more than one text for student use

Text book influence on module development or lecture content

New editions

Linking assessments with text books

Authors

Prompts:

Exploration of identifying rationale behind the writing of a text book

Influences on writing the text e.g. educational level of intended reader

Level of control in deciding text layout, diagrammatic representations and book design

Impact of interest and maintaining this for the intended reader

Influences on development of subsequent editions including reader and publisher feedback

Publishers/Editors

Prompts:

How authors sought for publication

Influences that impinge on need to publish a text book

Level of influence in book design, layout and content

Differences in US and UK Based texts

Influence of market forces/demands

How feedback is gained from readers and how this influences future editions

Student feedback in relation to texts and their use

How UK based education influences text development

Influence of the rise of e technologies/based texts

Influences on marketing international publications

Rationale of dominance of US editions of textbooks in UK

Influences from authors regarding layout and text design

Issues in promoting US authored texts within the UK

Drives for producing new editions

Is size ever a consideration in the development of texts

Role of academics in developing texts

How web based adjuncts linked with texts

Coding of Free Text Answers Following Theming
Q 7
Purchase offer
Recommendation
Gift
Book Qualities
Price
Supplements/Additional components with purchase
Used by Lecturers

Q8
Work Place
Other course tutor
Gift
Specific Application
Previous use
Family Member

Q10
Detailed Content
Additional Help found in text/CD
Right Level
Links with lectures

Q13
Easier Level needed
Higher level needed
More diagrams required
Recommendation
Relevancy to course
Updated Edition(s) required

Q14
More/varied information required
Multiple Sources required
Increase understanding
More Diagrams needed
Greater depth required
Application to practice
To compare and contrast

Q15
Clarity of meaning
Adjuncts to help learning
Book sections should interlink
At right level for course/study
Relevancy

Q16
Relevancy
Adjuncts to help learning
Readability/Interest

Q17
Pressure to buy book
Confusing
Too advanced
Too basic

Q21
Information not included in book
Enhances learning

Q26
Too medical
Too basic
Too advanced

Appendix 5

Sample Interview Transcript Analysis

Transcript	Remarks	Code
NH Thank you very much for agreeing to do this. The reason why I chose to interview you is that you have indicated that one of the books you chose is one of the five main texts that have been identified in the survey. You have chosen the Martini and Nath which is one of those five. The first thing I would like to ask is why did you choose this book?	[1] Chosen following review in library	Choice
GN1 erm [1]I picked it because I had been looking through some of the ones in the library erm and [2]there were other ones that I thought looked a lot simpler, [3]I picked that one because it just looked like it was a bit more in depth, like [4]it looked easy to read but it still looked er I dunno (0:53) a bit more in depth, like [5]there is lots of information there which I figured I would actually need for the course.	[2] Looked at lower academic level books [3] Book chosen as felt more in depth [4] Assessed as easier to read but still in depth [5] Assumed vast information would be needed for course	Academic Level Academic Level Comprehension Knowledge
NH And have you found this book helpful?		
GN1 erm [6]yea for the sort of body parts I knew a little bit about it was really good because it extended my knowledge, but if I was starting at the beginning I would have found it if like I was doing something on the brain and [7]I didn't know an awful lot about it I felt like I had to read some sort of simpler books first to sort of [8]get my head around the basics parts and then I could then read that (points at excerpt of Martini) to get the more the..all the proper names and the different bits and pieces...	[6] Book helpful for building on existing knowledge [7] If area unknown felt simpler book required [8] Basic knowledge required to read chosen book	Knowledge Comprehension Academic level
NH So you went for a simpler book? Do you know which simpler book you went for?		
GN1 (Laughs)....er [9]it was like an "Anatomy and Physiology for Dummies" yea [9]just so that I could get the basic idea I think it was something like the endocrine system I struggled with so [10]I just sort of had a **peek** at	[9] Chose basic book to get basic level of knowledge [10]? Feels guilt at looking at lower academic level book	Comprehension Academic level

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"anatomy and physiology for dummies" .		
NH And did it help?		
GN1 [11]yea a little bit because it just sort of meant I knew where the basic parts of that system were and [12]what sort of they were called and [13]then I could then read the	[11] Reading lower academic level book helped understand chosen text	Academic Level Comprehension
	[12] Helped with structure names	Knowledge
Martini and Nath book and make my knowledge base a bit more professional, a [14]bit more like in depth. (02:08)	[13] Lower level book needed to comprehend chosen book	Comprehension
NH Did your lecturer, er you have here (points to questionnaire) course module lecturer as a recommendation for getting the book. Did that have any impact on your choosing your book?	[14] Chosen book seen as being at higher academic level	Academic level
GN1 er [15]yea well sort of since there were several that the lecturer er had recommended but [16]he basically said just pick up a few and have a look at them all and just see like which ones your sort of like the look of, [17]whether you like the layout, how they have done the diagrams. Whether [17]they have got real pictures and other pictures in it and [18]sort of see what you feel comfortable with. I think if I had...because [19]I hadn't done a lot of anatomy and physiology before erm I don't really know a lot..it is not one of my strongest points. [20]So I picked something which I thought was going to be really helpful [21]but still give me that extra knowledge I would need erm ...yea....	[15] Lecturer recommended several texts	Recommendation
	[16] Lecturer recommended choosing based on what was most liked in appearance	Recommendation Choice
	[17] Text structure and diagrammatic representations including photographs should influence choice	Aesthetics
	[18] Choice should be based on how comfortable with book	Comprehension
	[19] Little previous knowledge of subject area	Knowledge
	[20] Assumed text choice would be helpful	Utility
	[21] Assumed text choice would give extra knowledge	Knowledge
NH Did you find his recommendations were helpful or did you make the choice on what you wanted?	[22] Choice made on personal needs	Need
GN1 [22]More on what I wanted erm [23]although it was one he had recommended but [24]it was more about how I looked at the book and sort of saw it whether I liked the layout and that. [25]It was (laughs) bigger and chunkier and looked like it really had a lot of information that I would need and [26]I would be able to find out anything I needed in there. (3:32)	[23] Book chosen was also lecturer recommendation	Recommendation
	[24] Choice based on personal view of book and how layout liked	Aesthetics
	[25] Size used as indicative of amount of information	Aesthetics
	[26] Assumed would contain all the information needed	Knowledge

