Developing Accounting Information System Course Content for Iraqi Higher Education Institution: An Instrument Design

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Abstract

In ensuring that competent graduates are produced in the universities, the course used embedding knowledge in the students, mindsets needs to be effective. However, the unusual circumstances that happened in Iraq were affected on a universities course. The revolution in information technology (IT) affects most of our activations. As a result, it is important to consider the impact of IT on accounting careers. Developing accenting information system course content can generate an accountant who is armed with the knowledge and skills before entering accounting job. Also the development process required instructors have characteristics that make the integrating process of IT knowledge components in AIS course content more smoothly. Iraq is the country facing many difficulties that makes its higher education institutions (HEIs) suffered from un updated learning environment and technological backwardness. This causes a low level of accounting graduates' knowledge and in turn leads to led to consider the Iraqi accountant incapable of working with international organizations and companies or conducting was it professionally. The aim of this paper is to explain the role of IT knowledge elements in developing AIS course content in Iraqi HEIs with considering the moderate effect of the instructors' characteristics. Furthermore, this paper discusses the development and validation of the quantitative instrument (questionnaire) for IT knowledge elements in Iraqi HEIs. Moreover, the reliability of the constructs is also discussed.

Keywords: *course content, AIS, development, questionnaire, and Iraqi HEIs.*

1- Introduction

In guaranteeing that competent graduates are produced in the universities, the courses used in inserting knowledge in the students' mindsets need to be effective. It is important to consider developing relevant and reliable educational courses, including AIS course.

The wars in Iraq have affected all sectors including education. In this case the wars not only lead to poor state of IT usage but also IT and course development (Al-Sakaa, Al-Hamadany, & Al-Taay, 2007). For any professional course, like accounting, there is a need to be equipped with professional skills/knowledge and IT related knowledge (Pathak, 2004; Lee & Fang, 2008). In other words, there is a need for an affirmative action to improve AIS course content in the Iraqi HEIs. A report prepared by the Swedish National Agency for Higher Education (2003) mentioned that there are many difficulties that facing the Iraqi education in meeting the global 21st century educational challenges because of the poor technological facilities that can support IT-driven educational plan. Al-Sakaa et al. (2007) and Mohammed (2007) mentioned that AIS course in Iraq is outdated and therefore is needed a change so that it can offer the prospective accounting graduates the required skills and knowledge to develop their career.

Ismail and Salim (2005) declared that integrating IT knowledge component in educational process requires the readiness and willingness of the instructors who are going to facilitate the transfer of such knowledge. Mohammd (2007) considered the instructors' characteristics as one of the important

elements which play an important role in course content development process. Thus it cannot be ignored in any course content development. Based on the above discussion it is declared that there is a needs to identify the factors that influence the development of AIS course content in the Iraqi HEIs. In the next section related literature review will be illustrated, the motivation, designing the questionnaire, validity, and reliability will be discussed in turn.

2- Literature review

Previous researchers found that one of the primary determinants of AIS course development is the employers' requirements, which shows that the prospective employer of accounting graduates should be a key player in the course development (Dillon & Kruck, 2008; Lee, Koh, Yen, & Tang, 2002). This is supported by Lightfood (1999). There have been arguments from different angles in the stream of academic research that students need to be motivated in order to gain the core knowledge in any discipline (Lee & Fang, 2008). Noll and Wilkins (2002) uncovered that the students are better exposed with information system (IS) knowledge and skills if the relationship between IS and business environment is adequately considered. Janicki, Lenox, Logan, and Woratschek (2008) argued that such important soft skills can be applied to AIS course since AIS is integral part of IS. Lee and Fong (2008) revealed that both the employers and the students share the same perception about the knowledge and skills required in the entry level of IS job.

From the above discussion it is declared that core knowledge, business environment, and personal and interpersonal skills are considered as sub-dimensions to the employers' needs when developing AIS course content in the Iraqi HELs.

According to Saville (2007) the accounting professional bodies develop educational standards as a basis for developing professional accountants. Many researchers uncovered that practically impossible to separate professional bodies from academics in designing AIS course since the course is based on the professional needs. Several researchers have argued that accounting professional bodies have a role to play in achieving a successful AIS course development (Saville, 2007; Carr & Mathews, 2004; Johns, 2002). Therefore, it is important to include professional bodies when developing AIS course.

Practically speaking, it is difficult to separate a course from the environment in which it is going to operate (Norris, 2004). Theuri and Gunn (1998) revealed that the technological environment of learning significantly influence the development of course. Wierstra, Kanselaar, Linden, Lodewijks, and Vermunt (2003) argued that learning approach is a constructive and reproductive learning process. The authors revealed that there is a positive relationship between learning environment and learning approach such that a change in one causes a change in the other. Taylor (2004) in the UNESCO (2005) report revealed that participatory learning and teaching method is beneficial to the process of developing an effective course.

