Developing Standardised Accounting Information System (AIS) Course for Iraqi Higher Education: A Conceptual Framework

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ABSTRACT

One of the challenges in global educational reform is a need to come out with a curriculum that is capable of delivering 21st century knowledge to the students in all areas of studies of Higher Education Institutions (HEIs). This is to ensure that competent graduates are produced from HEIs. Undoubtedly, the Iraq post-wars and economic sanctions have led to poor states of technology and education in the country. As part of the Iraqi accounting education, accounting information system (AIS) course content has been affected by the Iraqi circumstances, since the global trend demands a technology-driven course. This results in Iraq lagging behind compared to other countries, even amongst developing countries. Thus, there is a need to determine the factors that need to be considered while developing an AIS course in Iraq in order to make it at on par with international standards. To assist in this process this paper proposes a conceptual framework which highlights AIS course content that need to be considered in Iraq.

Keywords: AIS, Course, HEIs, technology-driven, conceptual framework.
JEL Classification: M41

1.   Introduction

In formal education, the knowledge acquisition process is always achieved through a designed course of studies. All teaching and learning activities are therefore being guided by the curriculum and courses. For

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this reason among others, academic courses need to be developed with emphasis on efficiency to deliver knowledge with impact. It is generally accepted that meeting global reform in education systems requires globalising the existing academic courses to deliver the 21st century form of knowledge (Garfield, Dresden, & Boyle, 2003). In turn, considering course content issues from a global perspective is necessary for every professional course like AIS, so that graduates will be equipped with applied skills and knowledge as required by the profession to enable securing better opportunities in the job market (Lee & Fang, 2008).

Chang and Hwang (2003) revealed that rapid development in information technology (IT) has posed many challenges to the accounting profession. The trend in AIS course as a professional course is to make the course IT-driven (Chayeb & Best, 2005). This calls for the improvement of AIS course content globally so as to meet the current expectations with respect to IT. The post war experience in Iraq has caused the country great damage in terms of technological development (Al-Ekachee & Al-Zubaidi, 2006). The effect is felt in all sectors of the economy including Education. Considering all these there is a need to have a re-look at the current AIS course taking into account the current technological situation in the country. These form the background for this paper which ultimately proposes a conceptual framework for determining the factors that need to be considered in improving AIS course content for the Iraqi HEIs. This is to ensure that Iraq can compete with other developed and developing nations by producing accounting graduates with required AIS skills and knowledge.

The need to improve AIS course has been an issue of interest in the accounting area and has created a need to continuously re-examine and modify AIS courses to meet global challenges (Theuri & Gunn, 1998; Lee, Trauth & Farwell, 1995; Noll & Wilkins, 2002; Whitefield & Kloot, 2006; Meer & Adams, 1996; Previts, 1991). Course content is not only important to profession development in accounting but also to other professions also (Bruner, 1960; Tyler, 1949; Theuri & Gunn, 1998; Al-Sakaa, Al-Hamadany, & Al-Taay 2007). This implies that without soundly developed course content, it is difficult to monitor the realisation of AIS educational goals. The following sections thus contain discussions on AIS course content based on evidences from previous studies.

The remainder of this paper is structured as follows. Section 2 provides an overview of AIS course content, section 3 reviews the factors that influence AIS course content, while section 4 discusses research

hypotheses. Research framework will be provided in section 5; finally, section 6 presents the conclusions for this paper.

2.   Accounting Information System Course Content

Taha (2007) defined an accounting course as a set of elements interconnected and interacting with each other to provide the necessary accounting knowledge, which impacts on the scientific and professional levels of accounting students. As it is known, in the business world there is an increasing dependency on IT. This is because of the need to improve business efficiency (Gogan, Smith-David, Eining, Fedorowicz, & Porter, 1999). Vatanasakdakul and Aouny (2009) revealed that AIS is interdisciplinary in nature and seems to integrate the fields of accounting and IS. This opinion is supported by Bagranoff, Simkin and Norman (2009). The authors explained that AIS courses stand at the intersection of two disciplines. Figure 1 explains AIS as a hybrid of accounting and is domains.

