An Investigation of Cognitive Skills and Topics Development within Finance programmes: a UK perspective

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Abstract

Finance is an important subject in many accountancy and other undergraduate programmes. The technical competencies in this area are covered under the QAA benchmark in finance (2007). However, the benchmark does not rigidly lay down the curriculum and competencies it expects students to acquire; universities are free to teach the subject from a variety of perspectives. In this paper the subject specific knowledge and skills emphasised in finance subjects in accounting undergraduate programmes in the UK are examined. Learning outcomes from module handbooks/unit specifications from ten universities in the UK are used to gauge and analyse what cognitive skills and topics are emphasised. This research finds that universites should include higher level cognitive skills in order to meet the demands of the changing environment. It is also evident that funding and sources of capital is the most important topic in the curriculum.

Key Words: finance education, accounting, learning outcomes, skills, UK universities, empirical research

1. Introduction and Background

Accounting is a social science focusing on accounting and other allied business skills. (QAA, Accounting, 2007). Despite the subject being a popular choice in undergraduate degrees, it has invited criticism from academics and the professionals with regards to the limited knowledge and skills, accounting students graduate with (Albrecht and &Sack, 2000; Lin, Xioyang, et al., 2005; Chaker and Abdullah, 2011). Some studies state that these skills and knowledge areas should be of core importance while others argue that the needs may differ due to differences in environment and industries (Johnson et al., 2008) There is, however general consensus, notwithstanding different skills and core competencies, that finance should be a key subject area in accounting programmes. A study by Lin et al. (2005), for example, found finance as one of the top three key areas of knowledge which accountants were expected to have. As finance is one of the key functional areas of management, accountants must understand vital skills in risk, investment appraisal, numeracy, decision making and financial management (Chaker and Abdullah, 2011). The knowledge of key concepts and tools in finance is also reiterated by the professional bodies such as CIMA, ACCA and ICAEW as well as by the QAA accounting benchmark (para 1.4).The close relationship between finance and accounting is such that in most instances, reference is made to the two subject areas as one i.e "finance and accounting" or "accounting and finance" and it is considered vital to have knowledge of both to work as an accountant or as finance professional. (UCAS website, 2011)

Finance has also become a major subject in its own right (the number of degrees incorporating finance and other areas has grown in recent years) and has incorporated ideas from other disciplines such as maths and economics. Finance skills have been judged to be highly important, in most business programmes (Grizzle, 1985) as well as in personal life (Peng et al., 2007). The subject has grown in complexity and can be taught from many perspectives; the onus is placed on the offering institutions to use a discretionary rather than a prescriptive approach depending on the degree offering. The QAA, finance benchmark, 2007 thus states (section 3.1), "The examples (*of subject specific knowledge and skills*) are given to help illustrate the outcomes of a finance degree, not to act as a set of

prescriptions" This broader concept of finance supports the idea that it can be studied in conjunction with any subject such as law, management and even languages – as recognised in the benchmark which also allows for a "*professional, sustainable, intellectual, ethical focus"* (QAA paras 2.1 and 2.2, 2007). The consensus on finance as a key area in accounting, coupled with the discretionary attitude of the QAA and the extradordinary growth in the finance discipline gives rise to an interesting question: what finance related subject specific knowledge topics and challenges do accounting students graduate with?

This paper hopes to fill that gap by exploring the subject specific knowledge and skills i.e learning domains embedded in current finance teaching. More specifically, the study aims to explore complexity in delivered topic areas i.e. the degree of subject specific learning challenges or (cognitive) knowledge related skills by using Bloom's revised taxonomy (Anderson and Krathwohl, 2001). It does this by examining a data set of the learning outcomes of compulsory finance units in accounting undergraduate programmes in ten universities in the UK. The study thus has two specific aims:

a) What learning theory challenges are embedded in the learning outcomes of finance courses? (Learning has three outcomes: intended change in knowledge, skills and attitudes. This study concentrates on the knowledge component.)
b) What are the key topics currently being stressed? Finance has become much more sophisticated in recent years with new topics, markets and actors taking central stage. This study examines what topics are taught and whether any variance exists between those topics,

By exploring these aims, the study contributes in two ways. In a direct sense, this study will inform and aid the future construction of expemplar curriculum design both at national as well as institutional level. The complexity of knowledge challenges can be suitably used to scaffold new topics in finance curriculum in order to marry them with changing needs in finance practice. Secondly, in a wider sense, the emphasis which universities place on various finance topics offers some value judgements

on what is constituted as important and meaningful in current finance theory. These can be used to sign post the manner and direction the subject is going in a normative sense.

The paper is structured as follows: the next section lays out the literature survey on learning challeges and topic areas in finance. The research methodology adopted during the study is discussed in section 3. This is followed by a discussion of the findings of the study in section 4. Summary and implications are discussed in section 5 and a brief conclusion is offered in section 6.

2. Literature Review

Albrect and Sack, 2000 comprehensively researched the provision, needs and shortcomings of the US accounting profession in their seminal study which used the opinions and focus group interviews of business, accounting and education practitioners. Their monograph identified challenges to accounting education due to identifiable structural changes in the environment and argued that the state of accountancy did not address the transitions in the business world. Recommendations for reform of the accountancy profession were offered. The study argued for key changes in curriculum content, pedagogy and skills development due to the rapidly changing technological and globalised environment, accountants worked in. Although, both the focus and authors of the study were U.S based, the study spawned a number of papers based on specific aspects of the skills (including subject specific knowledge) as well as the environment where accounting courses were taught. This study is often cited as the seminal study in this area and other authors have extended the questions.

