The Impact of Information Technology Knowledge Components on Accounting Information SystemCourse Development: The Iraqi Perspective

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Abstract

As one of the challenges in the global educational reform, there is a need to come out with a course that is capable of delivering the 21st century knowledge to the students in all areas of studies in thehigher education institutions (HEIs). This is to ensure that competent graduates are produced from the HEIs. No doubt, the Iraq postwars and economic sanctions have led to poor state of information technology (IT) and education in the country which has affected the AIS course content since the global trend has demanded for anIT-driven course. This results in Iraq lag behind compared to other countries, even amongst developing countries. Thus, there is a need to determine the technological factors that need to be considered while developing AIS course in Iraq in order to make it of internationally accepted standard. Therefore, this paper presents a conceptual framework in determining IT knowledge components for the AIS course development.

Keywords: Accounting, Course, Information Technology, Knowledge

1. Introduction

The main goal of any University is to ensure that competent graduates are produced. In order to fulfill this goal, the courses used to impart knowledge to the students must be effective, current and relevant. Therefore, the transformation process from input through output to change fresh students into experts in their own areas must be effective. Educational institutions must always endeavor to review and upgrade curriculum so that courses offered are relevant and current. Accounting Information System (AIS) courses are not the exception. In this respect, a global reform in teaching and learning curriculum being undertaken in all areas to face and cope with the daunting 21st century global challenges and technological developments. (Garfield, Dresden, & Boyle, 2003). In defining AIS, there is a need to define what is meant by a system itself. A system can be defined as a set of two or more interrelated components that interact to achieve a specific goal (Hall, 2008; Hall, 2004). In line with this, AIS can be defined as a set of two or more interrelated components that interact with each other to generate and exploit accounting information in an effective and efficient manner (Gelinas& Dull, 2009; Dull, &Gelinas, 2008; Romney &Steinbart, 2003). Romney and Steinbart (2009) identified people, processes, organization and IT as such inter-related components. The advent of IT enables AIS to generate timely, relevant, reliable, accurate and speedy accounting information (Pathak, 2004). Considine, Parkes, Olesen, Speer, and Lee (2010) defined AIS as application of technology to the capturing, verifying, storing, and reporting of the data relating to an organization's activities. This definition shows a new element which is technology. They argued that technology has become a key factor in completing the accounting activities.

In this respect, there is a need to study Iraqi accounting curriculum in the HEIs and to determine the factors that can produce qualified accountants (Al-Jalily&Taha, 2010, Taha, 2007). This is to ensure that Iraq can compete with other developed and developing countries by producing accounting graduates with required AIS skills and knowledge.

In the Iraqi context, the long war period has led to poor state of IT awareness and development of accounting curriculum (Al-Sakaa, Al-Hamadany, & Al-Taay, 2007). The review and updating of AIS course content in Iraq lag behind compared to other countries, even amongst developing countries, as a consequence of the war.

Considering course content issues from a global perspective, for every professional course like AIS, there is a need for the graduates to be equipped with applied skills and knowledge as required by the employers for better opportunity in the job market (Lee & Fang, 2008).To achieve this, it is important to develop good course content. The educational course content is an important issue in the educational area and many researchers have identified the development in education as one of the many steps that help to develop a country (Grossman, Onkol, & Sands, 2007).

The implementation of IT-based AIS in the organizations influences the accounting curriculums (O'Donovan, 1996). In this case, accounting curriculum does not only aim to instill accounting theoretical knowledge and skills but also the expertise to understand and operationalize IT-based AIS (Womble, 1994). This development is

evident from the new standards imposed by several professional bodies, such as the International Federation of Accountants Committee (IFAC) (Chayeb& Best, 2005). In addition, several researchers (i.e. Dillon &Kruck, 2008; Coe, 2006; Mounce, Maudin, & Braun, 2004; Thueri& Gunn, 1998; Lee, Trauth&Forwell, 1995) have identified the need to make AIS course content more IT driven, which led them to suggest further researches in various countries on AIS course content review and improvement. This creates the interest of this study.

Ismail and Salim (2005) declared that integrating IT knowledge in educational process requires the readiness and willingness of the instructors who are going to facilitate the transfer of such knowledge. This is termed as instructors' characteristics. Similarly, other researchers stated that instructors' characteristics are important in achieving success in the integration of IT in the course content (Boonmak, 2010; Carl, 2005; Chayeb& Best, 2005; Groomer & Murthy, 1996). This variable, however, has never been investigated by the previous studies.

In 1990 the United Nations (UN) and Security Council imposed a hard economic sanction on Iraq because of the situation between Iraq and Kuwait(Garfield et al., 2003;UN, 2000; The Government of the Republic of Iraq, 1999; UN, 1990**)**. These sanctions influence on all Iraqi sectors which education is one of the most sectors that in influenced by this sanctions. Since it is impossible to get access to modern scientific resources (IT-related) which can support the 21st century curriculum development and teaching in general (Sakaa et al., 2007; Garfield et al., 2003).