From the aforementioned discussion it is declared that learning environment is the third element of this research conceptual framework which consist of :(1) current technological state, (2) learning approach, and (3) participatory learning and teaching methods. They should be considered when developing AIS course content.

In a complimentary opinion of Vatanasakdakul and Aoun (2009), it was revealed that AIS is interdisciplinary in nature. It seems to integrate the fields of accounting and IS. Chang and Hwang (2002) argued that many institutions consider AIS course as a main channel through which accounting students can receive IT education and training needed in the profession. Generally, accounting academician worldwide have not sufficiently integrated IT knowledge and skills into the teaching and learning process curriculum (Ismail, 2009).

Colet and Durand (2004) argued that the only way learning process can be well guided is through reliable syllabus. The authors stated that the course content development is an interconnected process which is designed for the purpose of acquiring knowledge. Bruner (1960) revealed that Course content development is a guide to going further. The rapidly development in IS and its role in the business world results in the integration of IS concepts in accounting education is an issues that cannot be ignored. Frodham (2005) mentioned that the growing need for technologically savvy accountants makes educational institutions in accounting-related field to concentrate more on AIS course content development.

Webber (20005) argued that a motivational technique is a suitable approach for improving course content development. It is not completing the text book and rewriting the point for the learners during examination that matter but integrating the motivation into the course content that will encourage the students to learn willingly.

The increase in the dependency of business world on IT to improve the efficiency of the business and how business related knowledge is managed leads to newly discovered roles of corporate accountants, IT professional and internal and external auditors (Gogan, Smith-David, Eining, Fedorowicz, & Porter, 1999). Lee, Trauh, and Farwell (1995) uncovered that university curricula lag in updating critical new technologies such as networks and telecommunications.

International Federation Accountants Committee (IFAC) (2003) argued that AIS graduates should be able to work in IT environment, which requires accounting graduates to be equipped with general IT knowledge (Chayeb & Best, 2005). In this regard, the inclusion of IT concept differentiates AIS course from the conventional accounting curriculum. The bone of contention is that, it requires more than adding elements of IT to the existing accounting curriculum, such inclusion needs to predict by the required professional knowledge and skills.

The inability to make the ccourse flexible to integrate available IS tool and technologies with more professional applications is considered as challenges that facing development of AIS course content (Andrewas & Wynekoop, 2004). Dillon and Kruck (2008) revealed that a good AIS course content cannot be established without integrating IT competency.

Coe (2006) argued that IT is recognized as an important concepts that has changed the accounting profession. IFAC (2006) highlighted that there is a need to integrate IT auditing in accounting curriculum. Based on this Dillon and Kruck (2008) and Mounce, Mauldin, and Braun (2004) considered IT control knowledge as the main factor in AIS course content development.

From the aforementioned discussion, it is declared that general IT knowledge, IT control knowledge, and IT competence are the most important elements of IT knowledge components which should be considered when developing AIS course contents in the Iraqi HEIs. The next section will discuss the motivation for improving AIS course content.

3- Motivation

The motivations for designing the instrument come from two viewpoints; first, there are only few studies empirical work have been done to identify what factors should be considered in the AIS course content development (Ismail, 2009; Andrews & Wynekoop, 2003). The second viewpoint is for developing a specific instrument for determining the factors that influence in developing AIS course content. In this regard, the instrument for measuring the influence factors on AIS course content development should be designed.

4- Questionnaire Design

Many research methods can be used in IS research, for an example case study, simulation, and others but the most common one is survey (Ismail, 2004). The author mentioned that survey research method has various types of data collection techniques such as questionnaire of this research, interviews, observation and finally content analysis. According to DeVaus (1986) in the survey research method the questionnaire type is the most commonly used for data collection techniques. The questionnaire of this research is divided into four main parts as illustrated in table 1 below.

Table 1

Summary of the structure Questionnaire

Part	Sec.	Contents
1		Personal information
2		Current state of AIS course content in the Iraqi HEIs
3		Main Part
	A	Employers need
	B	Professional bodies
	C	Learning environment
	D	IT knowledge components
	E	Instructors' characteristics
	F	AIS course content development
4		Suggestions

The first part of the questionnaire is allocated for obtaining background information of the respondents. This part includes gender, age, education and position. The second part of the questionnaire is designed to collect the data on the current state of AIS course content in the Iraqi HEIs. The third part is the main part and contains six dimensions, which are employers' needs, professional bodies, learning environment, IT knowledge components, instructors' characteristics, and AIS course content development. The fourth part of the research questionnaire is to obtain the respondents' comment and suggestions. The questionnaire is illustrated in table 6. The details of the main part will be discussed in subsections 4.1-4.6.