There is less current academic research, which examines the skills and learning abilities imparted by finance teaching. A starting point is the remit of QAA finance benchmark, 2007 as a match against the wider literature on current finance practice. Apart from the QAA, extant work can be divided into a) practioner based research by professional bodies b) academic papers matching the theory and practice in finance. Both sets of authors contribute to topical knowledge and the skills or learning challenges which are expected in senior finance professionals.

2.1. QAA benchmark in finance, 2007

The QAA benchmark in finance, 2007 covers the teaching of finance (or financial management) in all UK higher education instituions at degree level. (para1.2). The benchmark emphasises finance as knowledge related to the working of capital markets and interaction with economic units and studying of “financial systems, structures and instruments” whilst understanding “pricing of financial assets, the measurement and management of risk, and the possibilities for value maximising behaviour by the firm and household” from a variety of perspectives. The benchmark suggests that the subject specific knowledge should include (para 3.2) a) knowledge of the institutional framework necessary for understanding the role, operation and function of markets and financial institutions. b) Major theoretical tools and theories of finance, and their relevance and application to theoretical and practical problems c) interpretation of financial data including that arising in the context of the firm or household from accounting statements and data generated in financial markets. d) understanding of the relationship between financial theory and empirical testing, the financing arrangements and governance structures, factors influencing the investment behaviour and opportunities of private individuals, financial service activity in the economy, an appreciation of how finance theory and evidence can be employed to interpret these services, demonstrating an ability to understand financial statements, and the limitations of financial reporting practices and procedures. The benchmark therefore highlights the contexts in finance, major tools and theories, data in finance, linkages between theories and their empirical testing, financing structures and governance, factors influencing investment behaviour and financial service activity.

Inter-alia, the benchmark gives examples of topics: market efficiency and role of the markets, capital budgeting i.e investment appraisal and cost of capital, behavioural theory of the firm relating to value maximising, agency theory and information assymetry amd principal-agency relationship, risk management practice and theory including pricing of options, capital structure and valuation of

securities, international and national environment and its impact on the firm, corporate restructuring, perfomance and value, relationship of finance with the rest of the business, dividend policy and accounting and financial data. Apart from the topics, cognitive skills are highlighted within the benchmark (para 3.2): knowledge of factual, conceptual and proceedural aspects, undertanding and appreciating these, making linkages and recognising the limitations. The benchmark puts onus on delivering institutions to choose the exact depth, boundaries and choice of topics.

2.2. Literature on Learning Challenges of Finance Professionals

Discussion on the general needs, role, abilities and skills of key professional finance skill users such as finance directors and CFOs) has also been carried out in the last decade by various professional organisations such as Deloitte and McKinsey. E&Y (E&Y) regularly publish reports on the evolving responsibilities, and roles of CFOs ((E&Y) website, 2011). They, along with other studies, paint an analogous picture to the one painted by authors of studies on accounting education such as Albrect and Sacks (2000). The changing business environment has brought about unique challenges to the finance practioners: globalisation particularly the growing power of emerging markets, technological advancement and changing power structures are major factors facing finance officers. ((E&Y, 2008); CIMA, 2009) These have resulted in the need for a diverse skill set (Stuart, 2007) which comprises of both new knowledge as well as soft skills such as communication (E&Y, 2011), team work, innovation and creativity as well as a strategic focus (Aier, Comprix and Gunlock et al,.2005; Fabich and Firnkorn et al., 2012)) which goes beyond bean counting (Favaro, 2011). However numerical and technical skills are still considered important (Jackling and Sullivan, 2007), although detailed analysis can be delegated. (Fabozzi and Drake et al., 2008). In a volatile world, judicious risk management skills (E&Y, 2011) and skills to undertake mergers and acquisitions are important. Business is being impacted upon by environmental and social factors along with the traditional economic focus, thus requiring a triple bottom line approach towards making it sustainable. (E&Y, 2011). Critical decision making skills are thus paramount (Belghitar and Belghitar, 2010). In essence, CFOs need to have less

ability to remember, understand and apply in depth but more to synthesise and evaulate their actions as well as to come up with value creating ideas. As in accounting studies, the focus is shifting towards less simple technical skills and more (technical) creative and higher order skills.

2.3. Literature on Topics

In addition to the discussion on the role and challenges to CFO, there are also a few surveys which examine the practices followed to make financial decisions. The breadth and depth of these studies allow an informed view on what topics are considered important in finance practice. Academic papers (Graham, 2011) based on regular surveys of Chief Financial Officers (CFO) behaviour conducted by Graham and Harvey is often used to contribute to their teaching of finance.