Previous researchers have identified the need to propose a unique AIS course content model that can support IT needs of accounting graduates (Harrison, 1994; Bromson, Kaidonis, &Poh, 1994; Collier, Kaye, Spaul, & Williams, 1990; Armitage&Boritz, 1986). Trivializing this results in the accounting curriculum, fails to produce IT-enabled AIS accountants adequately and ultimately reduces their competitiveness. If this scenario is tackled properly, there is a chance that international audit firms will be recruited for accounting jobs in Iraq.

According to the report from the Swedish National Agency for Higher Education (2003), Iraqi education system cannot meet the global 21st century educational challenges due to the lack of adequate technological facilities that can support IT-driven educational plan. This has affected the development of the educational curriculum in Iraqi HEIs as a whole. Thus, this study aims to explore the factors that influence the AIS course content in Iraq.

Based on the abovementioned discussion, it is clear that there is a critical need to re-examine and modify AIS course content in Iraqi accounting curriculum. It is difficult to achieve good AIS course content if the IT related knowledge components that determine are not well identified. Thus, this research intends to propose the factors that influence Iraqi AIS course content, which in turn can help HEIs to improve the AIS course content. The urgent need to embark on a major overhaul of the AIS course content, has motivated this research and it is hoped that the findings will help Iraqi HEIs to streamline the course content so that the goal of producing graduates who are both accounting knowledge and IT savvy can be achieved.

2. AISCourse Content Development

Taha (2007) defined accounting course content as 'a set of elements interconnected and interacting with each other to provide the necessary accounting knowledge, which affect the scientific and professional level of accounting students'(p.15). In the globalization era, businesses are depending more and more on IT to improve business efficiency and embark on the knowledge economy. This has led to the need for corporate accountants, IT professionals, internal auditors, and external auditors to take on new roles and responsibilities (Gogan, Smith-David, Eining, Fedorowicz, & Porter, 1999).The AIS course is different from the conventional accounting curriculum,because IT concepts are embedded within it. However, it is argued that the AIS course does not consist of merely adding IT elements to the existing accounting curriculum; the inclusion of IT concepts must be dictated by the required professional knowledge and skills. Fordham (2005) mentioned that the growing need for technologically savvy accountants mandates educational institutions in the accounting area to re-focus on AIS course. Chang and Hwang (2002) posited that many institutions regard the AIS course as a platform for accounting students to gain the requisite IT education and training.

The recent development in information system (IS) and its application in business world have also necessitated the integration of IS concepts in accounting education (Borthick, 1996; Vatanasakdakul&Aoun, 2011).

UNEVCO (1994) identified the following indicators to be followed when developing educational course content: (1) its ability to attract young generation to acquire necessary skills in the profession; (2) its ability to discharge both the technical and coping skills required by the learners; (3) its ability to provide the learners with basic skills to enable them to switch from one work area to another whenever the need arises; and (4) its ability to guarantee open access to all minus any constraints. In the accounting profession, these yardsticks are vital due to the need to compete in the global market and create innovations. This is also embedded in this research's conceptual framework.

Field and Hoffman (1994) and Hoffman and Field (1995) identified self-determination as a key factor for a good course content. The learner is the main goal, so that learning motivation can be established. The skills needed to nurture self-determination must be incorporated in the course content. As self-determination is required in every

profession, it is integrated in this research's conceptual framework, as well. Self-determination itself is a function of many other factors which need to be identified in order to motivate the learners to be self-determined. To recapitulate, good course content leads to improved educational performance and employability. These are the goals of good course content investigated in this research. The next section defines and describes AIS course content from the Iraqi perspective.

3. Information Technology Knowledge Components

The globalization that is currently going on throughout the world has called for all aspects of human endeavour to be driven by technology, most especially IT. Brynjolfsson and Hitt (2000) revealed that IT can be defined as 'computers as well as related digital communication technology, has the broad power to reduce the costs of coordination, communications, and information processing'. While the word knowledge can be defined as 'the capability to interpret data and information through a process of giving meaning to these data and information; and an attitude aimed at wanting to do so'(Beijerse, 1999). In this regard IT knowledge can be define as the capability to interpret data and information in computer environment as well as related digital communication technology, through a process to give the meaning to these data and information with reducing the cost of coordination, communication, and information processing.