Figure 1:   The AIS as a hybrid of accounting and information system domains
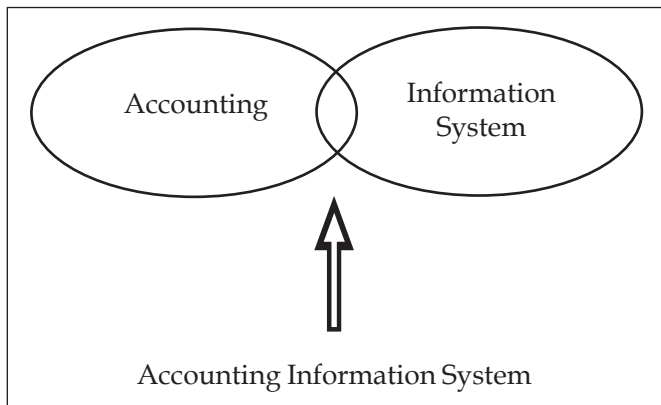
Source: (Bagranoff, Norman, & Simkin, 2008)

The inclusion of IT concepts differentiates AIS courses from other accounting subjects. Also, the recent development in IS and its application in the business world have called for the integration of IS concepts in accounting education (Borthick, 1996). This justifies rapid changes in accounting education and incites a constant evaluation

of how best to present IS theory fit to accounting students (Potter & Johnston 2006). In the accounting education the area of IS is considered as a major challenge for many academics (Vatanasakdakul & Aouny, 2009). Barkman (1998) and Borthick (1996) revealed that AIS is the newest and the least standardised component of the accounting curriculum.

According to Theuri and Gunn (1998), AIS course is the fundamental course for accounting students whereby accounting specific IS concepts are intertwined with the technical accounting education. The authors declared that to reduce the gap between the academics and practitioners needs, require determining the most AIS critical knowledge and skills to be determined and delivered in computerised environments. In this regard Chang and Hwang (2002) and Meer and Adams (1996) uncovered that, in accounting curriculum, AIS course is the only course that integrates IT knowledge and concepts into accounting systems.

There are few studies conducted in AIS education (Chayeb & Best, 2005), Callaghan, Peacock & Savage, 2000; Hutchinson, White & Daigle, 2004; Ismail, 2009). Al-Jalily and Taha (2010) and Taha (2007) argued that in Iraq there is limited research that discusses the accounting curriculum. The authors stated that although it is admitted that accounting education is important in Iraq, accounting researchers did not give adequate attention to it. In other words, the direction of AIS course is very emboldening. Therefore, it is important to identify the factors that influence AIS course content development. The next section provides a description about the potential influencing factors.

3. AIS Course Content Development Factors

Based on the above discussion, this study consists of one dependent variable which is AIS course content. Additionally, one moderating variable - which is instructors' characteristics, and four groups of independent variables are also proposed. The first group is named Employer's Needs and consists of core knowledge, business environment knowledge, and personal and interpersonal skills dimensions. The second group is Professional Bodies while the third group is Learning Environment. Learning environment has three dimensions which are current technological state, learning approach, and participatory learning and teaching methods. The final group is IT knowledge components, which consists of IT competency, IT control knowledge, and general IT knowledge as dimensions.

3.1 Employer Needs

Generally, the marketability of any graduate relies on the ability to satisfy job requirements as specified by the employer. Accounting graduates are not exceptional in this case. It has been academically established by a number of researchers that employer's need plays a significant role in determining AIS course content (Dillon & Kruck, 2008; Lee, Koh, Yen, & Tang, 2002). The authors suggested that students of higher institution of learning should be prepared for their first job by teaching them only the relevant skills and knowledge for their entry job requirements. However, there are several arguments by the researchers in accounting education on whether more emphasis should be given to core accounting knowledge/skills or the personal and interpersonal skills when developing accounting education curriculum (Chayeb & Best, 2005; Dillon & Kruck, 2008; Janicki, Lenox, Logan, & Woratschek, 2008; Kavanagh & Drennan, 2008; Lee, Trauth, & Farwell, 1995; Lee & Fang, 2008; Noll & Wilkins, 2002; Whitefield & Kloot, 2006). These encourage the researcher to investigate which knowledge and skills are important to develop good AIS course content.