The researchers used two type of scale in the questionnaire. In the second part of the questionnaire the researcher used the dichotomous scale. This scale is used to elicit a 'yes' or 'no' answer (Cavana, Delahaye, & Sekaran, 2001). The five-point Likert scale is used in the third part of the research questionnaire. According to Olakunke (2003), the five-point Likert scale is the best way to communicate with the respondents. Therefore the researchers chosen the 5-Likart scale as a way to examine how strongly the respondents agree or disagree with the statements.

4.1 Employers Needs

This dimension is to determine the core needs of the employers of accounting graduates, which is divided into three sub-dimensions, namely, core knowledge, business environment and personal and interpersonal skills. The items under the three sub-dimensions of the employer's needs are constructed based on the views of a number of experts (UNEVCO, 1993; Lee & Fang, 2008; Tang, Lee & Koh., 2001; Noll & Wilkins, 2002). Table 2 illustrates the item related to the employers' needs. Please refer to table 8 for the details of the items.

4.1.1 Core Knowledge (CK)

In this regard, items under core knowledge are adapted from the relevant literatures. CK1 was adapted from UNEVCO (1993), CK2 got from Lee and Fang (2008), and CK3, CK4, CK5, CK6, and CK7 were obtained from Tang, et al. (2001).

4.1.2 Business Environment (BE)

In this dimension, five items were adapted from the past literatures. The items of BE1, BE2, and BE3 were obtained from Lee and Fang (2008), while BE4 and BE5 were adapted from Noll and Wilkins (2002).

4.1.3 Personal and Interpersonal Skills (PIS)

This dimension consists of ten items. These items were adopted from different sources. PIS1 was adapted from UNEVCO (1993). Based on Hoffmam and Field (1995) the item PIS2 was established. Items PIS3, PIS4, PIS5, and PIS6 were obtained from Lee and Fang (2008). Other two items; which are PIS7 and PIS8, were adopted from Tang, et al. (2001). The last two items, PIS9 and PIS10, were taken from Noll and Wilkins (2002). Table 2 below shows the items related to employers' needs.

Table 2

The Items Related to the Employers' Needs

I.V.	Dimension	Number of Items	Items Resources
Employers' needs	Core Knowledge	7	UNEVCO, 1993; Lee and Fang, 2008; Tang, Lee and Koh, 2001; Noll and Wilkins, 2002
	Business environment	5	Noll and Wilkins, 2002; Lee and Fang, 2008
	Personal and interpersonal skills	10	Hoffmam and Field, 1995; Lee & Fang, 2008; UNEVCO, 1993; Tang, Lee & Koh, 2001; Noll & Wilkins, 2002

4.2 Professional Bodies (PB)

This is the second major dimension of the questionnaire designed to obtain the information that are considered critical by the accounting professional bodies in relation to the development of AIS course content. The questions are developed based on UNEVCO (1993), Mathematical Sciences Education Board (MSEB) (2004), Tyler (1949) and IFAC (2003) Guideline. This section contains six items that can describe the influence of professional bodies on AIS course content development. Items PB1and PB2 were found in UNEVCO (1993), PB2 was found in Tyler (1949), PB4 was found in MSEB (2004), and the last two items were found in IFAC (2003) guideline. Table 3 below shows all the items. Please refer to table 8 for the details of the items.

Table 3

The Items Related to the Professional Bodies

I.V.	Dimension	Number of Items	Items Resources
Professional Bodies		6	UNEVCO, 1993; MSEB, 2004; Tyler, 1949 ; IFAC, 2003

4.3 Learning Environment

Section D of the questionnaire is designed to elicit information on the learning environment when developing a good AIS course content. This section consists of three sub-dimensions. The first is current technology state the second is learning approach, the last sub-dimension is participatory learning and teaching methods. Please refer to table 8 for the details of the items.

4.3.1 Current Technological State

This dimension consists of five items. Items CTS1 and CTS2 were adapted from Rush, Lawter, Thomason, and Atkisson (1976), while items CTS3, CTS4, and CTS5 were adapted from Ismail and Salim (2005).

4.3.2 Learning Approach (LA)

This dimension consists of five items. The items of LA1, LA2, and LA3 were obtained from Tyler (1949). Item LA4 was adopted from MSEB (2004), while the last item LA5 was obtained from Rush et al. (1976).

4.3.3 Participatory Learning and Teaching Methods

Last sub dimension contains five items, which are PLTM1, PLTM2, PLTM3, PLTM4, and PLTM5. All the items in this dimension were adopted from Rush et al., (1976). Table 4 below illustrates items related to learning environment.