Topics included in these studies are the three functions of capital budgeting, capital structure and distribution (Graham and Harvey, 2001; Brounen et al., 2004). The variation in the analysis of the cost of capital which is employed to aid capital budgeting is also heavily discussed (Ibbotson Morningstar 2010; Damodran, 2011) with some professionals using an industry estimate and others estimating the figures quantitatively. The behavioural aspects of CFOs and the decisions they make is also another area which highlights the "human" force behind finance. (Graham et al., 2010)

Apart from the functional and behavioural aspects in finance practice, other key essential topics have also been identified. Roll (1994) listed in his key note speech in 1993 what topics in finance he thought had the most relevance for CFOs. He included simple and complex option valuation, methods for hedging, economic parity conditions, portfolio theory and efficient markets. There is a heavy emphasis on the boundaries of financial management given the neo-classical framework and the discussion is normative i.e what a CFO should do given the (perfect) workings of the market. Roll's selection appears to be very particular and constitutes technical knowledge (which is at odds with the argument that CFOs need strategic focus rather than technical know-how). In a later study, Servaes et al., 2009) also focus on risk management but concentrate on surveying practicing CFOs.

Nothwithstanding the topics used by CFO's, the topics surveyed in entreprenurial finance have been identified by Roth et al., (2002) who survey accountants, bankers, venture capitalists, angels, personal financial advisors, and others. They include financial statement analysis, working capital management, sources of funds and capital structure, the relationship between the entrepreneur and the other investors, time value of money and investment appraisal as essential topics.

Womack (2001) analysed the topical contents of MBA courses in US universities and found that they commenced with present value (including dividend valuation, bond and cash flow valuation and then concentrated on portflio theory relegating capital budgeting and capital structure to a comparitively minor ranking. Option valuation, as Roll purported in 1994, did indeed appear to have a prominent position in the teaching. Womack (2001) commented that the topics were taught almost shadowing the popular texts. This suggests that instructors from different universities had a uniform view and were keen (again) on the technical aspects of education rather than the broader view. Cooley and Heck (1981) discuss the impact of research in finance in the form of a table of the most influential thirty five contributions collected from a survey. Most of these topics embrace the neoclassical model with shareholder value maximisation at the heart of them. They exihibit a scientific, technical approach towards problem solving and are often based on static equilibrium analysis (Modigliani and Miller theorem on capital structure) or imaginative use of mathematical techniques (Markowitz portfolio theory). There is little discussion (inferred by abscence of mention) on behavioural aspects of finance in this list.

The literature review has parallels with the Albrect and Sacks (2000) study: a) The factors which have ushered change are similar. b)There is a need to move away from technical skills into a broader skill-set. c) Dealing with globalisation and risk management is important.d)Traditional topics still occupy the the main stream teaching litertature.

3. Research Methodology, Dataset and Pedagogical Issues

Since the QAA approach is discretionary, it was felt that a review of what U.K universities offered in finance education would be of use. However, instead of measuring perceptions of staff, it was felt that instituional provision based on formal documentation of the finance module would allow a more factual analysis.

Contact was made via email with members of CDAF, BAFA in late September 2011 asking them for help in locating unit handbooks or unit descriptors/specifiers for all compulsory modules/units in finance in undergraduate accounting programmes offered in their institution. There are seventy seven instituions which are part of the CDAF committee. Of the fifty four universities, that offer an accounting degree and twenty two (UCAS) that offer accounting and finance as an option (there is overlap between the instituions) ten universities replied with their handbooks and course descriptors. Five of the featured universities may be classified as old universities i.e. pre 1992 universities while the remaining five of these are post 1992 universities. The chief characteristics of these universities are shown in Table 1.

TABLE 1 HERE

The sample shows diversity in terms of student numbers and geographical location.

The module handbooks collected from the ten universities displayed information about the several aspects including about learning outcomes “action statements describing what a student is capable of demonstrating in terms of knowledge, understanding, skills and attitudes after completion of a learning activity.” (Fitzpatrick and Bryne, 2007).

The use of learning outcomes have been debated in the education literature. An advantage is that they are formalised, legitimate and objective ways of defining skill aspiration. (Kennedy, 2007). They articulate the achievements of the learner rather than the aims of the teacher and are thus learner

focused rather than teacher focused (Moon, 2002) and are capable of being used to standardise practice. Whilst they have been critiqued in pedagogy amid concerns that they may ring-fence learning excessively, (Maher, 2004; Fry et al., 1999) learnng outcomes have become important an tangible sources of information for all educational stakeholders.

These learning outcomes were collated across all ten universities and unit descriptors of compulsory finance modules in accounting undergraduate degrees and transferred to a database.Usually, each university taught finance across at least two units. An attempt was made to analyse these collated outcomes in terms of a) topical knowledge and b) levels of challenges or complexity in the outcomes.

Bloom's taxanomy has been used for a variety of purposes in learning, including in "classify(*ing*) curricular objectives and test(*ing*) items in order to show the breadth, or lack of breadth, of the objectives and items across the spectrum of categories. The taxonomy measures three domians in educational learning i.e cognitive (relating to the subject), affective (relating to values) and psycho-motor (relating to imitation of skills) Kratchwohl (2002, 213). Within the cognitive domain (which is the focus of this paper), Bloom (1956) identified six levels of complexity in learning challeges i.e knowledge, comprehension, application, analysis, synthesis and evaluation. These were later revised to verb based domains ie remembering, understanding, applying, analysing, evaualting and creating. (Anderson and Kratchwohl, 2001) to allow for greater flexilibility between categories.The revisions also allowed learning domains to be considered as products of two dimensions: a) cognitive process domain, requiring action on behalf of the learner and b) knowledge dimension which could be factual, conceptual, procedural and meta-cognitive. Bloom's taxonomy in its original as well as revised form has been used in the learning environment for all subjects. Despite being postulated over half a century ago, the classification is still popular today in learning processes, albeit with some modification. (Anderson and Krathwohl, 2001) It has been used to decide how to construct case studues in finance (Gitman et al., 1987) and how to introduce practical learning methods in the curriculum. To date it is widely used in the UK for the construction of learning outcomes (UKCLE, 2010) within the university sector.

