Knowledge, Skills and Pedagogy Components for Accounting Education Development in Egypt
(A Survey Research)

Dr. Amani Hussein Kamel•

Abstract

Purpose: Nowadays technological advances, economic globalization and developments in financial markets have changed the business environment. The key question is what this new business era expect accountants to know and be able to? The accountant's responsibilities are increasing to include reporting on risks, performance measures, and sustainability. Thus, if accountant will have a value added role he must be equipped with the needed knowledge and skill to meet these challenges. Accounting education should follow the changes in the business and respond to these needs. Moreover, to meet the required knowledge and skills, changes should also be made in the pedagogy componentsthrough innovative teaching methods. Therefore, this research aims at examining knowledge, skills and pedagogy components for accounting education development in Egypt.

Design/ methodology applying a questionnaire survey, to gather the perceptions from a sample of (119 out of 200) accounting practitioners (big accounting firms) and (126 out of 200) final year accounting students about the required knowledge, skills, and pedagogy for accounting education improvement. The questionnaire consisted of closed-ended questions that aimed to measure the importance of a list of 43 items of knowledge, skill, and pedagogy. Moreover, factor analysis is used to reduce the data and capture the needed knowledge, skill and pedagogy items.

Findings: There are significant differences between accounting practitioners and students regarding 21 items of knowledge, skills and pedagogy.

• The British University In Egypt

To examine the appropriateness of the factor analysis, the Kaiser-Meyer-Olikin (KMO) measure is calculated and the Bartlett's test of Sphericity is conducted. The value of the KMO measure is 0.759 and the Bartlett's test of Sphericity (χ^2= 5109.422, p<0.000) which indicate the suitability of factor analysis and the adequacy of the sample. The results of the factor analysis indicate that the first factor is the business/management knowledge including social responsibility and SMEs management. The second factor is finance knowledge however the third factor is the generic skills items, followed by accounting knowledge. The fifth and six factors are economic knowledge and pedagogy items respectively.

Originality/Value The research contribute to literature by providing the most important knowledge, skills, and pedagogy for accounting education improvement for accountantsin Egypt which has received little attention in accounting education literature to date.

Introduction:

Nowadays technological advances, economic globalization and developments in financial markets have changed the business environment. As the Pathways Commission (2012, 10) noted that accounting must develop a comprehensive understanding of its role in society. This effort requires a strategic view of how accountants add value to organization. The key question is what organizations expect accountants to know and be able to do as they move into a variety of organizations and become accounting professionals performing a wide range of functions. The accountant's responsibilities are increasing from financial reporting and analyzing the economic transactions to include reporting on risks, performance measures, and sustainability. Moreover, the Pathways Commission expressed its concern by stating that accounting students often lack the preparations and skills that are necessary for a complex environment of the accounting profession

The body of knowledge required for the accounting profession is dynamic thus accounting education should follow the changes in the business field and provide curriculum that will support the accountant's efforts to respond sufficiently to existing needs (Harry Matlay, Mandilas, Kourtidis, and Petasakis (2014)

International Accounting Education Standards (IAESB),(2015) defined education as a structured and systematic process aimed at developing knowledge, skills, and other capabilities; a process that is typically but not exclusively conducted in academic environments.(IFAC, 2017). AICPA, (2011) indicate that the purpose of accounting education should be to incorporate a range of skills sets with an emphasis on providing students the ability to adapt to the changing environment in the workplace, and deal with challenges that they will face in their professional life.

The current accreditation requirements and educational frameworks of the contemporary accounting profession highlighted the importance of broader education and emphasizing the importance of broad "generic skills".(Boyce, Greer, Blair, & Davids, 2012).
Abayadeera and Watty (2016)define generic skills as those capabilities required by graduate accountants for employability and career advancement. There is a sort of agreement among several studies about the skills required for success in a career in today's business/accounting world, that is, analytical skills, oral and written communication skills, teamwork (Arqueroa, Fernández- Polvillob, Hassallc, &Joyceca ,(2017) ;Abayadeera and Watty (2016);Bunney, Sharplin, and Howitt (2015))

Therefore, the traditional accounting programs should be replaced with more multi-disciplinary courses in general business, management and other social areas. Skills development must also be incorporated into accounting education. To meet the needs for a balanced knowledge and skills, changes should also be made in the pedagogy of accounting programs. Oakland Community College (2008)defined pedagogy as the art and science of how something is taught and how students learn it. Pedagogy includes how teaching occurs, the approach to teaching and learning, the way the content is delivered and what the students learn because of the process.(Oakland Community College (2008)as cited in Ellis (2013))Innovative teaching methods such as case analysis, roleplaying, analysis of information, real company-assignments, and technology assignments must be used to fulfill the objectives of accounting education development. Getting students to actively participate in their education is also crucial to their learning process. Z. J. Lin, Xiong, and Liu (2005)

There is need to capture the main knowledge and skill requirements for today's accounting students. Thus the experience of accounting education developments in the US and other countries Z. J. Lin (2008), Andre and Smith (2014), Korany (2011), The Pathways Commission, (2012) IFAC (2017) has become important and valuable source for the development of accounting education in Egypt. Therefore, this research aims at examining knowledge, skills and pedagogy components for accounting education development in Egypt.