NH So was it the look of the book that attracted you for instance the cover, the size etc? **GN1** No [27]it wasn't the cover [28]it was more like the information that was inside it really [29]like how the pages were laid out, [30]how the diagrams were labelled. [30]Whether they were clear or not [31]whether you could see what it was whether there was extra information about those bits er [32]it was more about what was inside than what was out.	[27] Cover did not influence choice [28] Information contained within book influential [29] Text layout important [30] Clear diagrammatic layout/labelling important [31] All information included [32] Choice based on content not cover	Aesthetics Knowledge Aesthetics Aesthetics Knowledge Knowledge/Aesthetics

Appendix 6

Coding and Theming Example

Themes (Students)

Theme: Choosing the Textbook

Sub Theme: Influences

CODES:

Authors	Library	Need	Peers	Availability
Variety	Difference	Preference	Alternative	Work Based Library
Peer Choices	Reputation	Employment	Nationality	Comparison
Audience	Popularity	Inspection	Choice	Lecturer

Sub Theme: Incentives

CODES:

Adjunct(s)	Inducements	Media	Cost	Popular Text
Edition	Viewing	Expense	Finance	

Sub Theme: Promotion

CODES:

Recommendation	Advice	Title	Retail Outlet	Publisher
Reviews	Marketing	Review	Publication	Sales Representatives
Advertisement	Reading List	Key Texts		

Sub Theme: Possession

CODES:

Text Gifted	Purchase	Loan	Second-hand	Addition

Theme: Learning with the Textbook

Sub Theme: Education

CODES:

Reference(s)	Further Education	Higher Education	Writing	Secondary Education
Course Length	Assessment	Learning	Academic Level	Course
Subject	Course Content	Preparation	Revision	

Sub Theme: Pedagogy

CODES:

Teaching	Information	Lecture Notes	Lectures	Learning Outcomes
PowerPoint	Description	Analysis	Comprehension	Theory
Self-test	Answers	Repetition	Support	Knowledge
Texts	Application	Relevance		

Sub Theme: Student Qualities

CODES:

Retaining	Recall	Interest	Skills	Retention
Concentration	Disability	Study	Reading	Reminding
Note Taking	Memory	Time	Instruction	Interest
Experience	Attention	IT Skills	Exposure	

Theme: Inside the Textbook

Sub Theme: Visual

CODES:

Diagrams	Presentation	Illustrations	Style	Simplistic
Layout	Text Structure	Length	Interactive	Quality
Index	Text			

Sub Theme: Communication

CODES:

Language	Terminology	Spelling	Focus	Utility
Clinical Link	Navigation	Anecdotes	Linking	Research
Clinicians	Complexity	Specialism	Depth	Detail
Currency	Content	Factual	Technical	Relevancy

Theme: Physicality of the Textbook

Sub Theme: Tactile

CODES:

Aesthetics	Visual	Touch	Print Copy	Size
Value	Odour	Inspection	Weight	Quality
Paper	Colour	Appealing	Attraction	Cover

Sub Theme: Use

CODES:

Activity	Ownership	Internet	E-Book	Convenience
Transport	Storage	Web Site	Penalty	Possession
Suitability	Limitation	Use	Appropriate	

Theme: Student Feelings Concerning the Textbook

CODES:

Satisfaction	Liking	Disappointment	Difficulty	Overwhelming
Humour	Uncertainty	Apprehension	Regret	Enjoyment
Confusion	Confidence	Right Choice	Motivation	Enthusiasm
Commitment	Motivation	Familiarity	Impulsive	Decision
Mature Student	Trust	Affirmation	Influence	Consideration
Investment	Ease	Ability	Sale	

