Teaching Information and Communication Technology in the Arab World: An Examination of Curriculum

Anil Sharma, Information Technology, UGRU, UAE University, PO Box 17172, Al Ain, UAE, asharma@uaeu.ac.ae

Khalifa Ali Alsuwaidi, College of Education, UAE University, PO Box 17551, Al Ain, UAE, k.suwaidi@uaeu.ac.ae

Stephen Boylan, English, UAE University, PO Box 17172, Al Ain, UAE, stephen.boylan@uaeu.ac.ae

ABSTRACT

A major paradigmatic teaching shift has taken place in the United Arab Emirates, from the traditional format to one in which students are actively engaged in their own learning process. While core values that are central to Islamic beliefs are retained, the methodology now focuses on teaching curriculums based on thinking, rather than rote memorization. In this new Era University General Requirements Unit (UGRU) of United Arab Emirates University (UAEU) has replaced the traditional Information Technology (IT) curriculum by new Information and Communication Technology (ICT) curriculum. This paper examines the new ICT curriculum in terms of educational goals, content, teaching methods, and assessment. This research indicates that ICT lecturers view the new curriculum as better than the traditional curriculum in all these areas. Lecturers also indicated that the new ICT curriculum is better than traditional rote-learning based Information Technology (IT) curriculum. It integrates thinking skills into the education curriculum. It allows students to track and take control of their own learning, which in turn enable young people to function effectively in their own world as well as in the global community. The students involved in the ICT curriculum demonstrated conclusively that they could learn ICT successfully, in a collaborative, student-centered, problem orientated environment. In fact, they proved that they could be asked to work at a higher level in this manner and achieve more. It is important to note that these ideas do not conflict with Islam. Students are not expected to change their belief systems. The Holy Qu'ran challenges believers to use their minds for critical thinking, problem-solving, creative thinking, and decision-making, etc. The outcome of this research indicates that ICT curricular changes to promote the shift from passive to active learning by the students are taking place. Some areas still need improvement, but the current trend is one that will be consistent with guiding Arab world students to become critical thinkers, able to search out, understand, analyze, and synthesize the information they will need to become world citizens and world leaders.

1. INTRODUCTION

A major paradigmatic teaching shift has taken place in the United Arab Emirates, from the traditional format to one in which students are actively engaged in their own learning processes. While core values that are central to Islamic beliefs are retained, the methodology now focuses on teaching thinking, rather than rote memorization. The test case is the University General Requirements Unit (UGRU) of United Arab Emirates University (UAEU). In this new era in UGRU the traditional Information Technology (IT) curriculum has been replaced by a new

Information and Communication Technology (ICT) curriculum. This paper examines the new ICT curriculum in terms of educational goals, content, teaching methods, and assessment.

Prelude

At first let us understand and analyse creativity, communication, collaboration, environment, and the human brain. Perhaps we should begin with a more basic question: what do we mean by creativity? The basis of creativity is achieving something that did not exist previously, breaking down established patterns, seeing things in a new way. But what drives people to think of something new? How does the creative process work? The creative process may manifest itself in different ways. "Chance favors the prepared mind," the famous scientist Louis Pasteur once said. Pathologist Peyton Rouse spoke instead of "a prepared mind making its own chances." Are we going to prepare our students using new tools of information technology for future and using creative and critical thinking, value of good communication, and habits of collaboration or wait for the chances? [1]

Now we will explore what we are doing in this direction in our IT educational system. Several influences have converged to create a new emphasis on the teaching of a thinking skills based ICT curriculum and other general skills around the world. Prominent among these are workplace readiness and the constructivist movement. Although education in the Arab nations has been tied to religious fundamentalism during the 20th century and traditional teaching techniques relied primarily on rote learning within a lecturer-centered, religious-oriented context, teaching thinking in IT is not at all antithetical to the Holy Qu'ran. In fact, more than 640[1] verses in the Holy Qu'ran challenge believers to use their minds for critical thinking, problem-solving, creative thinking, and decision—making. Particularly, as we enter the 21st century, it is important to cultivate these skills to enable our youth to function effectively in their own world as well as in the global community.