Table 4

The Items Related to the Learning Environment

I.V.	Dimension	Number of Items	Items Resources
Learning environment	Current technological state	5	Rush et al., 1976; Ismail & Salim, 2005
	Learning approach	5	Tyler, 1949; MSEB, 2004; Rush et al., 1976
	Participatory learning and teaching methods	5	Rush et al, 1976

4.4 Information Technology Knowledge Components

This dimension of the questionnaire is designed to elicit information on the factors that determine which component of IT should be integrated in the AIS course content so that it can achieve its desired objectives. This section contains three sub-dimensions; the first, IT competency, the second dimension is IT control knowledge and the third dimension is general IT knowledge. The next three sub-sections will discuss the items related to IT knowledge components in details. Please refer to table 8 for the details of the items.

4.4.1General Information Technology Knowledge (GITK)

The items under GITK are constructed from several relevant literatures. The first item GITK1 was adapted from Ismail and Salim (2005), the next nine items GITK2, GITK3 GITK4, GITK5, GITK6, GITK7, GITK8, GITK9, and GITK10, were established from the IFAC (2003) guideline. On the other hand item GITK11 was adapted from Coe (2006). The item of GITK12 was taken from Coe (2006). The last two items, GITK13 and GITK14, were adapted from Chayeb and Best (2005).

4.4.2 Information Technology for Control Knowledge (ITCK)

There are five items under ITCK. These items are constructed from the past literatures. The items of ITCK1, ITCK2, ITCK3 and ITCK4 were adapted from the IFAC (2003) guideline. The last item, ITCK5, was adapted from Ismail and Salim (2005).

4.4.3 Information Technology Competency (ITC)

In regard to measure the influence of ITC, the researchers establish four items that were adapted from the previous studies. ITC1 and ITC4 were adapted from Ismail and Salim (2005), while ITC2 and ITC3 were adapted from the IFAC (2003) guideline. Table 5 lists the items related to IT knowledge components.

Table 5

The Items Related to the Information Technology Components

I.V.	Dimension	Number of Items	Items Resources
IT Knowledge component	general IT knowledge	14	; IFAC, 2003; Coe, 2006; Milus, 2004
	IT control knowledge	5	Ismail & Salim, 2005; IFAC, 2003
	IT competency	4	Ismail & Salim, 2005; IFAC, 2003

4.5 Instructors' Characteristics

In this part of questionnaire, the researchers utilized ten items to measure the moderate effect of instructors' characteristics in developing AIS course content. In this regard, the instructors' characteristics items are developed based on several previous studies. IC1 was adapted from Rush, et al. (1976), IC2 and IC3 were adapted from Ismail and Salem (2005), IC4 is taken from Salojee (2004), and IC5 was adapted from Tang, Lee and Koh (2001). While the items IC6, IC7, IC8, IC9 and IC10 were adapted from Groomer and Murthy (1996). Table 6 list the items related to instructors' characteristics. Please refer to table 8 for the details of the items.

Table 6

***The Items Related to the* instructors' characteristics.**

I.V.	Number of Items	Items Resources
Instructors' characteristics	10	Saloojee, 2004; Tang, Lee, & Koh, 2001; Grroomer & Murthy, 1996; Ismail & Salim, 2005; Rush et al., 1976

4.6 AIS course content development

Based on above discussion, the last part of the research questionnaire is designed to elicit the information about AIS course content. This section consists of eight items. AISCD1, AISCD2, AISCD3 and AISCD4 were developed form the UNEVCO (1993). The item AISCD5 was adapted from Hoffman, Alan, Field, and Sharon (1995). The last three items, which are AISCD6, AISCD7, and AISCD8, were established from Tylor (1949). Table 7 illustrates the questions related to the AIS course content development. Please refer to table 8 for the details of the items.

Table 7

The Items Related to the AIS Course Content Development

I.V.	Dimension	Number of Items	Items Resources
AIS curriculum development		8	UNEVCO, 1993; Hoffman et al., 1995; Tyler, 1949

To recapitulate it is declared that the items of this research questionnaire are adapted from several academic researches. In the next section, the discussion on the validity test is provided.

5- Validity of Research questionnaire

According to Olakunle (2003), the findings of quantitative research are more valid if the items that constitute the questionnaire adopted from the previous studies. Zikmund, Babin, Carr, and Griffin (2010) identified the validity as an accurate measure or the extant to which a score is truthfully representing a concept. Sakaran and Bougie (2010) revealed that validity means the researcher asks a question that representing the concept. In this case, the measure of content validity refers to the adequacy and representativeness of items that tap the concept (Sakaran & Bougie, 2010).

Cavana, Delahaye, and Sekaran (2001) stated that content validity for the instrument is achieved in two ways; the first by developing the instrument items from past literature, secondly, by the judgment of a panel of experts. As described above, the researcher developed the research questionnaire from several academic studies. Moreover, the research questionnaire was given to 7 experts in quantitative research (senior lecturer and above) to review its items. Their suggestions to improve the research were adequately considered.

Based on above discussion, it is clear that this research questionnaire is passing the first examination which is content validity. In the next section the reliability of the questionnaire is discussed.