4. Findings

The dataset was analysed from learning outcomes collated from the unit specifications of the ten universities. Of the total 197 learning outcomes, 156 were subject specific skills which were related to knowledge topic and the remaining 41 that were based on soft, transferable skills. This paper concentrates on the first category. As learning outcomes are statements of "what a learner can be expected to know, understand and/or do as a result of a learning experience. (QCA /LSC, 2004, p. 12) as well as "the specific intellectual and practical skills gained and demonstrated by the successful completion of a unit, course, or programme" (Vlăsceanu et al., 2004, pp. 41–42), they could further be divided into two domains i.e a) cognitive complexity i.e. behavioural action required by the learner and b) subject specific knowledge/generic area of focus relating to topic attainment.

4.1. Complexity in Cognitive Skills and Learning Challenges

In order to measure the first domain i.e cognitive complexity, learning outcomes were coded and mapped according to the cognitive domain in Bloom's Revised Taxonomy. Table 2 provides a summary along with examples froom the dataset.

TABLE 2 HERE

The skills require deeper thought and action on behalf of the learner as they progress from K1 to K6. K1 to K3 skills demand memory, attention and replication to some extent while K4, K5, and K6 require further higher level activity, and processing action on behalf of the learner. (Krathwohl, 2002) This coding also becomes complex as some skills are subject nuanced. An example of this is "evaluate the advantage of debt" is different from "evaulate the theories of leverage and their effect on the cost of capital". (Anderson and Krathwohl (2001) recognised this aspect of complexity in their discussion on Bloom's Taxonomy as knowledge can be factual, conceptual procedural and meta-cognitive).

As examples, the phrases used in K6 skills in this study, tend to use phrases relating to “critical discussion, critical evaluation, critical appraisal, critical judgement, formulate responses”; K5 skills refer to “appreciate using the weight of evidence” and K4 skills refer to “apply, acquire and develop, demonstrate a holistic approach”, As the examples in table 2 show, K4, K5 and K6 usually involve linkages between multiple concepts, theories and financial actors.

From the sample, K1 accounts for over a quarter of the total subject specific knowledge skill set (26.49%). This implies that over a quarter learning outcomes are related merely to “remembering”. K1 along with K2 and K3 constitute almost half of the total set (48.34%), suggesting that memory, basic understanding and application are considered sufficiently important. The remaining skills: K4 (18.7%), K5 (16.12%) and K6 (16.12%) account for the rest of the learning outcomes, although the greater emphasis is on K4 i.e. on differentiation skills. Creating skills (K6) along with evaluating skills (K5) consitute only 32% of the overall set. However, these cognitive skills are particularly important as they recognise complexity, use of multiple solutions and a holistic understanding. Finance professionals are required to link multiple environments, structure and sytems (QAA benchmark para 3), and the QAA benchmanrk in finance demands that “a student should have ability to critically evaluate arguments, make reasonable judgements after drawing upon structured and unstructured data, locate, extract and analyse data from multiple sources, *(exihibit)* numeracy skills, including the ability to manipulate data,..., self managed learning ...skills. (Para 4.1). The subject matter itself requires linkages between tools and theories, assumptions and practice between the firm and the markets. It also stresses the use of empirical evidence as a learning tool. (UCAS profile on accountancy, 2011)

Accounting studies such as Albrect and Sacks, (2000) and Belghitar and Belghitar, (2010) have emphasised such higher order skills noting that skills which survive increasing complexity, globalisation and technology in the market place are popular amongst employers. The literature on CFO (in the review) highlights that CFOs must have the ability to evaluate and create rather than remember and recount. CIMA (2009) stresses that finance professionals have to balance an objective

view of finance function with subjective input into other value adding areas of the business. This balancing act requires a great deal of higher order skills which go beyond replication and comprehension. Since innovative value addition involves a greater awareness than the confines of technique, (the triple bottom approach) higher order skills relating to dealing with international economic forces and seamless market workings based on arbitrage and technological links as well as an awareness of the shift in power are crucial.

However the results are not completely consistent accross universities as the use of learning outcomes vary from university to university. Table 3 shows the break-up of cognitive skills by university.

TABLE 3 HERE

K1, K4 skills are prominent amongst most universities suggesting that remembering and analysing (to some extent) appears to be popular amongst all institutions. It is reassuring that K5 or K6 skills are represented in almost universities. In fact, apart from remembering, universities seem to be keen to stress higher order skills although only seven universities highlight K6 skills. Whilst three out of ten univerisites highlight only 8 skills each, four universities account for over 67% of the learning outcomes: two are Scottish universities, one from England and one from Ireland.