According to Chayeb& Best (2005), IT general knowledge, IT control knowledge and IT competency constitutes the IFAC requirements in terms of IT in developing AIS course content. These are all included in the conceptual framework so that the exact type of IT skills and knowledge required of accounting graduates can be identified. This is equally in line with the opinion of Ismail and Salim (2005). In the same vein, Cooper (2002) argued that there is need to integrate the required telecommunication, innovative, cognitive tools and other necessary technologies into an educational course in this globalization era so that such a course can be able to support the 21st century learning requirement.

With the evidences from previous studies, the researcher therefore categorized the IT knowledge components to three variables which they are IT competency, IT control knowledge and general IT knowledge. The description of each is offered in the following three subsections.

3.1 Information Technology Competency

According to Birkett(1993) competency can be defined as particular types of job performance in terms of what is to be performed and how well a performance is to be constituted. Johns (1995) defined competency as "particular types of job performance in terms of what is to be performed and how well a performance is to be constituted". In the same vein IFAC revealed that competency can be defined as the ability to perform the tasks and roles expected from a professional accountant, both of newly-qualified and experienced, to the standard expected by employers and the general public (IFAC, 1998).

Dillon and Kruck (2008) revealed that developing a good AIS course content cannot be recognized without integrating IT competency. This also supported by Mounce et al. (2004). The aforementioned discussion declared that the inclosing of subjects in the new AIS course content that help to improve the IT competency among the accounting students will help the graduation students to reach the minimum required by the profession. Thus it is important to include this element in the research framework. The next subsection will discuss IT control knowledge.

3.2 Information Technology Control Knowledge

Fayol (1949) discovered that control of an undertaking consists of seeing that everything is being carried out in accordance with the plan, which has been adopted, the orders that have been given, and the principles, which have been laid down. Thueri and Gunn (1998) argued that lack of system skills considered as one of the key reasons for non-update AIS course content. The authors explained that most of these skills are related to IT control knowledge.As a result, IT control knowledge is considered very important in the AIS course content.

Mounce et al (2004) revealed that IT control knowledge should be the major element to be considered when developing AIS course content IFAC (2006) highlighted the importance of integrating IT auditing concepts in accounting courses. Similarly, Dillon and Kruck (2008) identified that the IT control knowledge have significant influence in AIS course content. Othman (2009) clearly revealed that the acceptance of including IT in accounting subjects like audit and control depends on the lecturer's skills related to the IT applications. To be in tandem with the previous studies, IT control knowledge is included in this research's conceptual framework. A discussion about general IT knowledge will be offered in the next section.

3.3 General Information Technology Knowledge

According to Borthick and Clark (1987) revealed, as computing permeates organizations, the success of accounting graduates at all levels will increasingly depend on their ability to use computing to accomplish organizational objectives. According to Chayeb and Best (2005) IFAC argued that part of the requirements for employing accounting graduates should to be their ability to work in an IT environment by being equipped with general IT knowledge. Most of the professional tasks, both in the accounting firms and corporate organizations,

are undertaken by using IT. Thus, it is not surprising to uncover that the first criteria that is considered by the employers when hiring accounting graduates is the possession of IT skills (Strong, Prtez&Busta, 2006).

Meer and Adams (1996) who highlighted the need to concentrate more on the IT related content of the AIS course. This is further supported by many researchers who revealed that there is a need to overcome the teaching of basic skills in computing and to introduce a conceptual approach to understanding IS (Armitage&Boritz, 1986; Bromson et al., 1994; Collier et al., 1990; Harrison, 1994).

The above discussion declared that IT knowledge components areincluded in this research conceptual framework. The components consist of IT competency, IT control knowledge and general IT knowledge.An explanation about instructors' characteristics will be offered in the next section.

4. Instructors' Characteristics

Generally, human characteristics have some traces of his/her culture. Therefore it is possible to have different characteristics instructors most especially when the instructors are drawn from different cultural backgrounds. It has been empirically proved that the characteristics of AIS lectures correlate with the development of AIS course content (Groomer & Murthy, 1996; Chayeb& Best, 2005). Therefore, inclusion of this variable in the conceptual framework will examine such scenario within the context of Iraqi HEIs. This is in line with the position of Grossman, Onkol and Sands (2007) that the failure in the course enhancement aspect of the educational reform can be traced to inadequate preparation for its effective implementation which is mostly attributed to incompetence or change resistance on the part of the instructor. This worth consideration in determining the factors that can lead to the effective AIS course development in Iraq having established the fact that most of the changes made to the AIS course content are IT-oriented.

Ismail and Salim (2005) highlighted the importance of instructors' role in determining the level of IT integrating in educational process which course is one of its elements. The authors supported this with a report from the U.S Congress Office of Technology Assessment (1995); this report showed that the lack of teacher training is one of the greatest roadblocks to integrating IT into a school's courses. Moreover, the report explained that most of the schools in districts expend less than 15% of their budgets on teachers training and development.