Appendix 7 Generation of Sub Theme and Theme Categories

Individual codes from Student Data Analysis

Subthemes

Promotion of the Text

Textbook

Student Approaches to Reading

Visual Aspects

Visual and Tactile Aspects

Incentives to choose a text

Education

Pedagogy

Communicating the Textbook Content

Main Themes

Choosing the Textbook

Learning with the Textbook

Inside the Textbook

Physicality of the Textbook

Student Feelings Concerning the Textbook

Themes from Student Data Analysis

Themes from Student Data Analysis

Individual codes from Lecturer Data Analysis

Subthemes

Teaching

Learning

Academic
Considerations

Physical
Aspects

Textual Content

Non Academic
Influences on Student
Choices

Lecturer Consideration in
Text Choices

Main
Themes

Lecturer
Perspectives

Textbook
Characteristics

Lecturers on
Student Decisions

Lecturer
Considerations on
Student Text Use

Themes from Student Data Analysis

Themes from Lecturer Data Analysis

Individual codes from Author Data Analysis

Subthemes

Author Qualities

Author Relationships and Influences

Publishing Relationships

Publisher Considerations and Relationships

Introducing a New Text

Influences on Producing the Text

Textbook Content and Focus

Textbook Construction

The Text in the Education Setting

The Authors Views of the Student and the Textbook

The Text as a Resource

Main Themes

Authoring the Textbook

Market Introduction of the New Text

Authors Views on Textbook Development

Authors Views of the Textbook within Education

Themes from Author Data Analysis

Themes from Author Data Analysis

Individual codes from Publisher Data Analysis

Main Themes

Commercial Influences

Publishing Considerations

Student Considerations in Publishing

Integrating the Text into the Educational Experience

Textbook Development

Themes from Publisher Data Analysis

Themes from Publisher Data Analysis

Appendix 8

Ethics Approval Stage 1

Claire Mitchell: FREP Administrator
Anglia Ruskin University, FHSC
Webb 001, Cambridge, CB1 1PT
Direct Dial: 0845 196 2362
E-mail: claire.mitchell@anglia.ac.uk

4th February 2009

Nigel Henderson
Anglia Ruskin University
Faculty of Health and Social Care
William Harvey Building – 4th Floor
Chelmsford
CM1 1SQ

Dear Nigel

Re: Application for Ethics Approval (08/013)

Project Title: 'What decisions students make in selecting texts to support learning in Anatomy and Physiology'

Principal Investigators: Nigel Henderson

Thank you for resubmitting your documentation in respect of your application for ethics approval. This has been considered by the Chair of the Faculty (of Health and Social Care) Research Ethics Panel (FREP) in advance of the scheduled meeting in March.

I am pleased to inform you that your research proposal has been given approval under the terms of Anglia Ruskin University's *Ethics Guidelines for Research*. Approval is for a period of three years from February 2009 and is subject to random monitoring by the Research Ethics Subcommittee (RESC). Please note that, if your research has not been completed within three years, you will need to apply to FREP for an extension of ethics approval. Similarly, if your research should change significantly in any respect, or if risk of harm or breach of confidentiality becomes likely, you will be obliged to submit a new application.

Good luck with your research.
Yours sincerely

 Dr Leslie Gelling
For the Faculty (of Health and Social Care) Research Ethics Panel

cc: Dr Andy McVicar   Dr Jane Akister   Beverley Pascoe, Secretary to RESC

Ethics Approval Stages 2 to 5

2 May 2010

Anglia Ruskin University

Cambridge & Chelmsford

Cambridge Campus
East Road
Cambridge
CB1 1PT

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Int: +44 (0)1223 363271
www.anglia.ac.uk

Nigel Henderson
Anglia Ruskin University
William Harvey Building – Fourth
Floor Bishop Hall Lane
Chelmsford
CM1 1SQ

Dear Nigel,

Re: Application for Ethical Approval (09/047)

Project Number: 09/047

Project Title: What decisions students make in selecting texts to support
learning in anatomy and physiology

Principal Investigator: Nigel Henderson

Thank you for resubmitting your documentation in respect of your application for ethical approval. This has been considered by the Chair of the Faculty (of Health and Social Care) Research Ethics Panel (FREP) in advance of the scheduled meeting in June.

I am pleased to inform you that your research proposal has been given approval under the terms of Anglia Ruskin University's *Ethics Guidelines for Research*. Approval is for a period of three   years from May 2010 and is subject to random monitoring by the Research Ethics Subcommittee (RESC). Please note that, if your research has not been completed within three years, you will need to apply to FREP for an extension of ethics approval. Similarly, if your research should change significantly in any respect, or if risk of harm or breach of confidentiality becomes likely, you will be obliged to submit a new application.

Good luck with your research.

Yours sincerely,

Dr Leslie Gelling
For the Faculty (of Health and Social Care) Research Ethics Panel

cc: Jane Akister (FREP Sponsor) Andy McVicar (Supervisor)
Beverley Pascoe (RESC Secretary)

FORM MUST BE ON ANGLIA RUSKIN UNIVERSITY HEADED NOTEPAPER WITH FULL CONTACT DETAILS

PARTICIPANT INFORMATION SHEET

.

Should you require further information please contact:

Nigel Henderson
Faculty of Health & Social Care
William Harvey Building
Chelmsford Campus.

Tel 0845 196 4115 or
Email at Nigel.Henderson@anglia.ac.uk

Section A: The Research Project

1.   Title of project :
What Decisions students make in selecting texts to support learning in Anatomy and Physiology

2.   Purpose and value of study:
The study aims to discover what issues and influences confront a student when choosing a text book for study. Along with this, another aim is to seek what attracts a student to one particular textbook when confronted with a choice of several text books. The results of the study will allow lecturers and tutors greater insight into textbook choices and allow them to provide more effective assistance to students when choosing textbooks in anatomy and physiology which will be more appropriate for their learning needs.