4.2. Subject Specific Knowledge and Topics

Using the QAA list of examples of topics, learning outcomes were divided in 12 broad topic areas. The following is a list of these; text in brackets is related to examples of specific topical focus. A bar chart relating to selected topics plotted against the number of learning outcomes in shown subsequently. The areas represented in the bar chart are marked with an asterix in the list below.

- Functional management (FM)-i.e. role of the financial director and interface of the firm with various individual activities (this includes multiple functions and linkages between them, role of Financial Manager)*
- Cost of capital and its influence on firm activities*
- Dividend policy (including Modigliani and Miller theory, significance of tax)*

- Environment (business) including international environment (current issues, role of environment on the business, principles of international financial management)*
- Funding-sources, (practices and importance of working capital, including Modigliani and Miller*
- Investment-appraisal techniques, discounted cash flow*
- Management-overview(how accounting and finance supports firm and its strategy, principles in strategic financial management, ethical issues faced by managers)*
- Markets and market efficiency (impact of market efficiency on the firm, testing, current state of financial markets*
- Performance and value (analyse financial performance, maximisation of firm value and limitation of share-holder value maximisation)
- Mergers and corporate restructuring (trends, consequences, impact on value,
- Risk –concepts, measures and its management (portfolio theory, CAPM, risk and return)*
- Theoretical framework (agency theory, pecking order theory, emphasising theories of the firm and assumption within, learn independent inquiry)*

Figure 1 shows that break-up of various learning outcomes emphasising by the main ten topics which account for 139 subject related skills out of the total 156.

FIGURE 1 HERE

Out of these 10 topic areas, three topics appear to be most prominent. These are funding, risk and management. These three topics account for over half the learning outcomes (51.07%). If learning outcomes relating to investment appraisal (13), environment (12), theoretical framework (12) and markets (12) are included along with the prior list of three topics, 86.33 % of the total learning outcomes from the 10 topics are covered and over 76.9% of the total 156 subject specific learning outcomes.

The most popular topic, funding, includes sources of finance, capital structure and working capital management. This was emphasised through 36 total skills of the total 156 subject related skills in the

dataset. The majority of the funding learning outcomes were related to the sources of finance and analysis of the individual instruments such as equities and sometimes bonds. A mention was made also of leasing and bank finance, albeit less frequently. Only seven learning outcomes related explicitly to working capital management. In an era of recession and credit starvation, more learning outcomes will have to concentrate on liquity and working capital management. (It is also interesting to note that the QAA benchmark in accounting regards finance as "the science or the study of the management of funds" (para 1.4) thus firmly associating finance with funding.) The second most important area in finance is risk and its instruments, methods and measures of risk management including portfolio theory and CAPM. Risk management has been reiterated and emphasised by professional bodies (CIMA, 2009; ICAEW, 2005, (E&Y, 2010)) and by academics (Roll, 1994; Servaes et al., 2009; Womack, 2001; Womack and Zhang, 2005) alike. Womack (2001) finds that portfolio theory and the CAPM top the topic list in terms of in classtime (on average 18% and 12% respectively) that US MBA programs dedicate to them. This is consistent with their earlier survey results in 2001. Not only risks have changed but their tools and sophistication have grown exponentially. Risk reporting, mitigation and recognition takes up a considerable amount of time of finance professionals. (Joachim, 2009) However Servaes et al., (2009) find that "while many companies consider risk in scenario planning exercises, less than half formally include risk analysis in their strategic planning processes. Almost half of the companies reported having no explicit measures to evaluate the performance of their risk management functions.Without measurement; it is perhaps not surprising that 40% of the respondents could not even guess how much value the risk management function adds to the firm." Despite its popularity as a topic, it appears that the practice is still at a naive level.The third most important topic relates to management i.e how the finance function relates to the overall management and strategic focus of the business. Learning outcomes related to management explore how finance adds value to overall management function and how value based management results due to finance practice. This supports the professional reports on how strategically aware finance professionals need to be. To check if the results were consistent, topics were compared by universities in the dataset: funding was stressed in the learning outcomes of eight

universities, risk was mentioned in the learning outcomes of seven universities and management was discussed in the learing outcomes of six universities.

The role of the business environment, markets and theoretical framework are considered to be of medium importance. While accounting students may not use the theoretical framework so often, the first two factors have been emphasised by many professional bodies (E&Y, 2011; CIMA, 2011) and academics (e.g Albrect and Sacks, 2000), according to the literature review. Equally interesting is what was not considered important. These include topics relating to mergers and corporate restructuring (4 learning outcomes), performance and value (2), dividend policy (3) cost of capital (6) and functional role of FM (9). It is not clear why learning outcomes related to mergers are not highlighted to a greater extent (although an older study by Cooley and Heck, 1981 also found the area to be unimportant), topics relating to performance and value may be subsumed in other categories. What is less obvious is that the functional aspects of finance relating to investment appraisal and dividend payout, whilst still important, appear to be relatively less so when compared to other topics. This is also the result of a recent survey. (CIMA, 2011). Topics which were not stressed included the ethical focus on finance, save at one university. The mathematical and econometric focus which might be taken (QAA, benchmark in finance 2007) is missing from the learning outcomes of the entire data set collected. Similarly the economics based topics such as “term structure of interest rates, stochastic volatility and time series analysis” are also absent. Topics relating to financial statement analysis such as bankruptcy studies which were emphasised by (Cooley & Heck, 1981) were also absent.