It is important to consider the instructor attitudes while developing a course since the effectiveness of the teaching and learning process (delivering a course) relies so much on the perception of instructors on the subject being taught. In lieu of all the discussions, this variable is included in the framework to moderate the effect of IT knowledge components on the AIS course content development process.

From the above discussion it is clear that the employers' need, professional bodies, learning environment, IT knowledge components, and the instructors' characteristics consider having the most important role in development AIS course content. In the next section the researchers will discuss the research framework and the research hypotheses.

5. Research Framework and Research Hypotheses

5.1 Research Framework

Sekaran and Bougie (2010) defined theoretical framework as a logically developed, described and give details network of associations between the variables estimated related to the problems situation and identified through such processes as interviews, observations and literature review. According to Guba and Lincoln (1994) the process of developing theoretical framework is considered as an important step in the research methodology since it clearly defines the directions of contributions of the pluralist and relativist view of the reality.

Cavana, Delahaye, and Sekaran (2001) argued that research framework explain the logical relationships between several variables that have been identified as an important to the research problem. In addition the authors declared that the logical relationships among the variables supported by the previous researches in the problem area, while the Figure 1 below for illustrates the research framework.

Table 1:Description of Research Variables

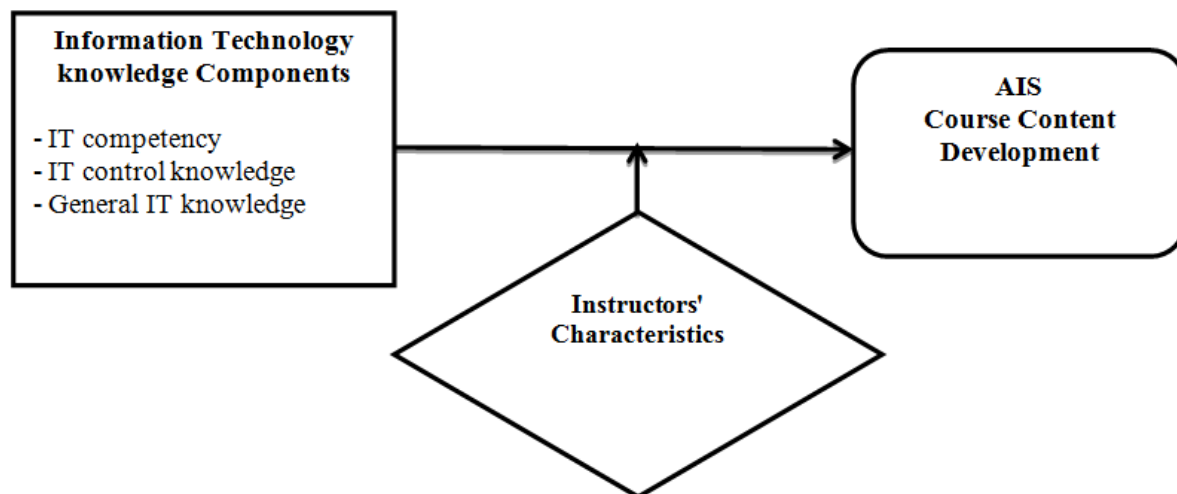| Independent Variables	Dimension	Moderating Variable	Dependent Variable
IT knowledge components	IT competency IT control knowledge General IT knowledge General ICT knowledge	Instructor's characteristics	AIS course content development

Figure 1: Research framework

5.2 Research Hypotheses

In this era of globalization, it is quite difficult to separate IT from the educational process (Chayeb& Best, 2005). The impact of IT in developing accounting-related course has been considered by a number of researchers (Boritz, 1999; Cooper, 2002; Ismail &Salim, 2005; Janicki et al, 2008;Tella&Adu, 2009). There are three elements of IT knowledge components namely IT competency, IT control knowledge and general IT knowledge. Thus, the hypotheses are formulated as following below for the constructs.

H1: The AIS course content development in Iraqi HEIs is influenced by the IT knowledge components.

H1-1**:** The AIS course content development in Iraqi HEIs is influenced by the IT competency.

H1-2: The AIS course content development in Iraqi HEIs is influenced by the IT control knowledge.

H1-3: The AIS course content development in Iraqi HEIs is influenced by thegeneral IT knowledge.

The objectives of course are best achieved if it is well delivered (Groomer & Murthy, 1996). On this note, there have been series of academic works to showcase the relevancy of instructor's characteristics to course content development (Chayeb& Best, 2005;Groomer & Murthy, 1996; Grossman et al, 2007). Moreover, Ismail and Salem (2005) uncovered the important role of the instructors in integrating IT in the educational process which course is one of its elements. The researcher examine the moderate influence of instructors' characteristics between IT knowledge components and AIS course content development. Based on the above debate, the following hypotheses are proposed:

H2: The influence of IT knowledge components on AIS course content development in Iraqi HEIs is moderated by Instructor's characteristics.