Evidence from previous studies show that there have been a series of difficulties experienced in the process of recruiting qualified accounting graduates by the employers, due to an existing gap between career path and academic study (Kennan et al., 2008). The identified gap was attributed to the variation in the perceptions of educators and employers about the required skills and knowledge that every accounting graduate should has (Grant, 2007). Thus, there is a need to strike a balance between these varied perceptions in order to pave ways for job opportunity for the accounting graduates. Achieving this requires integrating the needs of the employers into the AIS course.

The fact that employer's needs need to be integrated in the course does not completely deliver a good course but also what aspect of the needs that should be emphasised and why? Several arguments have been presented on whether the AIS core knowledge/ skills should be more emphasised than the personal and interpersonal skills when developing accounting-related course like AIS (Chayeb & Best, 2005; Dillon & Kruck, 2008; Janicki et al., 2007; Lee et al., 1995; Lee & Fang, 2008; Noll & Wilkins, 2002; Whitefield & Kloot, 2006). Andrews and Wynekoop (2003) uncovered that little empirical work has been done to determine what IS knowledge needs to be included in the AIS course. Chayeb and Best (2005) revealed that core IS knowledge that

can be embedded in the accounting graduate, especially for the IS professional entry-level, is generated through effective course content that incorporates professional requirements in that field of study.

Noll and Wilkins (2002) argued that the relationship between IS and knowledge of business environment should be considered in the course content, which allows better preparation for the graduates before entering professional careers. In the same vein, Cappel (2002) explained that the IS function has evolved from traditional, centralised organisation to more decentralised, end-user focused, business orientation. Therefore, it is important for the IS professional to be equipped with business environment knowledge. This shows the importance of making regular assessments of the AIS course content in the universities to meet dynamic needs in the business environment.

Tang et al. (2001) defined interpersonal skills as a term refering to the skills which are needed to work well in an organisation or team. Dalal (1994) defined the personal skills as a skill that enables IS professional to have critical and creative thinking and abilities to deal with technical and managerial issues related to the design and use of IT to solve business problems rather than having mere knowledge about a narrow subject. This was supported by McMurtrey, Downey, Zeltmann, and Friedman (2008). The importance of personal and interpersonal skills was also highlighted by Lee and Fang (2008). The authors revealed that both employers and students share the same perception about the skills required in the entry-level of IS jobs.

From the aforementioned discussion, it is declared that the elements of employers' needs are the first element of this research conceptual framework. Employers' needs in turn can be understood from three perspectives:-, core knowledge, business environment knowledge, personal and interpersonal skills. The expected impact of this construct is to be able to determine in what rate, each of the three aspects of employer's need should be considered in the AIS course content for the Iraqi HEIs. Thus the following hypotheses are proposed:

H1:   The AIS course content in the Iraqi HEIs is influenced by the employers' needs.

H1a: The AIS course content in the Iraqi HEIs is influenced by the core knowledge.

H1b: The AIS course content in the Iraqi HEIs is influenced by the business environment knowledge.

H1c: The AIS course content in the Iraqi HEIs is influenced by the personal and interpersonal skills.

3.2 Professional Bodies

Harvey and Mason (1995) defined the professional bodies as the organisations which represent the interest of the professional practitioners, and so act to maintain their own privileged and powerful position as a controlling body. The education standards for professional disciplines are set by relevant professional bodies (Saville, 2007). In the case of accounting-related courses, they act as a regulatory body to ensure that the graduates are equipped with all that it takes to perform in the real life working environment (Saville, 2007). The consideration of professional bodies in course development process is a way to come out with a course that can produce graduates with acceptable professional skills and knowledge to cope with the real working environment (Chayeb & Best, 2005). It has been revealed by quite a number of authors that it is practically impossible to separate academics from professionals in course content development if such a course is aimed at producing professionals in that field (Carr &Mathews, 2004; Johns, 2002; Saville, 2007). Thus the role of professional bodies in the AIS course content cannot be neglected.