The motive for this research were Firstly, most of the prior research investigated the perceptions of respondents for skills, but seldom for professional knowledge this research covers professional knowledge, skills and pedagogy components .Secondly prior research have largely been conducted in developed countries. This research is investigated in Egypt a developing country. Korany (2011) pointed out that Egyptian higher education quality reform policies have been developed to assure the production of graduates conforming to internationally recognized standards. Implementation of these policies will increase the skills of graduates and enhance their competitive capacity in the national and regional labour market. Therefore, this research is a good step in this direction

2. Literature Review

Pathways Commission (2012, 24) identified a need for a new model of education that is better aligned with the contemporary environment and evolving demands on accounting professionals. Framework includes three interconnected components: (1) Foundational Competencies, (2) Broad Management Competencies, and. Leadership, Ethics and Social Responsibility, Process Management and Improvement, Governance, Risk Management, and Compliance (GRC) and Additional Core Management Competencies (3)Accounting Competencies

Accrediting bodies, such as the Association to Advance Collegiate Schools of Business (AACSB) require ethics to be covered in the curriculum and seek documentation during accreditation

reviews. Ethics education is a lifelong process. An approach that is gaining high acceptance is sustainability accounting, which emphasizes social and environmental issues to develop an understanding of ethics. Accounting educators should refer to developments reported by the Global Reporting Initiative (GRI) if they aim to focuses on sustainability reporting, which encompasses economic, environmental, social, and governance performance. (Apostolou, Dull, and Schleifer (2013)

Z. J. Lin et al. (2005)examined whether there is any significant difference in the perceptions of the knowledge and skills in China to be incorporated in accounting curriculum among various interested groups (i.e., accounting practitioners, educators and students). The survey instrument is adapted from Albrecht and Sacks (2000) study of the future of accounting education in the US. The survey instrument contains a list of knowledge, skill, and pedagogy components and asks respondents to assess their importance (or effectiveness) in relation to the training of accounting students. A scale of 1–5 is used to rate each knowledge, skill, and pedagogy. Since 1indicate not important to 5 indicate very important in respect to the perceived importance to educating future accountants. Regarding the five most important knowledge subjects, faculty respondents ranked finance as the most important knowledge, although finance was ranked as the third and second most important subject by the practitioners and students, respectively. In addition, practitioners and faculty respondents ranked ethics and social responsibility as the fifth most important knowledge subject but it is perceived as only seventh in importance by students. The perceived important knowledge topics are mainly the traditional accounting subjects whereas most of the broader-type knowledge subjects have received relatively lower scores. This result may suggest that the importance of broader knowledge in accounting education is not fully recognized by the respondents. Regarding the pedagogy in accounting education, the three groups of respondents generally shared similar views on the effectiveness of various teaching and learning methods. One main difference is that the practitioners and faculty respondents gave a greater weight to the use of written assignments over role playing. While the student respondents held an opposite view. Analytical and critical thinking, written communication, oral communication, and decision-making skills are recognized in the US studies as the four most important skills,

whereas the Chinese respondents gave these skills relatively lower ratings (Lin et al, 2005)

Based on the survey conducted by Albrecht and Sack (2000), with minor modifications, such as excluding the items relating to pedagogy a result of 37 items are identified as the variables for factor analysis. Lin, (2008) study in China used a survey instrument, designed with a 5-point Likert scale ('1' represents 'not important' and '5' of 'very important'), in respect of the perceived significance of each knowledge and skill .The study applied factor analysis and result in six latent constructs. The results factors were business/management knowledge, core accounting knowledge, personal characteristics, general knowledge, and basic techniques. In the view of the respondents, the business/management knowledge is even more important than the traditional core accounting knowledge in accounting education.(Z. J. Lin, 2008)

Wally-Dima (2011) using a questionnaires focused on the relevance of the accounting program of the University of Botswana toward the development of required skills in the accounting profession. The sample was consisted of the total number of targeted lecturers was 18 and a total of 60 accounting practitioners. The response rate was 71%. According to the accounting practitioners the responses are presented in order of importance as follows: 1. IFRS 2. Accounting for Small, Medium and Micro-Enterprises (SMMEs) 3. Public finance 4. Money and banking. Both group of respondents emphasize ethics, social and moral responsibility to be important attributes of an accountant .Moreover, the results related to pedagogy items indicate that out-of-classroom activities and learning approaches are important and should be incorporated into the University of Botswana's program such as ;1. Internship program in local companies 2. Case study approaches 3. Seminar presentation by students 4. Seminar presentation by guest lecturer. (Wally-Dima, 2011)

Using a questionnaire survey to answer if there is appropriateness of the skills and the curriculum that provided by the Accounting and Finance Department and the needs of the employers.

All three categories (students, lecturers/professors, and employers) believe that advanced and accounting courses are very important for their performance and progress, while, on the other hand, they claim that general and financial courses are of only moderate importance. They agree that departments have to focus on skills and knowledge, and mainly on the following: oral communication skills, written communication skills and ability to think critically. (Harry Matlay et al., 2014)

De Lange, Jackling, and Gut (2006)surveyed 310 graduates from two universities in Victoria (Australia) to determine their views on the skills required of accountants, and found that there should be greater emphasis on communication skills. For the programme reviewed communication skills when sub-sectioned into written and oral communication produced different results with students perceiving written communication skills as being developed more than oral communication skills Most research on methods for improving students' communication skills emphasizes oral or written communication practice.

A study in Australia done by Kavanagh and Drennan (2008)a total 322students from three Australian universities and 28 practitioners working in various organizations across the country were surveyed. Researchers discovered that there were considerable differences between the two groups in importance of the skill sets that students need.However, there is some agreement between students and employers in terms of the skills required for success in a career in today's business accounting world, that is, analytical skills, oral and written communication skills, and teamwork.