Thus, educators in the United Arab Emirates University have begun to examine ways to integrate thinking skills, such as workplace readiness and the constructivist philosophy, into the educational curriculum. With regard to the former, the ReadiSkills program in West Virginia is primarily a response to the requirements of business. The West Virginia Office of School-to-Work [2] developed a list of workplace readiness skills, including problem-solving, communication, and thinking skills, that were to be mainstreamed into the general curriculum in different courses. In addition to such influence from business is the constructivist movement in education, which emphasizes that students learn best when

they actively seek out their own solutions. This movement, based on the teachings of Jean Piaget who saw children as actively constructing their own understanding of the world as they encounter and organize their experiences, has also led to a greater emphasis on teaching thinking, along with problem-solving, teamwork, and other skills [3].

Curriculum, Teaching Methods and Evaluation

The new ICT curriculum focuses on critical and creative thinking. To teach thinking through the regular curriculum requires switching the classroom focus from rote learning to the application of knowledge and skills to all subjects and problems. In addition, it requires the practice of thinking about what one learns and attempting to apply the learning to different situations. Perkins [8] notes six basic priorities for lecturers who actively teach for understanding rather than for memorization. Among those priorities is an emphasis on learning as a long-term, thinking-centered process, rather than for a short-term memorization of a set of facts.

Cognitive research and theory has changed the way many in the education system think about educational practice, including curriculum design, assessment, and learning environments. The creation of specific kinds of learning environments, through adoption of particular methods or styles, affects not only the way students perceive their classroom and school settings, but also the way they learn and how much they learn. Greeno, Collins, and Resnick [11] emphasize that the design of learning environments can support cognitive or brain-based learning. A number of general principles for creating constructivist classrooms support the cognitive approach to learning. Brooks and Brooks [3] describe several of these. For example, students need to be provided with curriculum holistically, emphasizing large concepts, rather than the fragments, or basic skills as building blocks that is most typically the current approach. Students generally are thought of as theory-builders and meaning-makers, and their questions are encouraged and sought after. It is very much relevant for teaching IT [12]. These skills could be used intelligently in new ICT curriculum. For assessment in ICT curriculum a new rubric system is used.

To bring the United Arab Emirates into the 21st century it has been necessary to reevaluate and revise the IT educational curriculum, moving from a traditional, lecturer-centered approach to one that trains students actively to seek out information, evaluate it, and apply it to their world, which is consistent with the constructivist approach.

In spring of 2005, UGRU decided to replace its existing traditional IT curriculum with new ICT curriculum.

2. RESEARCH OBJECTIVES

The research project was carried out to assess the response of IT UGRU lecturers concerning the introduction of new ICT curriculum. The survey research method was used for this study by asking lecturers if they believe the new ICT curriculum is a better tool than the traditional IT curriculum in terms of educational goals, curriculum content, teaching methods, and assessment.

This study enabled us to find IT lecturers' views about the new ICT curriculum as better than the traditional IT curriculum in terms of the following items:

- ICT curriculum goals,
- ICT curriculum content,
- ICT curriculum teaching methods, and
- ICT assessment methods.

3. THE RESEARCH DESIGN

The Context

In the UAE there are two main types of universities: government controlled public universities, and privately funded universities. This study deals with the public university situated in Al Ain. At the initiative of the late President His Highness Sheik Zayed Bin Sultan Al Nahyan, the UAE University was inaugurated in November 1977. This federal university with Gulf, Arab and Islamic dimensions is meant to be a fountainhead of knowledge, culture, and sciences and to contribute to building a modern state by utilizing all available resources [7].

The UAE University has about 17,000 students. It consists of the following colleges: (i) College of Humanities and Social Sciences, (ii) College of Food Systems, (iii) College of Science, (iv) College of Education, (v) College of Engineering,   (vi) College of Shari'ah and Law, (vii) College of Business and Economics,   (viii) College of Medicine and Health Sciences, and (ix) College of Information Technology. In most of the courses the medium of instruction is English [7].