H2-1**:** The influence of IT competency on AIS course content development in Iraqi HEIs is moderated by Instructor's characteristics.

H2-2: The influence of IT control knowledge on AIS course content development in Iraqi HEIs is moderated by Instructor's characteristics.

H2-3: The influence of general IT control knowledge on AIS course content development in Iraqi HEIs is moderated by Instructor's characteristics.

5.3 Research Design

The first objective of this study to examined the influence of IT knowledge component on the AIS course content development. The second objective is to identify the moderated influence of instructors' characteristics on the relationship between IT knowledge and AIS course content. The nature of the data for this study is primary and derived from a questionnaire developed for this purpose. In total, 260 questionnaires are distributed among the lectures in the accounting departments in the Iraqi HEIs. In Table 2 an explanation about respondent rare are provided:

Table 2: Response Rate of the Questionnaires

Response	Frequency/Rate
Distributed questionnaires	260
Returned questionnaires	165
Usable questionnaires	134
Badly Completed questionnaires	31
Not returned questionnaires	95
Response rate	63.46%
Usable response rate	51.54%

5.4 Profile of the Respondent

In this section, the questionnaire provide the information about the respondents specialization, academic rank, gender, age, educational level, period spend in teaching AIS course content, and position. Table 3 below summarizes the results of respondents' profile.

Table 3: the results of respondent profile section

Category	Minimum	Maximum	Frequency	Percentage
Sample			**134**	**100%**
Respondents' Specification	**1**	**4**		
AIS specification			91	67.9
teach AIS subject			23	17.2
Interested In AIS research			14	10.4
teaching other accounting subject			6	4.5
Total			**134**	**100%**
Respondents' Academic Ranking	**1**	**5**		
Assistant researcher			15	11.19
Assistant lecturer			52	38.8
Lecturer			38	28.35
Assistant Professor			25	18.66
Professor			4	3
Total			**134**	**100%**
Male	**1**	**2**	83	61.9
Female			51	38.1
Total			**134**	**100%**
Respondents' Age	**1**	**5**		
20-29			38	28.4
30-39			51	38
40-49			23	17.2
50-59			16	11.9
Over 60			6	4.5
Total			**134**	**100%**
Respondents' Education Level	**1**	**3**		
Bachelor			25	18.66
Master			79	58.96
PHD			30	22.38
Total			**134**	**100%**
Respondents' Period Spent in Teaching AIS Course Content	**1**	**5**		
Never			8	6.0
Less 1 year			17	12.7
2-5 year			26	19.4
6-10 year			52	38.8
above 10 year			31	23.1
Total			**134**	**100%**
Respondents' Position	**1**	**2**		
Yes			24	17.9%
No			110	82.1%

The results as shown in Table 3above confirmed that 67.9% of therespondent are specification in AIS. The results identified that 38.8% of the respondents are assistant lecturer, also the results about the gender declared that 61.9%of respondent are male while the 38.1 are female. 38% (which is the greater the percentage) from the respondents age fall between 30-39 years. Regarding to the respondents' educational level, 58.96% from the respondents have Master's degree. Also the above results confirmed that 38.8% of the respondents have experience in teaching AIS course between 6-10 years. Finally, 82.1% of the respondents have no position.

The research instrument investigated the current state of the IT skills and knowledge in the AIS course content in the Iraqi HEIs. The results are included in Table 5below:

Table 4: The current state of AIS course content in the Iraqi HEIs

No.	Item	Yes		No	
		Freq.	%	Freq.	%
1	is able to deliver a good flow of idea	68	50.7	66	49.3
2	contains core AIS knowledge	103	76.9	31	23.1
3	is able to deliver required IT knowledge	27	20.1	107	79.9
4	is able to deliver required technical skills	25	18.7	109	81.3
5	is able to deliver required soft skills	30	22.4	104	77.6

The results from the above Table declared that the IT knowledge and skills related items are recorded a low level (27%, 25%, 30%) which is ensure that the AIS course content in the Iraqi HEIs are outdated with low number of IT related subject. Therefore this study is really needed for developing AIS course content in the Iraqi HEIs.

As mentioned above that this research intends to propose the IT knowledge components which are important to improve AIS course content. Thus the factor analysis methodis used in this research. The results ofKMO, MSA and BTS were also used to determine whether factor analysis is appropriate or not. The outputs of these tests are shown in Table 5.

Table 5: KMO, MSA and BTS for IFAC Recommendation

Item		Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.707
Bartlett's Test of Sphericity	Approx. Chi-Square	2976.200
	Df	231
	Sig.	.000

As illustrated in Table 4.25 KMO and MSA value was .707, which according to Kaiser (1974) is middling. The BTS value was large (2976.200) and significant (.001). The KMO, MSA and BTS values indicated that IT knowledge componentsitems were suitable for factor analysis.