Chayeb and Best (2005) revealed that one of the most prominent challenges facing academicians in AIS field at various levels is the challenging task of producing accounting graduates capable of working in the current technological environment. Strict adherence to the professional standards will surely solve this problem. This is in tandem with the suggestion of the authors that the guidelines of the International Federation of Accountants Committee (IFAC) should be strictly followed. The impact of professional bodies in improving the national education standard has been exhibited in Australia where the Australian branch of the Certified Public Accountants (CPA) acts as a key role player making Australian higher education accounting curriculum at par with international standard (Johns, 2002). Similarly, Carr and Mathews (2004) attributed the failure of New Zealand accounting curriculum to the reluctance of Institute of Chartered Accountants of New Zealand (ICANZ) to cooperate. In summary, it will be difficult to develop educational curricula without working along with the relevant professional bodies.

Having established the need to involve the professional bodies in the course content development process, it is necessary to determine the level of such involvement since the Iraqi case is so special. Adopting the IFAC requirements completely without considering to the current national issues might be a fruitless effort. Thus, the essence is to compare the local and the international professional standards so as to propose suitable standard for AIS by striking the balance between them, considering the peculiar state of Iraq in terms of development. Therefore, the following hypothesis is proposed:

H2:   The AIS course content in the Iraqi HEIs is influenced by the professional bodies.

3.3   *Learning Environment*

According to Al-Zubee (2011) 'learning environment' can be defined as the sum of the internal and external circumstances and influences surrounding and affecting a person's learning. The environment in which learning takes place cannot be separated from either the actual learning process or the course guiding the process (Chung & Davies, 1995; Norris, 2004).

Windeknecht, Kehoe and Tennent (2005) argued that the new technological innovations request a critical need to make learning environments more flexible. Kimble (1999) highlighted that many researches showed that technology has a positive impact on students learning. It has been argued that there is nothing good in developing a course without considering the technological state of the larger environment in which such course is going to be delivered (Theuri & Gunn, 1998). Thus, the inclusion of the current technological state as a sub-construct under Learning Environment is to determine the level of influence of the state of technology on the development of AIS course content for the Iraqi HEIs. This is to fill the research gap highlighted by O'Donovon (1996) that the impact of the dynamic IS environment is not considered in the development of accounting-related curriculum. Since this phenomenon varies from one country to the other, it will be difficult to adopt the framework of one country to another if they are not at the same level of technological development. This is one of the main justifications and needs for the framework presented in this paper. It has equally been revealed that one of the essential issues in course content in this globalised era is making the course to be information and

communication technology (ICT) compliant (Bakar, 2007). This relates the technological perspective and it means the influence of technology on course content cannot be ignored.

Besides the current technological state, the approach in which the course is going to delivered should be considered right from the development stage for the success of the process (Armitage & Boritz, 1986; Bromson, Kaidonis, & Poh, 1994; Collier Kaye, Spaul, & Williams, 1990; Harrison, 1994). Wierstra, Kanselaar, Linden, Lodewijks and Vermunt (2003) 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. Also, Tella and Adu (2009) revealed that for any IT-driven course like AIS course, the best learning approach is the learner-centered approach. From the above discussion it is clear that discussing learning environment without considering learning approach is considered as a flaw. This is why learning approach is considered as one of the sub-element of the learning environment in the conceptual framework.