A total of 200 students were approached, but only 50 students agreed to participate in the study in Bahrain. Questionnaires were hand-delivered to the participants during the month of March, 2012.The results indicated based on order of importance were oral communication, strong work ethics and values, critical thinking, and written communication(Sarea & Alrawahi, 2014)

In addition, other study with a total response received from 357 students (16 per cent) concerning the required skills for

accounting profession including Interpersonal skills, oral communication skills, written communication skills, information technology (IT)/computing skills, analysis and critical evaluation skills, problem-solving skills, team working skills, statistical skills, practical research skills, career planning and interview skills, time management and organizational skills and self-reflection skills. Skills were analyzed by comparing perceived importance of skills by student and mean level of perceived skills development within the programmer .Analysis and critical evaluation were most strongly perceived as being important skills for accountants Particular skills that students perceive are important but which are not well developed within the programmer were those of team working and oral communication(Towers-Clark, 2015)

Oral and written communication skills have always been on the list of essential skills in the studies. In contrast, professional accountants must work with all types of clients and colleagues under various conditions, thus making communications less structured or predictable. Krishnan & Grace, (2013) surveyed accounting students and professionals on the importance of communication skills. A random sample of 500 individuals to survey; 218 usable surveys from students and 196 from professionals. The collected data were on the following items: (1) perception of the importance of communication skills to career success, (2) perceived levels of communication skills, and (3)measures of communication skills. Professionals consider all three communication skills more important for career success than students do.(P. Lin, Krishnan, & Grace, 2013)

Young and Warren (2011)pointed out that there are two classifications for teaching orientation: knowledge transmission and learning facilitation. In a knowledge transmission orientation, teachers tend to think that the discipline subject matter is the primary learning objective of the course, and the knowledge should be clearly presented or conveyed to students. In a learning facilitation orientation, teachers tend to emphasize problem-solving skills, critical thinking, and independent learning. In this orientation, the students participate in the acquisition of knowledge

IFAC member bodies, educators, and other stakeholders may consider using participative approaches that can enhance the development of professional values, ethics, and attitudes. These may include but would not be restricted to: role playing; discussion of selected readings and online materials; analysis of case studies that involve business situations involving ethical dilemmas; use of online forums and discussion boards and participative approaches. (IFAC**,** 2017)

The traditional lecture and tutorial teaching model which has long characterized accounting education is ill-suited to this purpose and academics will require professional development opportunities to promote the adoption of new teaching strategies.(Bunney et al., 2015)however, the modern accounting educator should use a pedagogical approach of interactive nature It can use lectures as the primary medium of instruction. Lecturer transferring theoretical information to the students via PowerPoint presentations nature and students are given the opportunity to work by themselves or in peer groups, and to actively participate in the session.(Coetzee & Schmulian, 2012)

Educators should adapt a creative learning process that does not depend on memorization and extensive use of textbooks. It should be based on team work, assign students to real companies, case studies, oral presentation, team teaching, involving business professionals in the class rooms, and use of technology and accounting packages. Educators should teach more of what accountant should do in the future, i.e., emphasize on analyzing the data not recording it. Educators should emphasize the use of technology and how it had changed the work of an accountant. Emphasize on case studies to simulate the real life problem environment and develop skills and approaches to solve business problems. The internship program should not be treated as a mere training program but as an opportunity to contribute towards the business by working on the real problems facing a business(Mohamed & Lashine, 2003)

Abayadeera and Watty (2016)emphasized the need to adopt various pedagogies that enhance skills, other than traditional lectures. These include practical and classroom-tested assignments; case studies; the challenge problem approach; and practical experience. While case

studies, practical assignments and complex problems provide opportunities for students to apply knowledge acquired in previous subject-based courses, practical experience provides students the opportunity to gain firsthand experience. Weaver and Kulesze (2013) clarified that case studies are active learning exercises that can be used to relate theories while supporting the development of key skills such as communication, and working in groups. A formal presentation of the analysis and conclusions can also be included. The use of traditional case studies, fosters teamwork, and stimulates creative discussion among participant.
Case studies are analogous to actual experience. An accounting ethics should be understood as a practical study where students find what they need to learn, learn it and use what they learn to guide their actions.(Ellis, 2013)

There are some Information Technology and Communication Tools (ICT) those will change teaching and learning as well as changing the responsibilities of accounting teachers and their students; among these tools are: internet, videoconferencing, databases, computer information systems, networking, and teleconferencing. These tools as well as themost recent technological innovations in teaching and learning activities.(Elsaadani, 2015)Since most students perceive accounting as a complex skill, they should be active participants in the learning process and learn through doing and working in groups, with technology used when possible ((Duff & McKinstry, 2007) as cited in (Phillips & Graeff, 2014))

Up to the researcher best knowledge there is no research in Egypt cover the three component knowledge, skills and pedagogy items. Therefore this research will examine these items using the most required and recommended by accounting bodies and prior researches.

3. Methodology

3.1 Research approach

To achieve the objectives of the research factor analysis method is used to generate simpler and more explicitly defined constructs to classify the needed knowledge, skill and pedagogy components of accounting education as generally acknowledged by accounting practitioners and students. Factor analysis is "particularly suitable for analyzing the patterns of complex, multidimensional relationships research issue"(Hair, Anderson, Tathan, & Black. C. (1995)and to examine the relationships for a large number of variables and to determine whether or not the information can be summarized in a small set of factors or components" (Hair, et al. 1995, p.365). Applying factor analyses can capture the interrelationship of the needed knowledge and skill components.

3.2Data collection

Based on prior researches and IFAC integrated framework with some modification of the items list to be consistent with courses taught at Egyptian private universities a structured questionnaire was designed. A pre-testing are done to improve the items list to be included in the questionnaire. The questionnaire is subsequently revised based on feedback from lecturers and accounting professionals. To increase the response rate, mainly structured closed questions were used in addition to only one open question asking for any suggestion for courses or skills that may add value to accounting education. As a result a total of 43 items are identified as variables for the factor analysis; 30 items cover different accounting and non-accounting knowledge courses; 4 items skill items and 9 pedagogy items.

The questionnaire aimed to measure the importance of each knowledge, skill and pedagogy component for accounting education designed with a 5-point Likert scale from 1 to 5, where 1 referred to the lowest score of importance and 5 referred to the highest score of importance.