3.   Invitation to participate
You have been invited to participate because you are a student who is currently undertaking studies where anatomy and physiology is either a strand or is delivered as a module within your program and are invited to undertake the survey in this first stage of the study. The second stage will entail random selection of students from your program for interview. If you would like to be considered for that Stage then you are asked to place your SID number within the space provided on the questionnaire.

4.   Who is organising the research?
The research is being organised and undertaken by Nigel Henderson, Senior Lecturer from Anglia Ruskin University. I have been within Nurse Education for the past 17 years with a particular interest in teaching anatomy and physiology. My background in Nursing was within critical care where my interest in anatomy and physiology developed. Currently I am heavily involved in the teaching of anatomy and physiology to a wide variety of students undertaking health related study programs.

5. What will happen to the results of the study?

The results of the survey will be utilised within a wider research study being undertaken by myself in part fulfilment of a research degree. The survey will help form the development of an interview guide which will provide the basis of the next and subsequent stages of the study. The final document, containing the results and discussions, will be available within the University Library following successful completion of the study.

6. Source of funding for the research

The study is being personally funded with no external funding being utilised.

Section B: Your Participation in the Research Project

1. Why you have been invited to take part?

Students who have anatomy and physiology included within the subject content of their courses are being asked to participate. Students often are required to use text books to support their studies within this area. You have been selected since it has been found that your current program of study satisfies these requirements.

2. Can you refuse to take part?

You are under no obligation to take part within the study and inclusion is on a purely voluntary basis.

3. Can you withdraw at any time, and how?

You can withdraw from the study at any time, without recourse. If you wish to withdraw then you should return the withdrawal slip on the Consent Form that accompanies this Information Sheet to Nigel Henderson at the above address. Any data attributed to you will be removed from the database. However, please be reminded that SID numbers have only been requested from participants interested in taking part in the Stage 2 interviews. If you have not indicated that interest then it will not be possible to identify your questionnaire, and so removal of your data may not be possible.
.

4. What will happen if you agree to take part?

You will be required to complete the survey questionnaire and **either** a) return it in the self addressed envelope provided via the University internal post **or** b) give the completed questionnaire directly back to the researcher or your lecturer. As noted, if you wish to be included within the subsequent stage i.e. interviews, you will be required to put your SID number on the questionnaire in the space provided.

5. Are there any risks involved and if so what will be done to ensure your wellbeing/safety?

The study is low risk and unlikely to be problematic in this respect. Please note though that agreement to participate in this research will not compromise your legal rights should something indeed go wrong

There are issues of anonymity and confidentiality. Should you not wish to be considered for inclusion in Stage 2 of the study (i.e. interviews), then no information on your questionnaire can be attributed to yourself and so your responses will remain anonymous. For those participants who do include a SID number, steps will be taken to ensure confidentiality of responses, noted in Point 9, below.

6. Are there any special precautions you must take before, during or after taking part in the study?

None other than to remember if you do not wish to be included within subsequent stages of the research please do not include your SID number or any other identifying marks or comments.

7. What will happen to any data that are collected from you?

The completed questionnaire will be analysed and data gained placed into an appropriate computer program for further analysis.

8. Whether there are any benefits from taking part?

The results from the overall study, of which this survey forms a vital part, will allow lecturers to be more effective in providing guidance to students when they are choosing their text books. By taking part, the data gained will allow key reading text lists to be more focussed and allow better guidance when directing students to those books which will provide the most effective support. The study may also allow stocks within the library to be more focussed on the needs of the student providing further support for their studies.

9. How your participation in the project will be kept confidential?

Confidentiality is an issue which will be of paramount importance. Students will be identified initially by Student Identification Numbers which are user name and password protected by the systems in place at the University. Only those who wish to be included for the interviewing stage of the study will be required to include a SID number. As stated earlier access to the systems where the details of each student are kept is restricted to teaching and certain other staff members who are governed by the University's strict rules on confidentiality and data protection. Additionally, questionnaires will be stored in a locked filing cabinet, and any work with the data will be on coded material. Also, I am governed by the Nursing and Midwives Council's strict professional Code of Conduct requirements in relation to maintaining confidentiality.

YOU WILL BE GIVEN A COPY OF THIS TO KEEP,
TOGETHER WITH A COPY OF YOUR CONSENT FORM

FORM MUST BE ON ANGLIA RUSKIN UNIVERSITY HEADED NOTEPAPER WITH FULL CONTACT DETAILS

PARTICIPANT INFORMATION SHEET (Student)

Should you require further information please contact:

Nigel Henderson
Faculty of Health & Social Care
William Harvey Building
Chelmsford Campus.

Tel 0845 196 4115 or
Email at Nigel.Henderson@anglia.ac.uk

Section A: The Research Project

1. Title of project :
What Decisions students make in selecting texts to support learning in Anatomy and Physiology

2. **Purpose and value of study:**
The study aims to discover what issues and influences confront a student when choosing a textbook for study. Along with this, another aim is to seek what attracts a student to one particular textbook when confronted with a choice of several text books. The results of the study will allow lecturers and tutors greater insight into textbook choices and allow them to provide more effective assistance to students when choosing textbooks in anatomy and physiology which will be more appropriate for their learning needs.

3. **Invitation to participate**
You have been invited to participate because you are a student who is currently undertaking studies where anatomy and physiology is either a strand or is delivered as a module within your program. Also you volunteered to be interviewed as determined in the first stage of this study which involved a survey questionnaire where you supplied your SID number as a means of contacting you.