Another learning environmental issue to be considered is teaching methods. Teaching methods can be defined as a way to provide, display and organise the information, attitudes and educational experiences to the learner, leading to knowledge and skills development (Haghighi, Vakil, & Wetiba, 2006). McNaught (2002) stated that the educational environment should be designed based on the teaching and learning methods. Dominick (1993) highlighted that teaching methods play an important role in designing and implementing the educational courses. Manochehr (2006) highlighted that learning methods have a role in developing educational courses. As this research aims to develop a conceptual framework for an AIS course content for the HEIs in Iraq, participatory teaching and learning methods are included in this research conceptual framework.

From the above discussion it is clear that learning environment is another important element included in this research framework. The discussion also highlights that current technological state, learning approach, and participatory teaching and learning methods considered as sub-dimensions in learning environment and these three dimensions are important to be considered when developing AIS course content. In this regard the following hypotheses are proposed:

H3: The AIS course content in the Iraqi HEIs is influenced by the learning environment.

H3a: The AIS course content in the Iraqi HEIs is influenced by the current technological state.

H3b: The AIS course content in the Iraqi HEIs is influenced by the learning approach.

H3c: The AIS course content in the Iraqi HEIs is influenced by the participatory learning and teaching method.

3.4   Information Technology Knowledge Components

The globalisation that is currently taking place throughout the world has called for all aspects of human endeavour to be driven by technology, especially IT. 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' (Brynjolfsson & Hitt, 2000, p. 24). 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, p. 96). In this regard IT knowledge can be defined 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.

Senik and Broad (2011) uncovered that the integration of IT knowledge in the accounting programs in undergraduates studies is still below the minimum expectation that is outlined by the accounting educational and professional bodies such as IFAC and AICPA. According to Chayeb & Best (2005), IT general knowledge, IT control knowledge and IT competency constitutes the IFAC requirements in terms of IT in AIS course content. These are all included in the conceptual framework so that the exact type of IT skills and knowledge required for accounting graduates can be embedded. This is in tandem with the opinion of Ismail and Salim (2005). In the same vein, Cooper (2002) argued that there is a need to integrate the required telecommunication, innovative, cognitive tools and other necessary technologies into educational course in this globalisation era so that such a course can support the 21st century learning requirement.

Ahmad (2003) emphasised the importance of increasing IT competency in accounting graduates. Dillon and Kruck (2008) revealed that developing a good AIS course content cannot be achieved without

integrating IT competency. This was also supported by Mounce et al. (2004). 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 (Birkett, 1993).

IFAC (2006) highlighted the importance of integrating IT auditing concepts in accounting courses. Similarly, Dillon and Kruck (2008) and Mounce et al. (2004) revealed that IT control knowledge should be the major element to be considered when developing AIS course content. This was supported by Coe (2006) and Thueri and Gunn (1998).

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

Based on the discussion above it is declared that IT knowledge components are the fourth element of this research conceptual framework. IT competency, IT control knowledge and general IT knowledge are considered as sub- dimensions of IT knowledge component. Thus the following hypotheses were identified:

H4: The AIS course content in the Iraqi HEIs is influenced by the IT knowledge components.

H4a: The AIS course content in the Iraqi HEIs is influenced by the IT competency.

H4b: The AIS course content in the Iraqi HEIs is influenced by the IT control knowledge.

H4c: The AIS course content in the Iraqi HEIs is influenced by the general IT knowledge.

3.5 Instructor Characteristics

Generally, a human's characteristic bears some traces of his / her culture. Therefore it is possible to have different characteristics when the instructors are drawn from different cultural backgrounds. It has

been empirically proven that the characteristics of AIS lecturers correlate with AIS course content (Groomer & Murthy, 1996; Chayeb & Best, 2005; Senik &Broad, 2004). Therefore, the inclusion of this variable in the conceptual framework is justifiable. This is in tandem with the position of Grossman, Onkol and Sands (2007) who stated 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 effective AIS course content in Iraq are to 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 integration in educational process which course content is considered as one of the educational process elements. The authors supported this with a report from the U.S Congress Office of Technology Assessment (1995). The report highlighted that 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's 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 parallel with all these discussions, instructor's characteristics this variable are included in the framework to moderate the effect of IT knowledge components on the AIS course content. Based on this, the following hypotheses are proposed:

H5 : The influence of IT knowledge components on AIS course content development in Iraqi HEIs is moderated by instructor's characteristics.