Two group of respondents are selected to answer the questionnaires; the first group are that professional accounting who are the best judges because, they are the ones who apply these knowledge and skills in their profession. The majority of the professional 85% were from Big auditing firms (i.e. PricewaterhouseCoopers (PwC), Deloitte Touche

Tohmatsu, and Ernst & Young, and Grant Thornton) and15% from other firms such as Arab Accounting Firm were contacted by telephone, email and personal visits. A total of (119 usable out of 200) the actual complete questionnaires returned. The second group ; are last year accounting students studying in 6 private Egyptian universities(BUE, GUC, AUC, MIU MUST and MSA) questionnaires. A total of 126 usable out of 200 were collected from students. Incomplete questionnaires with missing answers were eliminated. The questionnaires for the two group are same except a question concerning practitioners' level of experience and another for students asking for their Grade Point Average (GPA)
The research aim at measuring the importance of a list of 43 items of knowledge, skill, and pedagogy. This is fulfilled through answering the following research questions

Q1: Is there any difference in importance of knowledge, skills, and pedagogy components between Egyptian professional accounting and students?

Q2: What are the most important knowledge, skills, and pedagogy items?

4. Data Analysis and Results

The research start by exploring the opinions of professionals and students on the importance of each component through some descriptive statistics. Then, a comparison will be conducted between the opinions of professionals and students using independent samples t-tests to examine whether they perceive the importance of components in different ways. To build a well-defined set of constructs that determine the components needed in accounting education, factor analysis is implemented. This analysis technique can study the interrelationships and summarize a large group of variables into a smaller set of factors. Therefore, using factor analysis can help identify and rank the important components needed in accounting education.

Table (1) Description of the Sample

Professionals Total Number of Respondents: 119	**Work Experience (number and percentage)**				
	Less than a year	1-10 years	11-20 years	more than 20 years	
	8 7.0%	79 68.7%	24 20.9%	4 3.5%	
Students Total Number of Respondents: 126	**Average Grade (number and percentage)**				
	less than average	average	good	very good	excellent
	1 0.8%	3 2.4%	17 13.5%	69 54.8%	27 21.4%

Table (1) give a brief idea about research sample it reveal that the majority 68.7% of the (119) accounting professional have level of experience range from 1-10 years and that the majority 54.8 % of the accounting students (126) were with GPA very good. This could be interpreted as the questionnaire were collected close to the end of the semester with a majority of good students who attend, moreover some of the questionnaire were distributed and collected during an accounting competition which include almost all very good students.

Table (2) Descriptive Statistics of the entire sample

Knowledge Items	N	Mean	Std. Deviation
Financial Accounting	245	4.294	0.9811
Management Accounting	245	4.098	0.991
Auditing & Assurance services	244	4.09	1.1222
Advanced Accounting /Consolidated financial statements	244	4.029	1.024
Risk analysis	242	3.983	1.0505
Financial Statement Analysis	243	3.979	1.0303
Investment	245	3.853	1.1064
Money & Banking	245	3.759	1.1322
International Accounting	243	3.745	1.0683
Advanced Finance	243	3.741	1.1294
Fundamental of Finance	243	3.737	1.0585
Taxation	242	3.616	1.1653
Accounting Information system with computer application	244	3.598	1.1805
Mathematics of finance	245	3.592	1.1544

Knowledge Items	N	Mean	Std. Deviation
Forensics Accounting (detects and investigates fraud)	243	3.543	1.0801
Mathematics	245	3.441	1.1387
Ethic & Social responsibility	245	3.441	1.2778
Macroeconomic	244	3.41	1.2222
International business	243	3.383	1.1843
Microeconomic	244	3.377	1.157
Total quality management	243	3.362	1.2028
Business strategy	243	3.3	1.1374
Entrepreneurship & SMEs Management	242	3.293	1.202
Accounting for government & non for profit organization	244	3.238	1.1407
E- Commerce	245	3.204	1.2574
Business statistic	245	3.176	1.2036
Marketing	243	3.169	1.2266
Management Information systems	245	3.147	1.2293
Methodology of Scientific research	244	3.037	1.2351
Business Law	244	3.029	1.1346
Skills Items			
Oral Communication skills	244	4.23	0.9366
Teamwork ability	244	4.156	0.9688
Ability to think critically	244	4.148	1.0238
Written Communication skills	245	4.135	0.9678
Pedagogy Items			
Real company assignment	245	4.478	0.8126
Participation & discussion	243	4.325	0.8656
Case analysis	244	4.053	1.0702
Tutorial	244	3.963	1.17
Project /group work	244	3.885	1.0749
Power point Presentation	241	3.88	1.1059
Written assignment	244	3.836	1.0876
Lecture	245	3.812	1.1476
Using Internet tools (videos, audio,)	245	3.784	1.108

Table (2) represent descriptive statistics of the entire sample; the mean and standard deviation for each knowledge, skill and pedagogy items as listed in the table based on their rank order. The table revealed accounting knowledge have the highest rank followed by the finance knowledge. With regard to skills all items are ranked high however oral Communication skills is the highest. The last section pedagogy

items real company assignment and participation and discussion have the highest mean.