6- Reliability of the instrument

According to Zikmund et al. (2010) reliability is an indicator of internal consistency. Similarly, Sakaran and Bougie (2010) revealed that reliability refers to how far it is without bias (error free), that mean it is an indication of the stability and consistency with which the instrument measures the concepts and help to assess the goodness of a measure. The inter item consistency of the reliability is an investigation of the consistency of the respondents' answers. The most popular test for the inter item consistency reliability is Cronbach's coefficient alpha (Sakaran & Bougie, 2010).

A pilot test was conducted in order to test the inter item consistency of the research questionnaire. The researcher applied the research instrument on 35 respondents. 20 of the respondents which represent (57.1%) are Assistant lecturer, 10 of the respondents which represent to 28.6% are lecturers and 5 of the respondent representing 14.3% of the total respondent are AIS associated professor.

The internal consistency of the items under each of the research variables is examined using reliability analysis of estimated Cronbach's alpha of Statistical Package for Social Science (SPSS). According to Pallant (2001) any of the items with Cronbach's alpha not less than 0.7 will be considered reliable and suitable for the study. The results from the pilot test are shown in table 9. It can be seen that the inter item consistency between the items of constructs with all constructs having Cronbach's alpha not less than 0.7.

Table 9
Reliability Analysis

Construct	Number of items	Cronbach's Alpha
Core knowledge	7	0.723
Business environment	5	0.830
Personal and interpersonal skills	10	0.860
Professional bodies	6	0.750
Current technological state	5	0.731
Learning approach	5	0.719
Participatory teaching and learning methods	5	0.719
Information Technology Competency	4	0.758
Information Technology control knowledge	5	0.803
General Information Technology Knowledge	11	0.900
Instructors' Characteristics	10	0.929
AIS Curriculum Development	8	0.881

7. Conclusion

This paper gives an overview of how research questionnaire for measuring the influence of determined factors on AIS course content development by is developed, following relevant academic literatures. The results of the pilot study show that the questionnaire is reliable. The reason of following the due process in the questionnaire development is to validate the contribution that the findings of this research are to make both to the theory and practice of AIS course content development. The questionnaire was also given to seven statistical experts for proper review before proceeding to pilot testing. The comments resulting from the pilot test were adequately taken into consideration by making some necessary adjustments to the questionnaire.

References

Al- Sakaa, Z., AL-Hamadany, K. I., & Al-Taaye, N. H. (2007), accounting role in decreasing the risk of e-disclosure to the financial report, Paper presented at the 5th international scientific conference: About investment climate and the work of electronic banking, 4 -5 July, Amman, http://www.philadelphia.edu.jo/
adfin/conf/

Andrews, C. P., & Wynekoop, J. (Winter 2004), A framework for Comparing IS Core Curriculum and Requirement for Accounting Majors, *Journal of Information System Education, 15*(4), 437-445.

Bruner, J. (1960). *The process of education* Cambridge: Harvard University Press.

Carr, S., & Mathews, M. R. (2004), Accounting Curriculum Change and Iterative Programme Development: a Case Study, *Accounting Education, 13*(1), 91 - 116.

Cavana, R. Y., Delahaye, B. L., & Sekaran, U. (2001), *Applied Business research: Qualitative and Quantitative Methods*, Singapore: John Wiley& Sons Australia, Ltd.

Chang, C. J., & Hwang, N.-C. R. (2002). Quests on building IT-relevant accounting curricula. Journal of Contemporary Accounting, 3(1), 1-20.

Chayeb, L., & Best, P. (2005), *the Accounting Information Systems Curriculum: Compliance with IFAC Requirements*. Paper presented at the International Conference on Innovation in Accounting Teaching & Learning, Hobart, eprints.qut.edu.au.

Coe, M. J. (2006), Integrating IT Audit into the AIS Course. *The Review Of Business Information System, 10*(1), 105 -119.

Colet, N. R., & Durand, N. (November 2004). Working on the Bologna Declaration: Promoting Integrated Curriculum Development and Fostering Conceptual Change. International Journal for Academic Development, 9(2), 167-181.

Cooper, B. (2002), the Accountant of the Future, *Accounting and Business,* 35 -37.

DeVaus, D. A. (1986), *Surveys in Social Research* (4 Ed.). London UCL Press Ltd.

Dillon, T. W., & Kruck, a. S. E. (2008), Identifying Employer Needs from Accounting Information Systems Prograrams. Journal of Information systems Education, 19(4), 403 – 409.

Egan, C. (2005), *Draft International Education Guideline (IEG11) Information Technology for Professional Accountants*. Dusseldorf, Germany IFAC.

Fordham, D. R. (Spring,2005). New Roles for AIS Courses: A surprising Finding from a Case Study. *Journal Of Information systems 19*(1), 113-129.