The University General Requirements Unit (UGRU) monitors and prepares students for all nine university colleges. The UGRU program was founded in 1990 as the *Basic University Education Center (BUEC)* [4]. That time it provided a bridge between the Ministry of Education and its schools on the one hand and the university colleges on the other hand. Now it is a first year developmental program. Students come with no formal computer background.

Over the past eight years, the UAE University has carried out a fully-fledged review of all its academic programs and plans to use modern methodology and international criteria suitable for its circumstances in all its colleges. The university pays special attention to the quality of its programs, teaching methods and updated learning resources in an attempt to promote self-learning and creative thinking, and to help learners absorb modern technology.

Methodology

Respondents

The survey instrument, including a brief explanation of the purpose of the study, was used to survey the point of view of all IT lecturers. By the cutoff date, 44 stakeholders' responses have been included in the survey. Two input were answered partially hence those have not been included in the survey. There are total 46 IT lecturers teaching or administering new ICT curriculum. All of these have been interviewed for this survey.

Research Method

The survey method was used because of its cost-effectiveness and its appropriateness for the purposes of this study by taking lecturers' opinions about the new and old curriculum in terms of educational goals, curriculum content, teaching methods, and assessment. The survey participation is completely anonymous. Our survey instrument was developed by leading educationist Dr. Khalifa Ali Alsuwaidi, leading professor of Education and previously director of UGRU.

The survey method consists of four sections: goals (7 questions), curricular content (9 questions), methods of teaching (19 questions), and assessment (16 questions). The survey used a three-point, Likert-type scale, ranging from "always" to "never."

Validation of the Survey Instrument

Five experts at the United Arab Emirates University validated the survey instrument. These experts were from Department of Curriculum and Instructions, and Department of Special Education [10].

Results

Responses from the completed surveys were coded and analyzed using statistical methods. The results will be presented in four sections corresponding to the four elements of curriculum: goals, content, teaching methods, and assessment. In general, the results of the study indicated that in many items of the four elements, lecturers believe that the new curriculum is better than the traditional curriculum.

Table 1. Frequencies, percentages, and Chi square of lecturers' responses to goal items

No.	Item	Traditional Curriculum			New Curriculum			Chi Square
		1	2	3	1	2	3	
1.1	Include the three domains: cognition, psychomotor, and affective.	14 31.82%	21 47.73%	9 20.45%	24 54.55%	16 36.36%	4 9.09%	5.23
1.2	Include different levels in each domain	18 40.91%	19 43.18%	7 15.91%	21 47.73%	19 43.18%	4 9.09%	1.05
1.3	Clearly stated.	36 81.82%	6 13.64%	2 4.54%	19 43.18%	12 27.27%	13 29.55%	15.32*
1.4	Develop students' mental skills.	20 45.46%	16 36.36%	8 18.18%	31 70.46%	9 20.45%	4 9.09%	5.67
1.5	Develop students' critical thinking.	11 25.00%	14 31.82%	19 43.18%	36 81.82%	7 15.91%	1 2.27%	31.83*
1.6	Encourage creative thinking.	11 25.00%	16 36.36%	17 38.64%	36 81.82%	5 11.36%	3 6.82%	28.86*
1.7	Encourage memorization.	30 68.18%	9 20.45%	5 11.36%	5 11.36%	12 27.27%	27 61.37%	33.41*

1 = Always, 2 = Sometimes, and 3 = Never. *Statistically significant at 0.05.

4. FINDINGS AND DISCUSSIONS
In general, the results of the study indicated that in many items of the four elements, lecturers believed that the new curriculum is better than the traditional curriculum.

ICT Lecturer's Views about Goals
This section included seven items that covered topics related to variety of goals, levels of each goal, clarity of goals, and development of mental skills such as critical thinking, development of creativity, and memorization. The results of this section are summarized in Table 1.