Table 6shows the IT knowledge components. Using the latent root criterion, four factors were extracted, which explained about 72.276 percent of the cumulative variance.

Table 6:Results of Extraction of IT knowledge components Factors

Compone nt	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Tota l	% of Varianc e	Cumulative %	Tota l	% of Varianc e	Cumulative %	Tota l	% of Varianc e	Cumulative %
1	7.97 3	36.241	36.241	7.97 3	36.241	36.241	5.23 1	23.779	23.779
2	3.25 3	14.786	51.028	3.25 3	14.786	51.028	4.19 9	19.085	42.863
3	2.68 4	12.200	63.228	2.68 4	12.200	63.228	3.24 1	14.733	57.596
4	1.99 1	9.048	72.276	1.99 1	9.048	72.276	3.23 0	14.680	72.276
5	.910	4.135	76.411						
6	.854	3.882	80.293						
7	.684	3.108	83.401						
8	.592	2.690	86.091						
9	.495	2.249	88.341						
10	.448	2.037	90.377						
11	.433	1.970	92.347						
12	.353	1.605	93.952						
13	.267	1.214	95.166						
14	.256	1.163	96.330						
15	.218	.991	97.321						
16	.205	.932	98.253						
17	.136	.617	98.870						
18	.094	.425	99.295						
19	.073	.333	99.628						
20	.053	.241	99.868						
21	.018	.080	99.949						
22	.011	.051	100.000						

Extraction Method: Principal Component Analysis

The next step was determining the number of factors based on factor loading using varimax rotation criterion. It is used to reduce the variable in each factor and make them more meaningful. Table 7 below shows the varimax rotation for IT knowledge components.

From the above results it is clear that there is new variable is appeared after run factor analysis test. According to the Table 7 the researchers called the new factor (general information communication technology knowledge) based on the elements which the factor analysis test classified as new variable.

Table 7:Loading Factor Using Varimax Rotation for IT knowledge components.

Items	Component			
	1	2	3	4
GITK13	.902			
GITK3	.881			
GITK1	.846			
GITK11	.842			
GITK2	.842			
GITK12	.838			
GITK7	.643			
GITK9		.847		
GITK5		.821		
GITK8		.818		
GITK4		.798		
GITK10		.745		
GITK6		.703		
ITCK3			.863	
ITCK2			.862	
ITCK5			.841	
ITCK4			.738	
ITCK1			.658	
ITC2				.886
ITC1				.858
ITC4				.823
ITC3				.774

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 5 iterations.
The varimax rotation shows that "General IT knowledge" (GITK) has been classified into two components, namely, "General IT knowledge" and "General Information Communication Technology knowledge" while the other two components have the same items. In this case, the items of GITK1, GITK2, GITK3, GITK7, GITK9, GITK11, GITK12, and GITK13 are considered as "General IT Knowledge"; while the items ofGITK4, GITK5, GITK6, GITK8, GITK9, and GITK10 are considered as "General Information Communication Technology knowledge".
To determine the consistency of the above factors, reliability test using Cronbach's alpha value was conducted. The results in Table 8 below show that the Cronbach's alpha values were above the minimum accepted value of .6 as suggested by Nunnally (1978). This provided confidence to use those variables for subsequent analysis.

Table 8:Summary of Reliability Test for IT knowledge component Variables

Variables	No. of Items	Alpha- Value
IT competency	4	.906
IT control knowledge	5	.854
General IT knowledge	7	.940
General ICT knowledge	6	.908

From the above results, it is confirmed that the variables related to the IT knowledge components are suitable for further analysis. The factor analysis of instructors' characteristics is provided in the next section.
Regarding to the results from the factor analysis test, the research framework will be change according to the results. Figure 2 represent the new research framework.
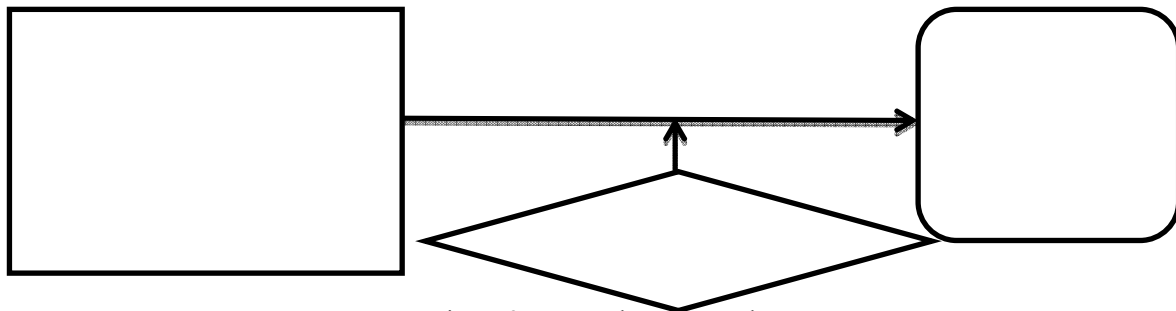
Figure 2: Research Framework