Gogan, J., Smith-David, J., Eining, M., Fedorowicz, J., & Porter, L. (1999). *Rebirth of Accounting Information Systems Curricula.* Paper presented at the Americas Conference on Information Systems (AMCIS), USA.

Groomre, S. M., & Murthy, a. U. S. (1996), an Empirical Analysis of the Accounting Information Systems Course, *Journal Of Information Systems, 10*(2), 103 -127.

Hoffmam, A., & Field, S. (November, 2003). romoting self-determination through effective Curriculum development, International in School &Clinic. *Journal of Special Education, 37*(1), 174-183.

IFAC proposes updated guidance for professional accountants on IT (2006), *Accountancy Ireland, 38*(5), 20.

International Federation of Accountants, Education Committee (IFAC Education Committee). (2003). *International Education Guideline 11: Information Technology for Professional Accountants*. New York, IFAC.

Ismail, N. A. (2004), *AIS Alignment in Small and Medium Sized Firms.* Loughborough University

Ismail, N. A. (2009). Accounting Information System: Education and esearch Agenda. *Malaysian Accounting Review 8*(1), 63-80.

Ismail, N. A., & Salem, a. B. (2005), perceptions of accounting academicians toward the Issue of Information technology integration into the accounting curriculum [Electronic Version]. *Jurnal penyelidikanPendidikan*,7,75-88 from www.moe.gov.my/galeri_awam/selidik/2005/2005_BTMK_5_9637_3446.pdf.

Janicki, T. N., Lenox, T., Logan, R., & Woratschek, a. C. (2008), Information system/ Technology employer needs survey: analysis by curriculum topic,. *24*, 1-15.

John, W. C. (2008), *Educational Research Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (3 Ed.), USA: Pearson Education International.

Lee, D. M. S., Trauth, E. M., & Farwell, D. (1995), Critical Skills and Knowledge Requirements of IS Professionals: A Joint Academic/Industry Investigation, *MIS Quarterly, 19*(3), 313 - 340.

Lee, S., & Fang, X. (2008), perception Gaps about Skills Requirement for Enter-level IS professionals between Recruiters and students: An Exploratory Study. *Information Resources Management Journal, 21*(3), 39 - 62.

Lee, S., Koh, S., Yen., D. C., & Tang, H. (2002), Perception gaps between IS academics and IS practitioners: an exploratory study, *Information and Management, 40*, 51 -61.

Lightfoot, J. M. (Sept./Oct. 1999), Fads verses fundamentals: The dilemma for information system curriculum design, *Journal of Education for Business,75(1),* pp. 43-50.

Milus, S. (2004), The Institutions need for comprehensive auditing strategies. *Information Systems Control Journal, 6*, 1-6.

Mohammd, M. I. (2007), *Curricula in the Iraqi universities between yheory and practice.* Paper presented at the International Conference on Higher Education in Iraq, Erbil-Iraq.

Mounce, P. H., Mauldin, D. S., & and Braun, R. L. (2004), the Importance of Relevant Practical Experience among Accounting Faculty: An Empirical Analysis of Students' Perceptions, *Issues in Accounting Education, 19*(4), 399 - 411.

Mathematical Sciences Education Board (2004). On Evaluating Curricular Effectiveness: Judging the Quality of K-12 Mathematics Evaluations, ISBN-10: 0-309-09242-6, The National Academies Press, Washington DC.

Noll, C. L., & Wilkins, M. (2002), critical skills professionals: a model For Curriculum Development, *Journal of information technology education, 1*(3), 143 -154.

Norris, G. (2004). *Informing Curriculum Development Through Research.* Paper presented at the 4th Asia Pacific Interdisciplinary Research in Accounting Conference, Singapore.

Olakunke, A. O. (2003). Research Methods in Social Sciences. (2 Ed.), E-Book press, Norway.
Pallant, J. (2001). *A step by Guide to Data Analysis using SPSS*. Philadelphia, USA: Open University Press, McGraw-Hill Education,.

Pathak, J. (2004). Information Technology Auditing and Cyber commerce: A Risk Perspective, *Information System Control Journal, 6 Research Methods* (8 Ed.), USA: Thomson South-Western Inc.

Rush, D. E., Lawter, W. L., Thomason, J. T., & Atkisson, L. (1976), Essential Components for Effective Curriculum Development, *Peabody Journal of Education, 53*(4), 296 - 298.

Saloojee, R. (2004), *Effects of engagement in reform-based practice on a college instructor's conceptions of mathematics.* Paper presented at the twenty-sixth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Toronto: OISE/UT.

Saville, H. (2007), international education standards for professional Accountants (IESs), *accounting Education: an international journal, 16*(1), 107 -113.

Sekaran, U., & Bougie, R. (2010). *Research Methods for Buisness* (5 ed.). Haddington, East Lothian John Wile & Sons Ltd.