Financial skills are enormously valuable and benefit all types of organisations. (Grizzle, 1985). To understand whether learning outcomes related to any particular type of organisations, they were coded as corporate finance related if they linked with corporate finance topics in any way (e.g equity, market efficiency, CAPM, share-holder value maximisation, dividend policy). Corporate finance related learning outcomes (40) constituted approximately over 25% of the total 156 learning outcomes. The preponderance of these (over 60%) related to K1-K3 skills. This implies that corporate related outcomes are stressed at the remembering, understanding and applying stage and are fairly important

as part of the knowledge base of accountancy students. Two Scottish universites accounted for 25 learning outcomes related to the corporate sector.

5. Brief Summary and Implications

In summary, the study found that amongst all the skills, K1 consituted over a quarter of the total cognitive skills. The complexity in cognitive skills was divided between basic remembering, understanding and application skills and higher order skills relating to analysing, evauating and creating skills. Most skills K1-K4 accounted for a majority of the learning outcomes. This is worrying as industry reports in the literature review stress the need for K5 and K6 skills reflecting the need for innovation and strategic focus in financial practice. Moreover, the number of learning outcomes varied between universities, with four universities (3 of which are non English) accounting for over 67% of the total. The most important topics appeared to be funding, risk and management according to the emphasis on the learning outcomes. Other topics emphasised were role of environment, markets, theoretical framework and investment appraisal. Dividend policy, mergers and performance and value, cost of capital along with the role of functional management were considered of minor importance. A majority of topics were corporate related and were emphasised in a small set of universities.

Some the limitations of this study were: a) the sample set was not very big, although it was diverse enough to be considered sufficiently random b) learning outcomes on their own only help to potray one dimension of the expected learning process. Other measures such as assignments, tasks and exams and wider reading add other dimensions.c) Codying and classifying the learning outcomes is a subjective activity: while an attempt was made to separate topics, invariably there is bound to be some seepage between topics as these topics in finance are inter-linked.

The implications of the study should be considered in the light of changes in the environment and findings of the literature review: Finance like accounting is going through a rapid change and needs to be malleable. Therefore there should be more focus on creativity skills and evaluation and synthesis

skills rather than remembering facts and concepts. Universities should consider explicitly underlining these as learning outcomes become more important as not all universities at the moment consider learning outcomes equally as essential information sources. Secondly, working capital management was not emphasised as much as other sources of finance were. Given the current recession andcredit rationing, liquidity management will attain a greater role and hence should be emphasised. Thirdly, the corporate related outcomes constituted a large proportion of the sample suggesting that finance education is aimed at students who will work for corporate bodies. This is not necessarily true and consideration should be given to other finance users. This implication along with the need for emphasis on working capital management may be related as Roth et al. (2002) discuss the needs of entreprenurial finance and find that working capital management has an important role in small business finance practice. Lastly, the subject appears to be technique driven (predominance of K1skills) and does not highlight the social, environemental and behavioural aspects of finance, despite accounting and finance being offshoots of social science. This is confirmed as the topics related to business environment and markets were also not considered as important as others. Moreover, the abscence of more economics based topics such as term structure of interest rates (which is included as an example in the QAA finance benchmark) suggests a lack of interest in the economic environment. Currently, the use of psychology (Graham et al., 2010) has also featured heavily in recent finance research as it is not the fundamental techniques that govern the markets, but investor sentiments and herding behaviour. Considering that market risk is currently one of the largest risk to face firms, (judging by recent events such as the Euro-zone crisis) knowledge of impact of environment should be crucially underlined. The curriculum also needs to focus more on the political and sociology aspects of markets and socio-political skills (Tinker and Feknous, 2001) in the accounting domain. Finally, the lack of ethical focus in learning outcomes stands out. (Only one university emphasised this in their learning outcomes.) As financial scandals continue to hit the news, (insider trading, collapse of large corporations and crisis in the banking sector about executive pay), it would be worth, explicitly including some discussion of these within the curriculum.

There are two potential follow-ups to this study: (i) A wider aspect to this study would be an attempt at the aggregation of perceptions amongst educational stake-holders to be used as a means of comparisons against the results of this study. Whilst this study highlighted the learning challenges and topics embedded in the formal provision of learning outcomes in finance modules, it would be informative to elicit a wider opinion of what finance should contain from academics and students. (ii) A time series analysis could be done if this study could be repeated for subsequent years. This would offer insight on whether topics in finance are "stable" or move according to the trends in society.

6. Conclusions

In this study, the learning outcomes related to finance modules offered to UK undergraduate accounting students were collated from ten universities. An analysis of the data collected was carried out on two levels: Firstly, Bloom's revised taxonomy was applied to learning outcomes to measure embedded challenges and cognitive skills Secondly the popular topics which are covered by each of the universities in the sample were highlighted. Considerable variance existed in the provision of learning outcomes when universities were compared. The emphasis was on lower order cognitive skills i.e the skills related to remembering, understanding and applying concepts and facts. The topics which were considered important were: funding and capital structure, risk and management and around a third of low to medium level skills were directly related to corporate finance rather than finance for other organisations. The study used a literature review to suggest which topics could be of further future value.