Regarding to the new research framework, the researchers restated to the hypotheses in response to the results of the factor analysis as presented in the previous section. The hypotheses it will be appear as follow:

H1: The AIS course content development in Iraqi HEIs is influenced by the IT knowledge components.

H1-1**:** The AIS course content development in Iraqi HEIs is influenced by the IT competency.

H1-2: The AIS course content development in Iraqi HEIs is influenced by the IT control knowledge.

H1-3: The AIS course content development in Iraqi HEIs is influenced by the general IT knowledge.

H1-4: The AIS course content development in Iraqi HEIs is influenced by the general ICT knowledge

Moreover, the hypotheses which are related to the instructors' characteristics relationships are restatement also as show below:

H2: The influence of IT knowledge components on AIS course content development in Iraqi HEIs is moderated by Instructor's characteristics.

H2-1**:** The influence of IT competency on AIS course content development in Iraqi HEIs is moderated by Instructor's characteristics.

H2-2: The influence of IT control knowledge on AIS course content development in Iraqi HEIs is moderated by Instructor's characteristics.

H2-3: The influence of general IT control knowledge on AIS course content development in Iraqi HEIs is moderated by Instructor's characteristics.

H2-4: The influence of general ICT control knowledge on AIS course content development in Iraqi HEIs is moderated by Instructor's characteristics.

The same procedures of the factor analysis test are applied on the instructor characteristics and the AIS course content items. The results are summarized below:

The correlation test was being conducted on the study data, the results as show in Table 6 below confirmed that there is a significant liner relationship between AIS course content development and IT competency, IT control knowledge, general IT knowledge and general ICT knowledge (for details please refer to the Table 9 below).

Table 9: Correlation between the Study Variables

	ITC	ITCK	GITK	GICTK	IC	AISCC
ITC	1					
ITCK	.168	1				
	.052					
GITK	.376(**)	.079	1			
	.000	.363				
GICTK	.430(**)	.141	.426(**)	1		
	.000	.104	.000			
IC	-.063	-.116	-.002	-.013	1	
	.469	.181	.982	.882		
AISCC	.597(**)	.231(**)	.681(**)	.509(**)	-.076	1
	.000	.007	.000	.000	.384	

The results shown that the current study have no multicollianarity problem in the data in order to test the direct relationship between the IT competency, IT control knowledge, general IT knowledge and general ICT

knowledge, the multiple regression test was used. The results are shown in Table 10 below.

Table10: The Coefficients (a) Value

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1(Constant)	.734	.225		3.268	.001		
ITC	.250	.044	.354	3.195	.001	.753	1.329
ITCK	.100	.045	.122	-1.777	.030	.954	1.048
GITK	.345	.043	.487	5.669	.001	.788	1.269
GICTK	.071	.044	.103	1.065	.106	.740	1.352

a. Dependent Variable: AIS course content

In addition to the multiple regression tests, hierarchical multiple regression test was used to exam the moderating effect of instructors 'characteristicson the relationship between IT knowledge components and AIS course content development. In Table 11 a summary of the results ofhierarchical multiple regression tests are illustrated.

Table 11: The Summary of Hierarchical Regression Results

Independent Variable		Step 1 Std. Beta	Step 2 Std. Beta	Step 3 Std. Beta	Sig.
Model variables					
IT competency	(ITC)	.189	.290	.536	
IT control knowledge	(ITCK)	.098	.120	.108	
General IT Knowledge	(GITK)	.389	.562	.409	
General ICT knowledge	(GITCK)	.061	.094	-.016	
Moderating Variable					
Instructors' characteristics	(IC)		.041		.460
				-.624	.057
Interaction Terms					
IC * ITC				-.647	.001
IC * ITCK				.849	.023
IC * GITK				.856	.001
IC * GICTK				-.031	.922
R^2		.631	.632	.854	
Adjusted R^2		.619	.618	.844	
R^2 Change		.631	.002	.222	
Sig. F Change		.000	.460	.000	