Swedish National Agency for Higher Education (2003), *Higher Education in Iraq* .Swedish, http://www.hsv.se /download/18.539a949110f3d5914ec800077777/isbn91-85027-07-3.pdf

Tang, H-L., Lee, S., & Koh, S. (2000-2001, Winter). Educational gaps as perceived by IS educators: A survey of knowledge and skill requirements. Journal of Computer Information Systems, 41 (2), 76-84.

Taylor, P. (2004), *How Participatory can processes of curriculum development impact on the quality of teaching and learning in developing countries?* : UNESCO.

Tella, A., & Adu, a. E.O. (2009), Information communication technology (ICT) and curriculum development: The challenges for education for sustainable development, *Indian Journal of Science and Technology, 2*(3), 55 -59.

Theuri, P. M., & Gunn, a. R. (1998), Accounting Information Systems Course Structure and Employer Systems Skills Expectations, *Journal of Accounting Education, 16*(1), 101-121.

Tyler, R. W. (1949), *Basic principles of curriculum and instruction*. Chicago: University of Chicago Press.

UNEVOC, I. P. o. t. a. v. e. (1993), *Curriculum development in technical and vocational education, international Workshop,* Turin, Italy: the ILO International Training Centre.

Vatanasakdakul, S. and C. Aouny (2009). I Don't Like IT: Exploring Challenges in Accounting Information Systems Education. Americas Conference on Information Systems (AMCIS), USA, AIS Electronic Library (AISeL).

Webber, D. J. (2005). Reflections on curriculum development, pedagogy and assessment by new academic international Review of Economics Education 4(1), 58-73.

Wierstra, R. F. A., Kanselaar, G., van der Linden, J. L., Lodewijks, H. G. L. C. & Vermunt, J.D. 2003. The impact of the university context on European students' learning approaches and learning environment preferences. *Higher education*, 45, 503-523.

Zikmund, W. G., Badin, B. J., Carr, J. C., & Griffin, M. (2010), *Business*

Table 8
Final Questionnaire

Employers' Needs	**Code**
Core Knowledge	
A good AIS course content development should incorporate ability to deliver both the technical and soft skills to a learner	CK1
A good AIS course content development should include ability to gain knowledge of specific business functional areas within the organization	CK2
A good AIS course content development should include adequate planning, management and decision-making supported software applications	CK3
A good AIS course content development should include necessary office suites applications	CK4
A good AIS course content development should include relevant programming languages	CK5
A good AIS course content development should effective communication enabling applications that can support knowledge sharing	CK6
A good AIS course content development should include training component that can develop the learners to be future knowledge facilitator	CK7
Business Environment	**Code**
A good AIS course content development should include ability to gain knowledge of specific industries	BE1
A good AIS course content development should include ability to gain knowledge of specific organizations	BE2
A good AIS course content development should include ability to gain knowledge of general business environment	BE3
A good AIS course content development should include adequate knowledge of organizational ethics	BE4
A good AIS course content development should be able to relate AIS accounting organization environment	BE5
Personal and Interpersonal Skills	**Code**
A good AIS course content development process must incorporate necessary skills that will make it flexible for the learner to change from one job to another	PIS1
A good course content development should include necessary skills for impacting self-determination and motivation	PIS2
A good AIS course content development should include ability to exhibit a good creative thinking skill	PIS3
A good AIS course content development should include ability to exhibit a good critical thinking skill	PIS4
A good AIS course content development should include ability to exhibit a good team skill	PIS5
A good AIS course content development should include ability to exhibit a good interpersonal communication skill	PIS6
good AIS course content development should include ability to exhibit a good interpersonal behavior skill	PIS7
A good AIS course content development should include ability to exhibit a good international communication ability	PIS8
A good AIS course content development should soft skills for developing	

interpersonal relationship	PIS9
A good AIS course content development process must incorporate necessary skills that will make it flexible for the learner to change from one job to another	PIS10
Professional Bodies	**Code**
Ability to attract young generation to acquire required professional skills and knowledge is important in developing AIS course content	PB1
Ability to offer open access to knowledge without any constraint is important in developing AIS course content	PB2
Goals definition is a very important aspect in developing AIS course content	PB3
Strict adherence to the set standards is an important factor in developing a good AIS course content	PB4
Ability to support information creation and design should be adequately stressed in developing AIS course content	PB5
Ability to change accounting competitive environment should be adequately stressed in developing AIS course content	PB6
Learning Environment	**Code**
Current Technological State	**Code**
A good course content development process must be able to incorporate all available resources in to the learning environment	CTS1
A good AIS course content should introduce necessary technologies capable of stimulating the students to learn	CTS2
Adequate number of computer hardware must be provided in developing a good AIS course content	CTS3
Adequate application software capable of integrating IT to AIS course content should be well stressed while developing AIS course content	CTS4
There is need to ensure network satisfaction in developing AIS course content	CTS5
Learning Approach	**Code**
Making an AIS course content to be related to a real accounting life experience is an important factor in developing AIS course content	LA1
Presenting the learning experiences in an organized manner is essential in developing AIS course content	LA2
A good AIS course content development must be able to present a reliable means of evaluating learning outcomes	LA3
Ability to manage time effectively is an important factor in developing a good AIS course content	LA4
A good AIS course content development should give the students the freedom to choose their learning style	LA5
Participatory Teaching and Learning Methods	**Code**
Making AIS course content to be student-centered will lead to successful AIS course content	PTLM1
Good student – teacher interaction is important in developing AIS course content	PLTM2
Clear definition of participant's role is important in the development of AIS course content	PLTM3
A good course content development should encourage the teachers to facilitate learning rather than exerting control on students	PLTM4
A good AIS course content development should support collaborative learning for enabling peer assistance	PLTM5
IT Knowledge Components	**Code**
IT- competency	**Cod**