4. **Who is organising the research?**
The research is being organised and undertaken by myself, Nigel Henderson, a senior lecturer at Anglia Ruskin University. I have been within Nurse Education for the past 17 years with a particular interest in teaching anatomy and physiology. My background in nursing was within critical care where my interest in anatomy and physiology developed. Currently I am heavily involved in the teaching of anatomy and physiology to a wide variety of students undertaking health related study programs.

5. **What will happen to the results of the study?**
The results of the initial survey you completed are being utilised within the wider research study being undertaken by myself in part fulfilment of a research degree.

This interview forms part of the second stage of the study allowing exploration, in more depth, of the issues and decisions students make in choosing anatomy and physiology text books. The final document, containing the results and discussions, will be available as a short summary to second stage participants and within the University Library following successful completion of the study.

6. **Source of funding for the research**
    The study is being personally funded with no external funding being utilised.

Section B: Your Participation in the Research Project

1. **Why you have been invited to take part?**
    Students who have anatomy and physiology included within the subject content of their courses are being asked to participate. Students often are required to use text books to support their studies within this area. You have been selected since you completed the first stage questionnaire and provided your SID number demonstrating your willingness to take part in the interviewing stage of the study.

2. **Can you refuse to take part?**
    You are under no obligation to take part within the study and inclusion is on a purely voluntary basis.

3. **Can you withdraw at any time, and how?**
    You can withdraw from the study at any time, without recourse. If you wish to withdraw then you should return the withdrawal slip on the Consent Form that accompanies this information sheet to me at the above address. Any data attributed to you will be removed from the database.
    .
4. **What will happen if you agree to take part?**
    You will be required to undertake an interview where your choice of text book and reasons for choice will be explored. A suitable date and time will be agreed to allow a meeting between us to take place. It is envisaged that this will be on University premises and it is expected that the interview will last between 60-120 minutes.

5. **Are there any risks involved and if so what will be done to ensure your wellbeing/safety?**
    The study is low risk and unlikely to be problematic in this respect. Please note though that agreement to participate in this research will not compromise your legal rights should something indeed go wrong.

    There are issues of anonymity and confidentiality. The interviews will be recorded on a digital voice recorder and then downloaded to a computer. No identification will be possible since your interview will be coded ensuring that you cannot be identified. The computer will be password and user name protected. All steps will be taken to ensure confidentiality of responses recorded within the interview and is noted in point 9 below. You will, upon request, be sent a copy of the transcript of the interview so allowing any corrections or deletions to be made should you so wish.

    You may feel that you wish to be accompanied by a friend or have another University staff member present whilst the interviews are being conducted. Please let me know if you would like to be accompanied or if you would like another University staff member present so arrangements for this can be made.

6. **Are there any special precautions you must take before, during or after taking part in the study?**
As stated above, if you wish to be accompanied or wish for another of the University staff to be present please let me know so that arrangements can be made. If you have special requirements regarding a disability or dietary needs please discuss this with me when arranging the interview so that timings and access to the place of the interview can take such requirements into consideration.

7. **What will happen to any data that are collected from you?**
The recorded interview will be transcribed and then analysed. The analysis of this data will be undertaken by using an appropriate computer program for this analysis. Once the study has been completed, this is envisaged as being mid 2013, the raw data i.e. transcribed interviews, will be deleted.

8. **Whether there are any benefits from taking part?**
The results from the overall study, of which this interview forms a vital part, will allow lecturers to be more effective in providing guidance to students when they are choosing their text books. By taking part, the data gained will allow key reading text lists to be more focussed and allow better guidance when directing students to those books which will provide the most effective support. The study may also allow stocks within the library to be more focussed on the needs of the student providing further support for their studies.

9. **How your participation in the project will be kept confidential?**
Confidentiality is an issue which will be of paramount importance. Students will be identified initially by student identification numbers (SID) which are user name and password protected by the systems in place at the University. Only those who wish to be included for the interviewing stage of the study will have provided a SID number. As stated earlier access to the systems, where the details of each student are kept, is restricted to teaching and certain other staff members who are governed by the University's strict rules on confidentiality and data protection. Additionally, all interviews will be digitally stored and coded and any work with the data will be on coded material. Also, I am governed by the Nursing and Midwives Council's strict professional Code of Conduct requirements in relation to maintaining confidentiality.

YOU WILL BE GIVEN A COPY OF THIS TO KEEP,
TOGETHER WITH A COPY OF YOUR CONSENT FORM

PARTICIPANT INFORMATION SHEET (Lecturer)

Should you require further information please contact:

Nigel Henderson
Faculty of Health & Social Care
William Harvey Building
Chelmsford Campus.

Tel 0845 196 4115 or
Email at Nigel.Henderson@anglia.ac.uk

Section A: The Research Project

1. Title of project :
   What Decisions students make in selecting texts to support learning in Anatomy and Physiology

2. **Purpose and value of study:**
   The study aims to discover what issues and influences confront a student when choosing a textbook for study. Along with this, another aim is to seek what attracts a student to one particular textbook when confronted with a choice of several text books. The results of the study will allow lecturers and tutors greater insight into textbook choices and allow them to provide more effective assistance to students when choosing textbooks in anatomy and physiology which will be more appropriate for their learning needs.