The results of Chi-square tests show that only four items demonstrate a statistically significant difference between the two types of curriculum. The results did not show significant differences in items related to variety of domains of knowledge, levels in each domain, and developing mental skills. The differences between both types of curriculum were focused on developing students' critical and creative thinking skills, and encouragement of memorization. Regarding clarity of goals (item 1.3), it was found that while 81.82% of lecturers believe that the goals of the traditional curriculum are "always" clear, 43.18% of lecturers believe that the goals of the new curriculum are "always" clear. The Chi-square value for this item is 15.32, which is higher than the critical value at 0.05. This means that there is a statistically significant difference between clarity of both types of curriculum in favor of the traditional curriculum. With respect to encouragement of memorization (item 1.7), it was found that while 68.18% of lecturers agree that goals of traditional curriculum "always" encouraged memorization, only 11.36% of lecturers agree that goals of new curriculum "always" encourage memorization. The Chi-square test result is 33.41, which is higher than the critical

value at 0.05, demonstrating a statistically significant difference between clarity of both types of curriculum in favor of the new curriculum. This indicates that the goals of the traditional curriculum encourage memorization more than the goals of the new curriculum.

The lecturers' "always" responses to items related to developing critical, and creative thinking (1.5, and 1.6), for the new curriculum, were 81.82% and 81.82% respectively. The Chi-square values for these items are 31.83, and 28.86 respectively, indicating that the new curriculum is better in these areas. But, lecturers seemed not to be satisfied with the variety and comprehensiveness of goals (items 1.1 and 1.2 respectively).

ICT Lecturer's Views about Content
This section included nine items covering topics related to: focus of content, inclusion of necessary information, encouragement of thinking, encouragement of inquiry, relevance to students' lives, appropriateness to students' mental abilities, incorporation of students' prior experiences, consideration of students' differences, and development of decision making. The results of this section are summarized in Table 2.

Chi-square test results show statistically significant differences between all items except the four related to focus of content, appropriateness to students' mental abilities, making use of students' prior experiences, and taking into consideration students' differences. The results indicate that lecturers believe the traditional curriculum contains more necessary information than the new curriculum. More lecturers indicated that the new curriculum is better than the traditional curriculum with respect to encouraging reading and searching for information (item 2.4), and helping students to become decision-makers (item 2.9). The percentages of lecturers who selected "always" for the new curriculum encouraging students to read and search for information as well as to become decision-makers were 79.55% and 63.64% respectively; however, only 29.55% and 15.91% respectively of them responded "always" to these items for the traditional curriculum. Chi-square test results for these items are 23.88 and 29.30, respectively, which are higher than the critical value.

The results also indicate that the new curriculum is more appropriate than the traditional curriculum in helping students make use of their prior experiences (item 2.7), and taking into consideration their individual differences (item 2.8). The percentage of lecturers who selected "always" for these items in the new curriculum was 50.00% and 29.55% respectively; however, only 31.82% and 27.27% respectively selected "always" for the traditional curriculum. Chi-square test results for these items are 5.67 and 1.35 respectively, which are higher than the critical value. However, only 25.00% of the lecturers selected "always" in item 2.2, contain all necessary information, for the new curriculum, suggesting that the new curriculum still needs to focus on this area. This is consistent with the results of items 1.3, in the previous section. Similarly 29.55% of lecturers do not think that new curriculum takes into consideration students' differences (item 2.8). This could be another area the new ICT curriculum needs to address.

ICT Lecturer's Views about Teaching Methods
The influence of the new curriculum on teaching methods was as high as that on content. The results, summarized in Table 3, indicate that lecturers consider the new curriculum to be better than the traditional curriculum in all items of this section except the one related to appropriateness to students' needs and abilities. Chi-square test results show statistically significant differences also in all items in the section except the one that is related to appropriateness to students' needs and abilities aspect.