H5a: The influence of IT competency on AIS course content development in Iraqi HEIs is moderated by instructor's characteristics.

H5b: The influence of IT control knowledge on AIS course content development in Iraqi HEIs is moderated by instructor's characteristics.

H5c: The influence of general IT knowledge on AIS course content development in Iraqi HEIs is moderated by instructor's characteristics

4.   Research Framework

Sekaran and Bougie (2010) defined theoretical framework as logically developed, described and gives details network of associations between the variables related to the problems 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 explains 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.

As discussed above, this research intends to investigate four independent variables (employer's needs, learning environment, professional bodies and IT knowledge components), one moderating variable (instructors' characteristics) and finally one dependent variable (AIS course content). Table 1 illustrates - the relationships between the main variables of the research. Figure 2 illustrates the details of relationships among the research variables.

Table 1:   Description of the Research Variables

Independent Variables	Moderating Variable	Dependent Variable
Employer's Need		
Professional Bodies	Instructor's Characteristics	AIS Course Content Development
Learning Environment		
IT knowledge components		

5.   Conclusion

The evidence from the previous studies have shown that the success of course content relies on the ability of the stakeholders to determine the factors predicting the successful implementation of the course in question. This means that the environment (physical and technological) at which the course is going to be operated cannot be fully separated from its development process. The implication of this is that a course

that is delivered in one setting might fail to be delivered in another setting due to a number of factors, which are aimed at developing a framework prior to the actual course development. Therefore, the presented conceptual framework presented in this paper is to determine the factors that are worthy of consideration while developing AIS course in the Iraqi HEIs.

Figure 2: The Conceptual Framework of AIS Course Content Development
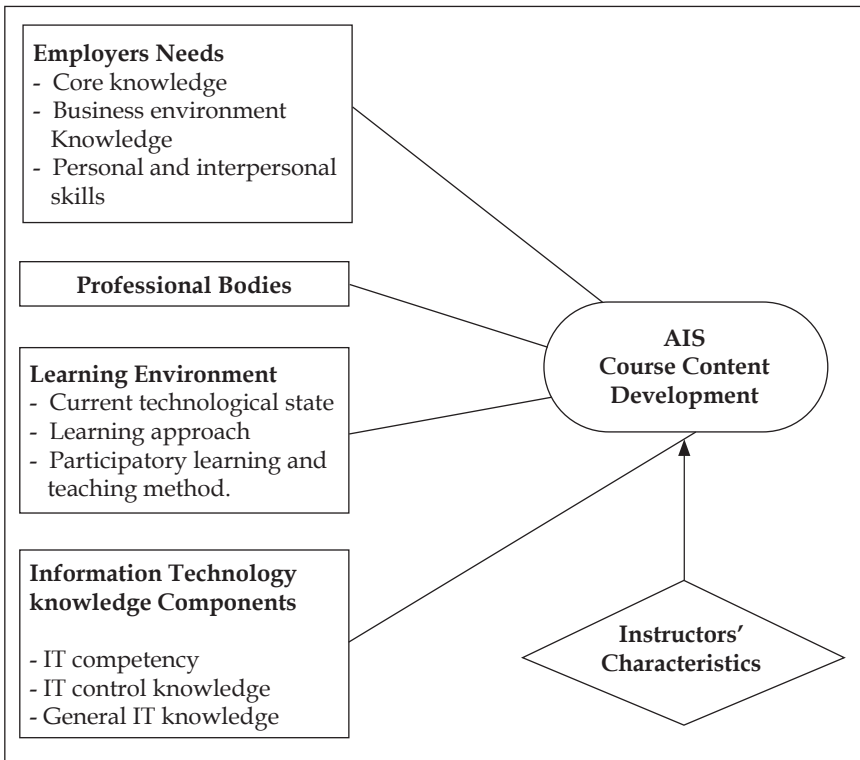
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