References

Aier, J. K., Comprix, J., and Gunlock, M. T. (2005). The Financial Expertise of CFOs and Accounting Restatements. *Accounting Horizons* 19 (3), pp. 123-135.

Albrecht, W. S., and Sack, R. J. (2000). Accounting Education: Charting the Course through a Perilious Future. *Accounting Education Series , 16.*

Anderson, L. W., and Krathwol, D. R. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives.* New York: Longman.

Belghitar, Y., and Belghitar, G. S. (2010). The Role of Critical Evaluation in Finance Education: Insights from an MSc Programme. *Accounting Education , 19* (6), 569-586.

Brounen, D., Jong, A. D., and Koedijk, K. (2004). Corporate Finance in Europe: Confronting Theory with Practice. *Financial Management , 33* (4), 71-101.

Chaker, M. N., and Abdullah, T. A. (2011). What Accountancy Skiils are Acquired at College? *International Journal Of Business and Social Science , 2* (18), 193-199.

CIMA. (2009). *Insight:Major research explores future of finance profession (Nov 09).* Located at: http://www.cimaglobal.com/Thought-leadership/Newsletters/Insight-e-magazine/Insight-Archive/Major-research-explores-future-of-finance-profession/. [Retrieved November 20, 2011]is website italized

CIMA. (2011). *Ledgers to Leadership: Key Finance Functions*. Located from: http://www.cfoinnovation.com/content/ledgers-leadership-key-finance-functions. [Retrieved November 22, 2011].

British Accounting and Finance Association. (2011). *Committee for Departments of Accounting and Finance*. (2011). Retrieved October 27, 2011, from BAFA: http://bafa.group.shef.ac.uk/cdaf/

Cooley, P. H., and Heck, J. L. (1981). Significant Contributions To Finance Literature. *Financial Management , 10* (2), 23-33.

Damodran, A. (2011, Feburary). *Equity Risk Premiums (ERP): Determinants, Estimation and Implications*. Retrieved November 15, 2011, from http://stern.nyu.edu: http://people.stern.nyu.edu/adamodar/pdfiles/papers/ERP2011.pdf

E&Y. (2011, November). *Finance Forte:the future of finance leadership*. Retrieved November 15, 2011, from Preparing tomorrow's leaders: nine steps that CFOs can take now to prepare for the future: http://www.ey.com/GL/en/Services/Assurance/Finance-forte--the-future-of-finance-leadership---Nine-steps-for-CFOs-to-prepare-for-the-future

E&Y. (2008). *The Changing Role of the Financial Controller*. Retrieved November 15, 2011, from http://www.ey.com/Publication/vwLUAssets/Changing_role_of_the_financial_controller/$FILE/EY_Financial_controller_changing_role.pdf

E&Y. (2010). *The DNA of the CFO.* EYGM Limited.

Fabich, M., Firnkorn, M., Hommel, U., and Schellenburg, E. (2012). The Strategic CFO: New Responsibilities and Increasing Job Complexity. In *The Strategic CFO* (pp. 1-5). Springer Berlin Heidelberg.

Fabozzi, F., Drake, P., and R.S, P. (2008). *The complete CFO handbook : from accounting to accountability.* John Wiley and Sons.

Favaro, P. (2011). Beyond bean counting:: the CFO's expanding role. *Strategy and Leadership , 29* (5), 4-8.

Fitzpatrick, J. & Bryne E., (2007) Do Your Students Know the Learning Outcomes of your Programme? International Symposium for Engineering Education, Dublin, Ireland

Gitman, L., Lewis, W., and Yates, R. (1987). An Approach for Assessing, Selecting, and Using Cases. *Journal of Financial Education , 16*, 56-64.

Graham, J. R. (2011). Using CFO Surveys as a Motivational Tool to Teach Corporate Finance. *The Financial Review , 46* (2), 193-205.

Graham, J. R., and Harvey, C. (2001). The Theory and Practice of Corporate Finance: Evidence from the Field. *Journal Of Financial Economics , 60*, 187-243.

Graham, J. R., Harvey, C. R., and Puri, M. (2007). *Managerial Attitudes and Corporate Actions.* SSRN.

Grizzle, G. (1985). Essential Skills for Financial Management: Are MPA Students Acquiring the Necessary Competencies? *Public Adminstration Review , 45* (6), 840-844.

Ibbotson Morningstar. (2010). *Best Practices in Estimating the Cost of Capital: Survey and Synthesis*. Retrieved November 15, 2011, from http://corporate.morningstar.com: http://corporate.morningstar.com/ib/documents/CapturingIndustryRisk.pdf

Jackling, B., and Sullivan, C. (2007). Financial planners in Australia: an evaluation of gaps in technical and behavioral skills. *Financial Services Review , 16*, pp. 211-228.

Joachim, A. (2009, June 16). *Finance professionals as risk managers - an emerging space.* Retrieved November 18, 2011, from CIMA.com: http://community.cimaglobal.com/blogs/aubrey-joachims-blog/finance-professionals-risk-managers-emerging-space

Kennedy, D. (2007) *Writing and Using Learning Outcomes: A Practical Guide* (Cork, University College Cork)

Krathwohl, D. R. (2002). A Revision of Bloom's Taxonomy:An Overview. *Theory Into Practice , 41* (4), 1-54.