A comparison is conducted between the opinions of professionals and students using independent samples t-tests to examine whether they perceive the importance of components in different ways

Table (3) Testing difference in mean scores between the professionals and the students

	Professional		Student	
	Mean	Std. Deviation	Mean	Std. Deviation
Knowledge Items				
Financial Accounting***	4.084	1.1243	4.492	.7771
Management Accounting***	3.697	.9962	4.476	.8267
Auditing & Assurance services***	3.839	1.2052	4.325	.9865
Advanced Accounting /Consolidated financial statements	3.941	.9854	4.112	1.0566
Forensics Accounting (detects and investigates fraud)*	3.412	1.1819	3.669	.9604
Taxation	3.521	1.1265	3.704	1.1983
International Accounting	3.672	1.0744	3.815	1.0620
Financial Statement Analysis	3.992	1.0418	3.968	1.0234
Accounting Information system with computer application	3.681	1.0887	3.520	1.2611
Accounting for government & non for profit organization	3.168	1.2909	3.304	.9774
Mathematics of finance***	3.269	1.1911	3.897	1.0341
Fundamental of Finance***	3.530	1.0873	3.929	.9974
Advanced Finance***	3.403	1.1521	4.065	1.0100
Investment***	3.471	1.1919	4.214	.8819
Money & Banking**	3.588	1.1747	3.921	1.0704
Risk analysis	3.898	1.1427	4.065	.9520
Microeconomic***	3.008	1.1209	3.722	1.0855
Macroeconomic***	3.067	1.2263	3.736	1.1298
Marketing***	2.932	1.2925	3.392	1.1209
Mathematics***	3.084	1.1831	3.778	.9870
Business Law	3.017	1.0620	3.040	1.2027
Business statistic**	2.975	1.0772	3.365	1.2875
Methodology of Scientific research**	2.840	1.2072	3.224	1.2370
Entrepreneurship & SMEs Management***	3.068	1.2035	3.508	1.1652
Business strategy	3.203	1.2304	3.392	1.0387

	Professional		Student	
	Mean	Std. Deviation	Mean	Std. Deviation
Management Information systems	3.210	1.2479	3.087	1.2134
E- Commerce	3.235	1.3000	3.175	1.2204
Ethic & Social responsibility	3.454	1.2871	3.429	1.2739
Total quality management*	3.508	1.1528	3.224	1.2370
International business***	3.613	1.1869	3.161	1.1433
Skills Items				
Oral Communication skills***	4.000	.9784	4.444	.8443
Written Communication skills***	3.840	1.0969	4.413	.7296
Ability to think critically***	3.916	1.0781	4.368	.9205
Teamwork ability***	3.975	.9954	4.328	.9138
Pedagogy Items				
Lecture***	3.244	1.1044	4.349	.9061
Tutorial***	3.373	1.2251	4.516	.7872
Using Internet tools (videos, audio,)**	3.639	1.1984	3.921	1.0008
Case analysis**	3.899	1.1379	4.200	.9837
Project /group work	3.832	1.1148	3.936	1.0376
Power point Presentation***	3.655	1.1429	4.088	1.0319
Participation & discussion**	4.185	.9203	4.460	.7902
Written assignment***	4.025	1.0123	3.656	1.1295
Real company assignment	4.521	.8009	4.437	.8246

***** Difference is significant at 1%, ** difference is significant at 5%, * difference is significant at 10%**

Table (3) indicated significant variations at 1% exist in the perceived importance scores between the two groups of respondents related to 13 knowledge items; 3 accounting courses namely financial accounting, management accounting and auditing; 4 finance courses; 2 economic courses and 3 general courses. Moreover, the table represent a significant variations regarding all skills items. In addition to significant differences in opinions concerning some of pedagogy items such as lectures, tutorials, power point presentation and written assignment

The first step needed before conducting the factor analysis is exploring the correlations between the study variables. The following table illustrates the existence of significant correlations to a certain limit between the study variables which implies the suitability of applying factor analysis.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
1	Financial Accounting	1.00																																										
2	Management Accounting	.63**	1.00																																									
3	Auditing & Assurance services	.54**	.43**	1.00																																								
4	Advanced Accounting /Consolidated financial statements	.45**	.35**	.43**	1.00																																							
5	Forensics Accounting (detects and investigates fraud)	.33**	.30**	.47**	.28**	1.00																																						
6	Taxation	.24**	.27**	.35**	.15*	.35**	1.00																																					
7	International Accounting	.33**	.35**	.23**	.32**	.36**	.33**	1.00																																			
8	Financial Statement Analysis Accounting	.38**	.25**	.33**	.45**	.32**	.26**	.27**	1.00																																			
9	Information system with computer application	.07	.16*	.10	.20**	.11	.31**	.33**	.25**	1.00																																		
10	Accounting for government & non for profit organization	.09	.22**	.18**	.20**	.31**	.26**	.38**	.09	.34**	1.00																																	
11	Mathematics of finance	.21**	.34**	.28**	.21**	.37**	.26**	.36**	.16*	.20**	.38**	1.00																																
12	Fundamental of Finance	.32**	.42**	.21**	.18**	.28**	.30**	.35**	.20**	.27**	.35**	.68**	1.00																															
13	Advanced Finance	.24**	.35**	.25**	.21**	.34**	.32**	.41**	.17*	.25**	.38**	.59**	.63**	1.00																														
14	Investment	.29**	.34**	.29**	.15*	.40**	.29**	.39**	.19**	.06	.23**	.53**	.55**	.63**	1.00																													
15	Money & Banking	.14*	.16*	.14*	.10	.33**	.27**	.29**	.11	.22**	.28**	.35**	.31**	.36**	.56**	1.00																												
16	Risk analysis	.08	.07	.10	-.02	.38**	.31**	.20**	.21**	.12	.17**	.29**	.29**	.31**	.47**	.57**	1.00																											
17	Microeconomic	.08	.25**	.12	-.05	.10	.13	.08	.02	.09	.05	.35**	.21**	.33**	.38**	.35**	.20**	1.00																										
18	Macroeconomic	.10	.25**	.11	-.04	.14*	.10	.10	.05	.08	.03	.33**	.20**	.30**	.38**	.30**	.23**	.91**	1.00																									
19	Marketing	.01	.25**	.10	-.02	.08	.17**	.17**	.08	.12	.13*	.20**	.14*	.18**	.22**	.20**	.22**	.46**	.52**	1.00																								
20	Mathematics	.08	.19**	.15*	-.06	.03	.17**	.05	-.04	.04	.00	.37**	.26**	.27**	.31**	.18**	.04	.43**	.44**	.47**	1.00																							
21	Business Law	.00	-.05	.10	-.01	.11	.27**	.06	-.03	.06	.08	.08	.12	.16*	.21**	.19**	.12	.33**	.33**	.32**	.45**	1.00																					
22	Business statistic	.01	.10	-.06	-.07	.03	.06	.07	-.13*	.05	.02	.25**	.23**	.31**	.25**	.13*	.10	.42**	.41**	.30**	.42**	.37**	1.00																			
23	Methodology of Scientific research	.04	.17**	.11	.01	.11	.20**	.14*	.02	.20**	.23**	.14*	.09	.14*	.11	.18**	.16*	.41**	.39**	.43**	.35**	.27**	.42**	1.00																		
24	Entrepreneurship & SMEs Management	.11	.30**	.21**	.06	.21**	.23**	.14*	.08	.17**	.18**	.26**	.23**	.18**	.15*	.07	.19**	.26**	.30**	.49**	.39**	.34**	.31**	.56**	1.00																	
25	Business strategy	.01	.16*	.09	-.07	.20**	.13	.14*	.03	.08	.09	.12	.12	.17**	.19**	.16*	.12	.30**	.35**	.36**	.32**	.39**	.33**	.40**	.63**	1.00																
26	Management Information systems	-.05	.09	.09	-.01	.10	.16*	.18**	-.04	.29**	.13*	.17**	.24**	.19**	.11	.18**	.07	.23**	.25**	.40**	.33**	.41**	.38**	.39**	.51**	.64**	1.00															