Dependent Variable: AIS course content

It can be seen from Table 7 that independent variables that were entered in the first step caused 63.1 percent of variance in AIS course content. IT competency (β= .189, P=.001), IT control knowledge (β=.098, P=.028), and general IT knowledge (β=.389, P=.001) have significant positive relationship with AIS course content development. The moderating variable entered in the second step caused 63.2 percent of variance in the AIS course content development. Instructors' characteristics were not significantly (β=.041, P=.460) related to AIS course content development. In the third step, the interaction terms were entered and in turn increased R^2 to 85.4 percent. Moreover, only one of the interaction terms, which is general ICT knowledge (β= -.004, P=.922), was not significant, while IT competency (β= -.087, P=.001), IT control knowledge (β= .121, P=.023), and general IT knowledge (β=.128, P=.001) were significant. The results in Table 4.56 reflect that instructors' characteristics were not a significant (P=.460) influence in the second stage, while in the third stage, they were significant (P=.057). Based on Sharma, Durand, and Gur-Arie (1981), instructors' characteristics were considered purely as a moderating variable in this study.

6.0 Discussion of Results

Although the results from the correlation test confirmed that there is a significant (P= .001, .509)liner relationship between general ICT knowledge and AIS course content development. This relationship classified as "Moderate" based on Gulidford's Rule of Thumb. The regression results showed there is no significant relationship (β = .017, P= .106)between general ICT knowledge and AIS course content development. These

results are in line with the challenges that ICT faces in the Arab region. These challenges are stated by Accascina (2006) which can be summarized in: (1) human resources that are unfamiliar with the ICT; (2) political situations; (3) language used is primarily English or French; and (4) the infrastructure. In addition to these challenges, Elameer and Idrus (2010) revealed that the lack of ICT infrastructure is so ubiquitous in governmental offices and universities.

The variable of IT competency has a significant relationship (β = .250, P= .001) with AIS course content development.This is in tandem with previous studies such as Andrews and Wynekoop (2004), and Mounceet al. (2004). According to Mounce et al. (2004), the integration of IT competency in the AIS course content is very important. Also this result is supported by the results that conducted from the correlation test (please refer to Table 5) which are confirmed that IT competency has a significant relationship (P= .0001, .597) and this relationship classified as "Moderate" based on Gulidford's Rule of Thumb.

The findings also indicated that there is a significant relationship (β = .100, P= .030) between IT control knowledge and AIS course content development. This resultcreates a need to include more subjects about IT control in the AIS course content in the Iraqi HEIs. In the same vein, the correlation test results set that a significant relationship (P= .007, .231) was found between IT control knowledge and AIS course content development which is considered as "Moderate" according to Gulidford's Rule of Thumb.

The results from Table 6 showed that the general IT knowledge has a significant relationship (β = .345, P= .001) with AIS course content development. Also the finding from the correlation test indicate that there is a lineal relationship (P= .001, .681) and this relationship considered as "Moderate" according to Gulidford's Rule of Thumb.

Although, the results of the correlation test showed that there is a significant (P= .001, .509) linear relationship between the last variable which is general ICT knowledge and AIS course content development and this relationship considered as "Moderate" according to Gulidford's Rule of Thumb. The results from the regression test shows thatno significant relationship (β = .071, P= .106) between general ICT knowledge and AIS course content development.

Testing moderate influence of instructors' characteristics on the relationship between IT knowledge components and AIS course content development was been do it by using hierarchical regression test. This variable was never been tested as moderate before. The results thatare shown in Table 7 above identified that although the influence of instructors' characteristics, still there is no significant relationship (β = -.031, P= .922) between general ICT knowledge and AIS course content development. While the IT competency, IT control knowledge and general IT knowledge have a significant relationship with AIS course content (β = -. 647, P= .001; β = .849, P= .023; β = .856, P= .001).

7.0 Conclusion and Future Research

This paper examined the relationship between IT competency, IT control knowledge, general IT knowledge, general ICT knowledge, instructors' characteristics as moderate variable and the AIS course content development. The results provided evidence that there is a significant relationship between IT competency, IT control knowledge and general IT knowledge. While the general ICT knowledge fond to be no significant relationship with AIS course content development. The same results are repeated in testing the moderate influence of instructors' characteristics on the relationship between IT knowledge components and AIS course content development. Thus it is important to recommend that the Ministry of Higher Education and Scientific Research in Iraq should give more consideration to the IT competency, IT control knowledge and general IT knowledge in their efforts to developing the HEIs curriculum. The current study also observed the gap in the literature which confirmed that there is a few studies that discussed the influence of IT knowledge component on the AIS course content development.

It is concluded that the developing of any course content including AIS course can be improve the level of students competency. By considering the above significant independent variables, it is argued that the AIS course content in the Iraqi HEI can be improved to be in the same par than in the developed countries or at least what the developing countries have. This will lead to provide qualified accountants who can work in the multinational companies or on the globule audit firms. This study it is very important, because one of the major priorities of the MHESR is developing the course contents in the Iraqi HEIs.

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