In response to item 3.1, while 65.91% of lecturers agreed that the traditional curriculum is "always" centered on the lec-

Table 2. Frequencies, percentages, and Chi square of lecturers' responses to content items

No.	Item	Traditional Curriculum			New Curriculum			Chi Square
		1	2	3	1	2	3	
2.1	Focuses on information rather than method of acquiring them.	23 52.28%	12 27.27%	9 20.45%	18 40.91%	15 34.09%	11 25.00%	0.56
2.2	Contains all necessary information.	25 56.82%	12 27.27%	7 15.91%	11 25.00%	23 52.28%	10 27.72%	9.43*
2.3	Offers activities that encourage students to think.	10 27.73%	19 43.18%	15 34.09%	37 84.09%	7 15.91%	0 0%	36.05*
2.4	Encourage students to read and search.	13 29.55%	15 34.09%	16 36.36%	35 79.55%	7 15.91%	2 4.54%	23.88*
2.5	Related to students' life.	14 31.82%	20 45.45%	10 27.73%	31 70.46%	12 27.27%	1 2.27%	10.95*
2.6	Appropriate to students' mental abilities.	23 52.28%	16 36.36%	5 11.36%	26 59.09%	12 27.27%	6 13.64%	0.85
2.7	Make use of student's prior experiences.	14 31.82%	15 34.09%	15 34.09%	22 50.00%	16 36.36%	6 13.64%	5.67
2.8	Takes into consideration students' differences.	12 27.27%	14 31.82%	18 40.91%	13 29.55%	18 40.91%	13 29.55%	1.35
2.9	Encourages students to become decision-makers.	7 15.91%	15 34.09%	22 50.00%	28 63.64%	14 31.82%	2 4.54%	29.30*

1 = Always, 2 = Sometimes, and 3 = Never. *Statistically significant at 0.05.

Table 3. Frequencies, percentages, and Chi square of lecturers' responses to teaching methods items

No.	Item	Traditional Curriculum			New Curriculum			Chi Square
		1	2	3	1	2	3	
3.1	Centered on the lecturer.	29 65.91%	12 27.27%	3 6.82%	6 13.64%	15 34.09%	23 52.28%	30.83*
3.2	Encourage students' participation.	23 52.28%	12 27.27%	9 20.45%	37 84.09%	7 15.91%	0 0%	13.58*
3.3	Help lecturers appreciate students' differences.	15 34.09%	21 47.73%	8 18.18%	27 61.36%	14 31.82%	3 6.82%	7.10*
3.4	Help students work in teams.	13 29.55%	15 34.09%	16 36.36%	32 72.73%	11 25.00%	1 2.27%	21.87*
3.5	Encourage lecturers to involve students in	19 43.18%	14 31.82%	11 25.00%	35 79.55%	8 18.18%	1 2.27%	14.71*
3.6	Include various methods.	13 29.55%	15 34.09%	16 36.36%	34 77.27%	8 18.18%	2 4.54%	22.40*
3.7	Encourage lecturers to listen to students' ideas.	15 34.09%	14 31.82%	15 34.09%	33 75.00%	10 27.73%	1 2.27%	19.67*
3.8	Includes extra-curricular activities that encourage students' thinking.	12 27.27%	12 27.27%	20 45.46%	32 72.73%	8 18.18%	4 9.09%	20.56*
3.9	Allow students to describe their ideas even if they were extraordinary.	10 27.73%	16 36.36%	18 40.91%	32 72.73%	9 20.45%	3 6.82%	24.20*
3.10	Encourage students to discover new relationships.	12 27.27%	15 34.09%	17 38.64%	33 75.00%	9 20.45%	2 4.54%	23.14*
3.11	Encourage students to acquire scientific thinking habits.	11 25.00%	12 27.27%	21 47.73%	28 63.64%	12 27.27%	4 9.09%	18.97*
3.12	Help lecturers train students to use different methods.	17 38.64%	15 34.09%	12 27.27%	31 70.46%	11 25.00%	2 4.54%	11.84*
3.13	Help lecturers relate knowledge with students' daily life.	11 25.00%	21 47.73%	12 27.27%	29 65.91%	15 34.09%	0 0%	21.10*
3.14	Allow lecturers to use creative teaching methods.	17 38.64%	17 38.64%	10 27.73%	31 70.46%	13 29.55%	0 0%	14.62*
3.15	Encourage self-learning.	8 18.18%	26 59.09%	10 27.73%	33 75.00%	11 25.00%	0 0%	31.33*
3.16	Focus on inquiry rather than reception.	8 18.18%	17 38.64%	19 43.18%	35 79.55%	7 15.91%	2 4.54%	34.88*
3.17	Appropriate to students' needs and abilities.	16 36.36%	16 36.36%	12 27.27%	22 50.00%	15 34.09%	7 15.91%	2.30
3.18	Provide students with opportunities to think, compare, and deduce.	10 27.73%	15 34.09%	19 43.18%	31 70.46%	11 25.00%	2 4.54%	25.13*
3.19	Encourage students' participation even if they do not provide right answers.	17 38.64%	14 31.82%	13 29.55%	32 72.73%	10 27.73%	2 4.54%	15.33*