3. **Invitation to participate**
   You have been invited to participate because you are a lecturer who has been identified as teaching anatomy and physiology in either a course strand or is delivered as a module within a University program.

4. **Who is organising the research?**
   The research is being organised and undertaken by myself, Nigel Henderson, a senior lecturer at Anglia Ruskin University. I have been within Nurse Education for the past 17 years with a particular interest in teaching anatomy and physiology. My background in nursing was within critical care where my interest in anatomy and physiology developed. Currently I am heavily involved in the teaching of anatomy and physiology to a wide variety of students undertaking health related study programs.

5. **What will happen to the results of the study?**
   The results of the initial survey that students completed are being utilised within the wider research study being undertaken by myself in part fulfilment of a research degree. This interview forms part of the third stage of the study allowing exploration, in more depth, of the issues and decisions lecturers make in recommending anatomy and physiology text books for students to use. The final document, containing the results and discussions, will be available as a short summary to third stage participants and within the University Library following successful completion of the study.

6. **Source of funding for the research**
The study is being personally funded with no external funding being utilised.

Section B: Your Participation in the Research Project

1. **Why you have been invited to take part?**
Lecturers who teach anatomy and physiology within courses delivered at the University are being asked to participate. Students often are required to use text books to support their studies within this area and selection of these texts may be based on lecturer recommendation. You have been selected since you have been identified as teaching anatomy and physiology within the University and may recommend text books for students to choose in supporting their learning of this subject.

2. **Can you refuse to take part?**
You are under no obligation to take part within the study and inclusion is on a purely voluntary basis.

3. **Can you withdraw at any time, and how?**
You can withdraw from the study at any time, without recourse. If you wish to withdraw then you should return the withdrawal slip on the Consent Form that accompanies this information sheet, to me at the above address. Any data attributed to you will be removed from the database.
.
4. **What will happen if you agree to take part?**
You will be required to undertake an interview where your recommendations of text books and reasons for these choices will be explored. A suitable date and time will be agreed to allow a meeting between us to take place. It is envisaged that this will be on University premises and it is expected that the interview will last between 60-120 minutes.

5. **Are there any risks involved and if so what will be done to ensure your wellbeing/safety?**
The study is low risk and unlikely to be problematic in this respect. Please note though that agreement to participate in this research will not compromise your legal rights should something indeed go wrong.

There are issues of anonymity and confidentiality. The interviews will be recorded on a digital voice recorder and then downloaded to a computer. No identification will be possible since your interview will be coded ensuring that you cannot be identified. The computer will be password and user name protected. All steps will be taken to ensure confidentiality of responses recorded within the interview and is noted in point 9 below. You will, upon request, be sent a copy of the transcript of the interview so allowing any corrections or deletions to be made should you so wish.

6. **Are there any special precautions you must take before, during or after taking part in the study?**
If you have special requirements regarding disability or dietary needs please discuss this with me when arranging the interview so that timings and access to the place of the interview can take such requirements into consideration.

7. **What will happen to any data that are collected from you?**
The recorded interview will be transcribed and then analysed. The analysis of this data will be undertaken by using an appropriate computer program for this analysis. Once the study has been completed, this is envisaged as being mid 2013, the raw data i.e. transcribed interviews, will be deleted

8. **Whether there are any benefits from taking part?**
The results from the overall study, of which this interview forms a vital part, will allow lecturers to be more effective in providing guidance to students when they are choosing their text books. By taking part, the data gained will allow key reading text lists to be more focussed and allow better guidance when directing students to those books which will provide the most effective support. The study may also allow stocks within the library to be more focussed on the needs of the student providing further support for their studies.

9. **How your participation in the project will be kept confidential?**
Confidentiality is an issue which will be of paramount importance. As stated earlier, access to the systems where the details of each interview are kept is restricted to researcher only, who is governed by the University's strict rules on confidentiality and data protection. Additionally, all interviews will be digitally stored and coded and any work with the data will be on coded material. Also, I am governed by the Nursing and Midwives Council's strict professional Code of Conduct requirements in relation to maintaining confidentiality.

YOU WILL BE GIVEN A COPY OF THIS TO KEEP,
TOGETHER WITH A COPY OF YOUR CONSENT FORM

PARTICIPANT INFORMATION SHEET (Authors)

Should you require further information please contact:

Nigel Henderson
Faculty of Health & Social Care
William Harvey Building
Chelmsford Campus.

Tel 0845 196 4115 or
Email at Nigel.Henderson@anglia.ac.uk

Section A: The Research Project

1.   Title of project :
   What Decisions students make in selecting texts to support learning in Anatomy and Physiology

2.   **Purpose and value of study:**
   The study aims to discover what issues and influences confront a student when choosing a textbook for study. Along with this, another aim is to seek what attracts a student to one particular textbook when confronted with a choice of several text books. The results of the study will allow lecturers and tutors greater insight into textbook choices and allow them to provide more effective assistance to students when choosing textbooks in anatomy and physiology which will be more appropriate for their learning needs.

3.   **Invitation to participate**
   You have been invited to participate because you are an author who has been identified as writing anatomy and physiology text books which are currently utilised by the University in its programs of study.

4.   **Who is organising the research?**
   The research is being organised and undertaken by myself, Nigel Henderson, a senior lecturer at Anglia Ruskin University. I have been within Nurse Education for the past 17 years with a particular interest in teaching anatomy and physiology. My background in nursing was within critical care where my interest in anatomy and physiology developed. Currently I am heavily involved in the teaching of anatomy and physiology to a wide variety of students undertaking health related study programs.