27	E- Commerce	-.03	.04	.19**	-.04	.26**	.18**	.18**	.13*	.14*	.26**	.19**	.19**	.10	.19**	.21**	.25**	.32**	.34**	.50**	.18**	.35**	.22**	.38**	.45**	.47**	.56**	1.00																
28	Ethic & Social responsibility	-.01	.10	.04	-.06	.14*	.28**	.18**	.00	.22**	.02	.14*	.17**	.11	.19**	.21**	.22**	.36**	.37**	.39**	.23**	.33**	.22**	.42**	.32**	.41**	.48**	.49**	1.00															
29	Total quality management	-.05	-.01	.05	-.08	.21**	.19**	.14*	.10	.11	.10	.13*	.16*	.12	.18**	.18**	.26**	.21**	.26**	.35**	.27**	.33**	.21**	.32**	.31**	.44**	.42**	.54**	.60**	1.00														
30	International business	-.11	.07	.00	-.09	.11	.26**	.16*	.02	.19**	.16*	.03	.13	.08	.03	.09	.14*	.12	.17**	.28**	.14*	.26**	.08	.28**	.29**	.37**	.46**	.43**	.46**	.66**	1.00													
31	Oral Communication skills	.38**	.29**	.22**	.16*	-.01	.08	.01	.17*	.02	-.04	.04	.11	.02	.06	-.06	.07	.02	.00	.15*	.15*	-.10	-.02	.01	.15*	-.08	-.05	-.01	.03	-.03	-.13*	1.00												
32	Written Communication skills	.39**	.26**	.20**	.19**	.00	.00	-.02	.09	-.07	-.05	.09	.21**	.15*	.19**	-.01	.01	.09	.05	.06	.22**	-.03	.01	-.01	.09	-.03	-.06	-.05	-.03	-.01	-.12	.74**	1.00											
33	Ability to think critically	.35**	.29**	.19**	.16*	.07	.07	.03	.19**	.09	-.08	.04	.16*	.12	.11	-.12	.01	.15*	.14*	.07	.09	-.04	.07	.09	.19**	.11	.02	-.01	.13*	.07	.00	.61**	.65**	1.00										
34	Teamwork ability	.23**	.13*	.09	.16*	.01	.02	-.07	.17**	.06	-.06	-.08	-.02	-.07	.01	-.05	.03	.02	.01	.12	.10	.02	-.07	.07	.18**	.08	-.01	-.03	.00	-.02	-.06	.50**	.48**	.43**	1.00									
35	Lecture	.18**	.32**	.04	.10	.10	.22**	.07	.06	.00	.11	.19**	.12	.18**	.21**	.15*	.12	.26**	.24**	.18**	.22**	.05	.18**	.27**	.20**	.08	.07	.04	.13*	.01	.02	.32**	.26**	.25**	.22**	1.00								
36	Tutorial	.27**	.33**	.14*	.28**	.08	.13*	.11	.13*	.04	.09	.14*	.13*	.22**	.24**	.14*	.13*	.21**	.24**	.21**	.27**	.05	.23**	.27**	.25**	.13*	.08	.07	.09	.01	-.01	.39**	.40**	.30**	.30**	.75**	1.00							
37	Using Internet tools (videos, audio,)	.18**	.09	.13*	.03	.17**	.20**	.14*	.18**	.03	.09	.03	.13*	.06	.20**	.15*	.29**	.04	.07	.07	.04	.05	.06	.10	.22**	.19**	.19**	.21**	.07	.15*	.05	.20**	.21**	.13*	.26**	.29**	.42**	1.00						
38	Case analysis	.32**	.12	.17**	.16*	.03	.11	.09	.21**	-.04	-.01	-.01	.06	.03	.01	.01	.09	.00	.01	-.02	-.05	.04	-.10	-.09	.16*	.04	.04	.07	-.09	.07	-.09	.35**	.35**	.26**	.35**	.24**	.33**	.57**	1.00					
39	Project /group work	.22**	.19**	.10	.15*	.19**	.13*	.11	.18**	.07	.09	.12	.10	.13*	.02	-.02	.03	.02	.03	.02	-.05	-.04	-.08	.01	.18**	.07	.11	.05	.00	.03	-.05	.29**	.22**	.26**	.34**	.21**	.24**	.48**	.55**	1.00				
40	Power point Presentation	.11	.25**	-.07	.02	.07	.03	.14*	.10	.10	.04	.19**	.17**	.17**	.09	.04	.10	.17**	.15*	.16*	.06	-.04	.17**	.08	.06	.09	.09	.01	.04	.08	.06	.19**	.16*	.24**	.15*	.30**	.25**	.23**	.25**	.49**	1.00			
41	Participation & discussion	.17**	.15*	.05	.01	.13*	.08	.05	.10	-.04	.03	.10	.10	.09	.13*	.12	.18**	.11	.11	.08	.01	-.03	-.03	.00	.06	.05	.04	.09	.10	.14*	.09	.22**	.17**	.10	.17**	.23**	.20**	.36**	.31**	.31**	.37**	1.00		
42	Written assignment	-.06	-.08	-.12	-.01	.15*	.12	.12	.07	.13*	.09	-.07	-.03	-.02	.02	.17**	.15*	-.01	-.01	-.09	-.09	.18**	-.01	.06	-.01	.09	.10	.17**	.12	.21**	.24**	-.12	-.05	-.14*	.08	.04	.09	.28**	.14*	.12	.16*	.41**	1.00	
43	Real company assignment	.13*	.12	.02	-.03	.12	.13*	.15*	.09	.12	.05	.03	.05	.05	.07	.10	.16*	.04	.05	.00	-.07	-.08	-.02	.11	.13*	.17**	.10	.12	.21**	.27**	.21**	.16*	.13*	.21**	.12	.14*	.21**	.23**	.25**	.15*	.19**	.45**	.43**	1.00