Lin, Z. J., Xioyang, X., and M., L. (2005). Knowledge base and skill development in accounting education: Evidence from China. *Journal Of Accounting Education , 23* (3), 149-169.

Mayer, A (2004). Learning Outcomes In Higher Education: Implications for Curriculum Design and Student Learning, *Journal Of Hospitality, Leisure, Sport and Tourism Education*, 46-54

Moon, J. A. (2002). *The module and programme development handbook: a practical guide to linking learning outcomes and assessments.* Routledge.

Peng, T. M., Bartholomae, S., Fox, J. J., and Cravener, G. (2007). The Impact of Personal Finance Education Delivered in High School and College Courses. *Journal of Family and Economic Issues , 28* (2), 265-284.

QAA. (2007). *QAA Subject Benchmark in Accounting*. Retrieved November 15, 2011, from QAA Information and Guidance: http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Subject-benchmark-statement-Accounting.aspx

QAA. (2007). *QAA Subject Benchmark in Finance.* Retrieved November 15, 2011, from QAA Information and Guidance: http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Subject-benchmark-statement-Finance.aspx

Qualifications and Curriculum Authority and Learning + Skills Council (QCA /LSC) 2004, *Principles for a credit framework for England:* Terms and definitions, pp. 11–13, March (London: QCA /LSC). Uses definitions from the Credit Common Accord forWales,

Roll, R. (1994). What Every CFO Should Know About Scientific Progress in Financial Economics: What Is Known and What Remains to be Resolved. *Financial Management , 23* (2), 69-75.

Roth, G., Enwick, B. R., and Anderson, R. (2002). The most important finance skills for entrepreneurs: differing views among finance professionals. *Entrepreneurial Executive , 7*.

Servaes, H., Tamayo, A., and Tufano, P. (2009). The Theory and Practice of Corporate Risk Management. *Journal of Applied Corporate Finance , 21* (4), 60-78.

Stuart, A. (2007, Novemember 1). *The Essential Skills*. Retrieved November 12, 2011, from http://www.cfo.com/article.cfm/10023372

Tinker, T., and Feknous, B. (2001). Developing the Socio-Political Skills of Accounting Students: A Mixed Synchronous and Asynchronous Learning Strategy. *Pacific Accounting Review* , 19-32.

UCAS. (n.d.). *www.ucas.com*. Retrieved 2011, from www.ucas.com.

UKCLE. (2010). *Writing learning objectives using Bloom's taxonomy*. Retrieved November 20, 2011, from Ukcle.ac.uk: http://www.ukcle.ac.uk/resources/personal-development-planning/table/

Vlãsceanu, ,. L., Grünberg, L., and Pârlea, D. (2004). *Quality Assurance and Accreditation: A Glossary of Basic Terms and Definitions.* (1 ed.). UNESCO-CEPES.

Womack, K. L. (2011). *Core finance courses in the top MBA programs in 2001*. Retrieved November 12, 2011, from Financial Management Association: http://fma.org/FMAOnline/Archive/Womack.pdf

Womack, K. L., and Zhang, Y. (2005). *Core Finance Course Trends in the Top MBA in 2005.* Retrieved November 15, 2011, from Social Science Research Network.

Tables and Figures

Table 1 - Key Features of Universities Analysed

University	Post '92	Region	HESA student no(2008-2009)
A	N	London	8,760
B	Y	London	24,280
C	N	Scotland	15,615
D	N	Scotland	24,240
E	N	Northern Ireland	23,160
F	N	Wales	17,745
G	Y	Midlands	24,905
H	Y	Midlands	13,830
I	Y	South East England	5,905
J	Y	London	21,250

Table 2 - Summary of Knowledge Measures

Skill	Action	Examples
K1	Calculate Describe Explain	Calculate Cost of capital Explain/recount/describe/recount Role of financial manager, sources of funds- **(remembering)**
K2	Demonstrate, discuss, interpret	Discuss the effect of changes such as leverage **(understanding)**
K3	Describe with evaluation(action), demonstrate	Applying different appraisal methods **(applying)**
K4	Differentiate, manipulate,analyse	Analyse insights from finance (*theory*) through case studies **(analysing)**
K5	Evaluate(theory), critique	Evaluate capital structure , consequences of mergers on stakeholders **(evaluating)**
K6	Critical reflection with different solutions,	Critical reflection with holistic underpinning and possible solutions, predict. Using research and understanding the limitations of such research , evaluate working capital management Critical independent inquiry (with creativitiy), **(creating)**

Table 3 - Cognitive Skills Utilised In the Learning Outcomes of Universities

Skill/University	A	B	C	D	E	F	G	H	I	J	
K1	3	1	4	12	4	7	1	2	5	2	41
K2		1	3	9		2		1	2	2	20
K3			5	2	6	1		1			15
K4	3	1	1	7	3		4	2	7	1	29
K5	2		1	8	4		1	3	5	1	25
K6		2	3		12		2	3	2	2	25
Grand Total	**8**	**5**	**17**	**38**	**29**	**10**	**8**	**12**	**21**	**8**	**156**

Fig.1 - The Importance of Selected Topics in Learning Outcomes