5.   **What will happen to the results of the study?**
   The results of the initial survey that students completed are being utilised within the wider research study being undertaken by myself in part fulfilment of a research degree. This interview forms part of the fourth stage of the study allowing exploration in more depth of the issues and decisions authors make when authoring anatomy and physiology text books for students to use. The final document, containing the results and discussions, will be available as a short summary to third stage participants and within the University Library following successful completion of the study.

6. **Source of funding for the research**

The study is being personally funded with no external funding being utilised.

Section B: Your Participation in the Research Project

1. **Why you have been invited to take part?**

Authors, who write anatomy and physiology text books which are utilised within courses delivered at the University, are being asked to participate. Students often are required to use text books to support their studies within this area and selection of these texts may be based on lecturer recommendation. Such recommendations will be based on the text book content and how this is presented. You have been selected since you have been identified as authoring such anatomy and physiology text books utilised within the University.

2. **Can you refuse to take part?**

You are under no obligation to take part within the study and inclusion is on a purely voluntary basis.

3. **Can you withdraw at any time, and how?**

You can withdraw from the study at any time, without recourse. If you wish to withdraw then you should return the withdrawal slip on the Consent Form that accompanies this information sheet to me at the above address. Any data attributed to you will be removed from the database.
.

4. **What will happen if you agree to take part?**

You will be required to undertake an interview where your experience of writing text books and factors that influenced your final publication will be explored. A suitable date and time will be agreed to allow a meeting between us to take place. It is envisaged that this will be at a mutually agreeable venue and it is expected that the interview will last between 60-120 minutes.

5. **Are there any risks involved and if so what will be done to ensure your wellbeing/safety?**

The study is low risk and unlikely to be problematic in this respect. Please note though that agreement to participate in this research will not compromise your legal rights should something indeed go wrong.

There are issues of anonymity and confidentiality. The interviews will be recorded on a digital voice recorder and then downloaded to a computer. No identification will be possible since your interview will be coded ensuring that you cannot be identified. The computer will be password and user name protected. All steps will be taken to ensure confidentiality of responses, recorded within the interview and is noted in point 9 below. You will, upon request, be sent a copy of the transcript of the interview so allowing any corrections or deletions to be made should you so wish.

6. **Are there any special precautions you must take before, during or after taking part in the study?**

If you have special requirements regarding disability or dietary needs please discuss this with me when arranging the interview so that timings and access to the place of the interview can take such requirements into consideration.

7. **What will happen to any data that are collected from you?**
The recorded interview will be transcribed and then analysed. The analysis of this data will be undertaken by using an appropriate computer program for this analysis. Once the study has been completed, this is envisaged as being mid 2013, the raw data i.e. transcribed interviews, will be deleted

8. **Whether there are any benefits from taking part?**
The results from the overall study, of which this interview forms a vital part, will allow lecturers to be more effective in providing guidance to students when they are choosing their text books. By taking part, the data gained will allow key reading text lists to be more focussed and allow better guidance when directing students to those books which will provide the most effective support. The study may also allow stocks within the University library to be more focussed on the needs of the student providing further support for their studies.

9. **How your participation in the project will be kept confidential?**
Confidentiality is an issue which will be of paramount importance. As stated earlier, access to the systems where the details of each interview are kept is restricted to researcher only, who is governed by the University's strict rules on confidentiality and data protection. Additionally, all interviews will be digitally stored and coded; any work with the data will be on coded material. Also, I am governed by the Nursing and Midwives Council's strict professional Code of Conduct requirements in relation to maintaining confidentiality.

YOU WILL BE GIVEN A COPY OF THIS TO KEEP,
TOGETHER WITH A COPY OF YOUR CONSENT FORM

PARTICIPANT INFORMATION SHEET (Publishers)

Should you require further information please contact:

Nigel Henderson
Faculty of Health & Social Care
William Harvey Building
Chelmsford Campus.

Tel 0845 196 4115 or
Email at Nigel.Henderson@anglia.ac.uk

Section A: The Research Project

1. Title of project :
    What Decisions students make in selecting texts to support learning in Anatomy and Physiology

2. **Purpose and value of study:**
    The study aims to discover what issues and influences confront a student when choosing a textbook for study. Along with this, another aim is to seek what attracts a student to one particular textbook when confronted with a choice of several text books. The results of the study will allow lecturers and tutors greater insight into textbook choices and allow them to provide more effective assistance to students when choosing textbooks in anatomy and physiology which will be more appropriate for their learning needs.

3. **Invitation to participate**
    You have been invited to participate because you are an agent of a publisher who has been identified as publishing anatomy and physiology text books which are currently utilised by the University in its programs of study.

4. **Who is organising the research?**
    The research is being organised and undertaken by myself, Nigel Henderson, a senior lecturer at Anglia Ruskin University. I have been within Nurse Education for the past 17 years with a particular interest in teaching anatomy and physiology. My background in nursing was within critical care where my interest in anatomy and physiology developed. Currently I am heavily involved in the teaching of anatomy and physiology to a wide variety of students undertaking health related study programs.