**. Correlation is significant at the 0.01 level (2-tailed).

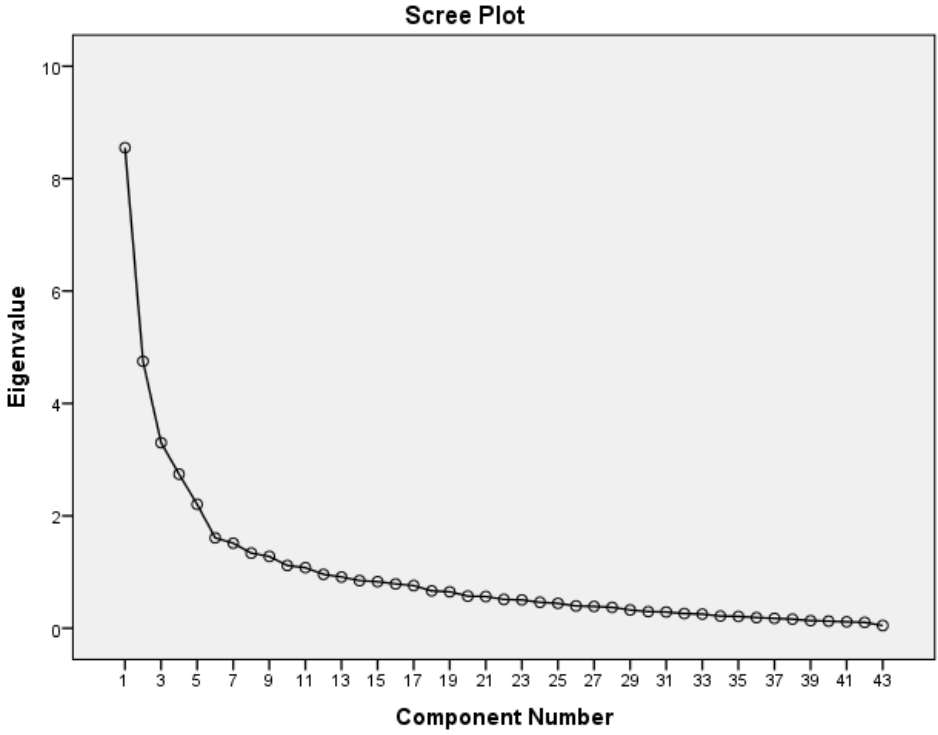
*. Correlation is significant at the 0.05 level (2-tailed).

Furthermore, to examine the appropriateness of the factor analysis, the Kaiser-Meyer-Olikin (KMO) measure is calculated and the Bartlett's test of Sphericity is conducted. The value of the KMO measure is 0.759 and the Bartlett's test of Sphericity (χ^2= 5109.422, p<0.000) indicate the suitability of factor analysis and the adequacy of the sample. The KMO measure, which is greater than 0.7, also shows that the factor analysis will explain a good amount of variance.

Table (5) KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.759**
Bartlett's Test of Sphericity	**Approx. Chi-Square**	**5109.422**
	df	**903**
	Sig.	**.000**

The Principal Component Analysis (PCA) method and the varimax method for rotation are used to extract factors. These approaches are widely used in the literature to conduct the factor analysis. The following figure shows the extraction of 11 factors.



The following table shows more explicit factor loadings and factor rotation results are presented in the table (6)

Table (6) Rotated Component Matrix[a]

variables	Factors										
	1	2	3	4	5	6	7	8	9	10	11
Total quality management	**.753**										
International business	**.730**										
Management Information systems	**.712**										
E- Commerce	**.695**										
Ethic & Social responsibility	**.691**										
Business strategy	**.679**										
Entrepreneurship & SMEs Management	**.673**										
Methodology of Scientific research	**.550**										
Marketing	**.519**										
Fundamental of Finance		**.827**									
Mathematics of finance		**.775**									
Advanced Finance		**.775**									
Investment		**.649**									
Oral Communication skills			**.848**								
Written Communication skills			**.849**								
Ability to think critically			**.786**								
Teamwork ability			**.654**								
Auditing & Assurance services				**.803**							
Financial Accounting				**.701**							
Advanced Accounting /Consolidated financial statements				**.600**							
Forensics Accounting (detects and investigates fraud)				**.571**							
Financial Statement Analysis				**.530**							
Management Accounting				**.529**							
Macroeconomic					**.870**						
Microeconomic					**.862**						
Project /group work						**.836**					
Using Internet tools (videos, audio,)						**.677**					
Case analysis						**.673**					

Power point Presentation						.549					
Lecture							.851				
Tutorial							.791				
Written assignment								.776			
Real company assignment								.775			
Participation & discussion								.606			
Risk analysis									.749		
Money & Banking									.609		
Accounting Information system with computer application										.755	
Business Law											.632
Eigenvalues (rotation sum)	**4.993**	**3.785**	**3.207**	**2.975**	**2.769**	**2.504**	**2.110**	**1.987**	**1.909**	**1.641**	**1.597**
% of variance explained	**11.612**	**8.803**	**7.457**	**6.918**	**6.439**	**5.823**	**4.907**	**4.620**	**4.440**	**3.817**	**3.713**

Sample size: n=245

Table (7) values of Cronbach'sAlpha for factors.