Including many IT-related courses in the development of AIS course content will enable the graduates to acquire necessary IT knowledge and skills.	ITC1
The kind of IT content to be included in the development of AIS course content should be applicable to information system operations	ITC2
In developing AIS course content, making AIS graduates to possess enquired IT competency to gain the professional membership should be given ultimate consideration.	ITC3
Integrating IT-based teaching and learning approach in to an AIS course content will achieve the learner's acceptable IT competency	ITC4
IT control knowledge	**Code**
The kind of IT content to be included in the development of AIS course content should be applicable to information system management and control.	ITCK1
The kind of IT content to be included in the development of AIS course content should incorporate intelligent system for mimicking professional accountants.	ITCK2
Inclusion of IT component in AIS course content can be used to change the competitive environment where the professional accountants operate.	ITCK3
Inclusion of IT component in AIS course content can be used to change the nature of accounting activities.	ITCK4
IT knowledge/skills should be integrated in to all major areas of AIS course content.	ITCK5
General IT knowledge	**Code**
A good AIS curriculum development should be able to integrate required IT knowledge/skills in to all major areas of the AIS course content.	GITK1
The kind of IT content to be included in the development of AIS course content should be applicable to information production and information system development.	GITK2
Inclusion of IT component in an AIS course content development will offer the AIS graduate the necessary skill to analyze IT investments appropriately.	GITK3
Inclusion of IT component in an AIS course content development will offer the AIS graduate the necessary skill to communicate effectively about IT-related topics.	GITK4
Inclusion of IT component in an AIS course content development will offer the AIS graduate the necessary skill to manage organizational change effectively.	GITK5
In developing a good AIS course content, communication aspect of IT should be well stressed.	GITK6
In developing a good AIS course content, IT architecture aspect of IT should be well stressed	GITK7
In developing a good AIS course content, system acquisition and development process aspect of IT should be well stressed.	GITK8
In developing a good AIS course content, management aspect of IT should be well stressed	GITK9
In developing a good AIS course content, IT strategy aspect of IT should be well stressed	GITK10
In developing a good AIS course content, IT auditing aspect of IT should be well stressed	GITK11
Integration IT components can only be successful if there are adequate lecturers and textbook to support the content	GITK12
AIS evaluator should possess required knowledge to evaluate students' performance using IT	GITK13
Instructors' Characteristics	**Cod**

The potentials of a teacher to facilitate learning in an IT environment is important in developing an IT-driven AIS course content	IC1
AIS academician must know the importance of IT in developing AIS course content	IC2
Necessary measure that will trigger AIS academician to be eager to learn required IT skill should be incorporated in developing AIS course content	IC3
clear definition of teacher's role should be well stressed in developing AIS course content	IC4
It is part of the requirement in the development of AIS course content for teachers to have adequate teaching skills that can support the IT-based course content	IC5
The Academic position of an AIS instructor determines the success of an IT-based AIS course content	IC6
The Academic qualifications of an AIS instructor determines the success of an IT-based AIS course content	IC7
The Years of experience of an AIS instructor determines the success of an IT-based AIS course content	IC8
The IT proficiency of an AIS instructor determines the success of an IT-based AIS course content	IC9
The Research interest of an AIS instructor determines the success of an IT-based AIS course content	IC10
AIS course content development	**Code**
Its ability to attract young generation to acquire necessary skills in the profession	AISCD1
Its ability to discharge both the technical and coping skills required of the learners	AISCD2
Its ability to provide the learners with basic skills which will enable them to switch from one work area to another whenever when such case arises	AISCD3
Its ability to guarantee open access to all without any constraints	AISCD4
Self-determination is identified as a key element of any development process	AISCD5
Its ability to establish learning experiences	AISCD6
The capacity in organizing learning experiences	AISCD7
Its capability of evaluation the learning outcomes	AISCD8