5. **What will happen to the results of the study?**
    The results of an initial survey that students completed are being utilised within the wider research study being undertaken by myself in part fulfilment of a research degree. This interview forms part of the fourth stage of the study allowing exploration in more depth of issues and decisions publishers make when deciding on the publishing of anatomy and physiology text books for students to use. The final document, containing the results and discussions, will be available within the University Library following successful completion of the study.

6.   Source of funding for the research
The study is being personally funded with no external funding being utilised.

Section B: Your Participation in the Research Project

1.   Why you have been invited to take part?
Publishing agents who have anatomy and physiology text books within their catalogue which are utilised within courses delivered at the University are being asked to participate. Students often are required to use text books to support their studies within this area and selection of these texts may be based on lecturer recommendation. Such recommendations will be based on the text book content and how this is presented. You have been selected since you have been identified as publishing such anatomy and physiology text books utilised within the University.

2.   Can you refuse to take part?
You are under no obligation to take part within the study and inclusion is on a purely voluntary basis.

3.   Can you withdraw at any time, and how?
You can withdraw from the study at any time, without recourse. If you wish to withdraw then you should return the withdrawal slip on the Consent Form that accompanies this information sheet, to me at the above address. Any data attributed to you will be removed from the database.
.

4.   What will happen if you agree to take part?
You will be required to undertake an interview where your experience of being involved in the publishing of anatomy and physiology text books and factors that influenced your final publication decisions will be explored. A suitable date and time will be agreed to allow a meeting between us to take place. It is envisaged that this will be a mutually agreeable venue and it is expected that the interview will last between 60-120 minutes.

5.   Are there any risks involved and if so what will be done to ensure your wellbeing/safety?
The study is low risk and unlikely to be problematic in this respect. Please note though that agreement to participate in this research will not compromise your legal rights should something indeed go wrong.

There are issues of anonymity and confidentiality. The interviews will be recorded on a digital voice recorder and then downloaded to a computer. No identification will be possible since your interview will be coded ensuring that you cannot be identified. The computer will be password and user name protected. All steps will be taken to ensure confidentiality of responses recorded within the interview and is noted in point 9 below. You will, upon request, be sent a copy of the transcript of the interview so allowing any corrections or deletions to be made should you so wish.

6.   Are there any special precautions you must take before, during or after taking part in the study?
If you have special requirements regarding disability or dietary needs please discuss this with me when arranging the interview so that timings and access to the place of the interview can take such requirements into consideration.

7. **What will happen to any data that are collected from you?**
The recorded interview will be transcribed and then analysed. The analysis of this data will be undertaken by using an appropriate computer program for this analysis. Once the study has been completed, this is envisaged as being mid 2013, the raw data i.e. transcribed interviews, will be deleted

8. **Whether there are any benefits from taking part?**
The results from the overall study, of which this interview forms a vital part, will allow lecturers to be more effective in providing guidance to students when they are choosing their text books. By taking part, the data gained will allow key reading text lists to be more focussed and allow better guidance when directing students to those books which will provide the most effective support. The study may also allow stocks within the University library to be more focussed on the needs of the student providing further support for their studies.

9. **How your participation in the project will be kept confidential?**
Confidentiality is an issue which will be of paramount importance. As stated earlier, access to the systems where the details of each interview are kept is restricted to researcher only, who is governed by the University's strict rules on confidentiality and data protection. Additionally, all interviews will be digitally stored and coded and any work with the data will be on coded material. Also, I am governed by the Nursing and Midwives Council's strict professional Code of Conduct requirements in relation to maintaining confidentiality.

YOU WILL BE GIVEN A COPY OF THIS TO KEEP,
TOGETHER WITH A COPY OF YOUR CONSENT FORM

Appendix 12

Participant Consent Form

THIS FORM MUST BE ON ANGLIA RUSKIN UNIVERSITY HEADED NOTEPAPER WITH FULL CONTACT DETAILS

NAME OF PARTICIPANT:

Title of the project: **What Decisions students make in selecting texts to support learning in Anatomy and Physiology**

Main investigator and contact details:
Nigel Henderson
Tel: 0845 196 4115
Email; Nigel.henderson@anglia.ac.uk

Members of the research team: Nigel Henderson

1. I agree to take part in the above research. I have read the Participant Information Sheet which is attached to this form. I understand what my role will be in this research, and all my questions have been answered to my satisfaction.

2. I understand that I am free to withdraw from the research at any time, for any reason and without prejudice.

3. I have been informed that the confidentiality of the information I provide will be safe guarded.

4. I have been informed that the interview I will give will be recorded onto an electronic device for data analysis and this record will be erased following completion of the study.

5. I am free to ask any questions at any time before and during the study.

6. I have been provided with a copy of this form and the Participant Information Sheet.

Data Protection: I agree to the University[1] processing personal data which I have supplied.

I agree to the processing of such data for any purposes connected with the Research

Project as outlined to me*

*Note to researchers: please amend or add to this clause as necessary to ensure that it conforms with the relevant data protection legislation in your country**

Name of participant
(print)………………………….Signed………………..….Date………………

Name of witness
(print)…………………………..Signed………………..….Date………………

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[1] "The University" includes Anglia Ruskin University and its partner colleges

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If you wish to withdraw from the research, please complete the form below and return to the main investigator named above.

Title of Project: **What Decisions students make in selecting texts to support learning in Anatomy and Physiology**

I WISH TO WITHDRAW FROM THIS STUDY

Signed: _____

Date:_____