No. of Factors	Cronbach's Alpha	number of items
Factor 1	**0.877**	**9**
Factor 2	**0.858**	**4**
Factor 3	**0.837**	**4**
Factor 4	**0.797**	**6**
Factor 5	**0.954**	**2**
Factor 6	**0.755**	**4**
Factor 7	**0.854**	**2**
Factor 8	**0.686**	**3**
Factor 9	**0.724**	**2**

Table (7) represent the values of Cronbach's Alpha which are all about 0.7 or more which indicates internal consistency and reliability of all factors.

Based on the above tables and results the factors can be classified and renamed as follows ; the first factor include courses with business/ management knowledge, the second factor include finance knowledge; the third factor related to professional skills,

fourth is related to accounting knowledge; fifth economic knowledge ; six related to advanced teaching methods , seven traditional teaching methods, eighth is the other non-traditional teaching methods. The first factor is the business/management knowledge including nine important courses such as total quality management, international business, ethics &social responsibility, SMEs management, e-commerce which are consistent with the requirement of accounting bodies that emphasized on board business knowledge to satisfy the current business needs. This results is supported by different studies and profession accounting bodies Moreover, this results support prior study(Z. J. Lin, 2008), done in China that the business/management knowledge is even more important than the traditional core accounting knowledge in accounting education. However, another study (Z. J. Lin et al., 2005)indicated that respondents perceived the traditional accounting courses as important knowledge topics than the broader type knowledge courses.

The third important factor is related to the profession required skills which are supported by different prior researches De Lange et al. (2006); Kavanagh and Drennan (2008);(Sarea & Alrawahi, 2014);Towers-Clark, (2015);(P. Lin et al., 2013)

Factor six is concerned with pedagogy items that enhance active learning and team work skills including project or group work, using internet tools, case analysis and power point presentation this is consistent with prior studies ((Ellis, 2013);Weaver and Kulesze (2013) ; Abayadeera and Watty (2016) ;Elsaadani,(2015)and support Duff &McKinstry, (2007) point of view that most students perceive accounting as a complex skill, they should be active participants in the learning process and learn through doing and working in groups, with technology leveraged when possible

Table (8) Component transformation matrix for the extracted factors

Component	1	2	3	4	5	6	7	8	9	10	11
1	.579	.484	.185	.276	.365	.175	.262	.117	.183	.138	.147
2	-.464	-.011	.596	.384	-.158	.411	.213	.146	-.053	.005	-.137
3	.363	**-.560**	.357	-.415	.181	.238	.145	.134	-.183	-.274	.135
4	.327	-.206	-.262	.127	-.487	.354	-.229	.489	.206	.207	-.163
5	.353	-.317	.186	**.506**	-.211	-.226	-.139	-.443	-.338	.228	.072
6	.010	.213	-.210	-.240	.014	.271	.202	.008	**-.727**	.399	-.225
7	.122	.084	.420	-.154	.085	-.497	-.212	.307	-.016	.147	**-.603**
8	.077	.378	.274	-.228	-.120	.345	**-.699**	-.258	-.072	-.145	.096
9	.081	.176	.260	-.413	**-.608**	-.169	.378	-.162	.211	.252	.221
10	-.095	-.279	.033	-.165	.327	.268	-.069	-.384	.424	.574	-.210
11	-.221	-.069	.126	-.025	.169	-.169	-.269	.419	-.120	.465	.628

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table (8) show some correlations exist among the factors that have been extracted such as the correlation betweenfactor 2 and factor 3; factor 4 and factor 5.

5. Discussion and Conclusion

The research contribute to literature by providing the most important knowledge, skills, and pedagogy for accounting education improvement for accountants in Egypt which has received little attention in accounting education literature to date.

The research aims at examining knowledge, skills and pedagogy components for accounting education development in Egypt through asking the two questions Q1: Is there any difference in importance of knowledge, skills, and pedagogy components between

Egyptian accounting practitioners and students?Q2: what are the most important knowledge, skills, and pedagogy items?

The research sample contain two groups accounting professional 119 from majority from Big audit firms and the second group were 126 accounting students from 6 private universities The results indicate significant differences between accounting practitioners and students regarding 21 items of knowledge, skills and pedagogy.

The sample tests indicated suitability for factor analysis. The results of the factor analysis indicate that the first factor is the business/management knowledge including social responsibility and SMEs management. The second factor is finance knowledge however the third factor is the generic skills items, followed by accounting knowledge. The fifth and six factors are economic knowledge and pedagogy items respectively.

The first factor is the business/management knowledge including nine important courses such as total quality management, international business, ethics & social responsibility, SMEs management, e-commerce which is consistent the requirement of accounting bodies and could satisfy some of needs of dynamic business environment. Moreover, the results highlighted the great importance of the accounting professional required skills which are supported and consistent with several prior researches done in other countries namely oral, written communication, ability to think critically and teamwork ability skills. The most important factor related to pedagogy items are related to active learning methods which can enhancing accounting knowledge and skills.

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