1 = Always, 2 = Sometimes, and 3 = Never. *Statistically significant at 0.05.

turer, only 13.64% of them responded that the new curriculum is "always" centered on the lecturer. Chi-square test result which is 30.83 identify statistically significant difference, indicating the new curriculum provides better participation by students, which can also be seen in lecturers' responses to items related to students' participation.

Lecturers agreed that the new curriculum provides more participation by students than the traditional curriculum. Lecturers selected "always" for the new curriculum more than for the traditional curriculum in all items related to students' participation (3.2, 3.4, 3.5, 3.9, and 3.19).

Lecturers selected the "always" response between 72.73% and 84.09% for the new curriculum while they selected "always" between 27.73% and 52.28% for the traditional curriculum on these items related to teaching methodology. Chi-square test results range between 13.33 and 24.20, which are all higher than the critical values. As a result, it can be said that new curriculum provides better chances for students to work in teams (item 3.4), involves students in more discussions (item 3.5), and encourages them to participate even if they do not provide right answers (item 3.19).

However, lecturers' responses indicate that the new curriculum must also address some areas in the traditional curriculum. Responses to item 3.1, which is related to the focus of the curriculum, show that 13.64% of lecturers believe that the new curriculum "always" focuses on the lecturer, suggesting that the new curriculum needs to provide students with more opportunities to be the focus of the learning process. The results of item 3.16, which is related to inquiry, show that 79.55% of lecturers agree that the new curriculum "always" focuses on active inquiry rather than passive reception. This means the new curriculum needs to provide students with more opportunities to do inquiry learning. And finally, the results of item 3.17, which is related to appropriateness

of curriculum to students' mental abilities, show that only 50.00% of lecturers agree that the new curriculum is "always" appropriate to students' mental abilities. This means the new curriculum needs to be more appropriate to students' mental abilities or more scaffolding must be provided.

ICT Lecturer's Views about Assessment
One of the strong and salient features of the new ICT program is the curriculum, both its design and its heavy reliance on modern technology. The curriculum moves away from rote-learning and emphasizes critical thinking, problem solving, investigation, self-learning and creativity. An interactive classroom environment is used.

The influence of the new curriculum on assessment methods was the highest among the other three elements of the curriculum. The results, summarized in Table 4, indicate that lecturers find the new curriculum to be better than the traditional curriculum in most of the items of this section.

Lecturers agreed that the traditional curriculum is better than the new curriculum with respect to assessing students' progress towards goals (item 4.1). 72.73% of lecturers indicated that the traditional curriculum "always" assesses progress towards goals, while 50.00% of them stated that the new curriculum "always" assessed progress toward goals. The new curriculum is better than the traditional curriculum with respect to assessing the three domains of knowledge (item 4.10). While 20.45% of the lecturers indicated that the traditional curriculum "always" covers the three main domains of knowledge, 59.09% of them indicated that the new curriculum "always" covers the three domains of knowledge. The Chi-square test result is 16.66, which is higher than the critical value, thus indicating a significant difference in favor of new curriculum.

Lecturers indicated that assessment in the traditional curriculum encouraged rote learning more than the new curriculum. 54.55% of lecturers agreed that the traditional curriculum "always" encouraged rote memorization; however, only 13.64% agreed that the new curriculum "always" encourages rote memorization (item 4.8). Also, lecturers responded that the new curriculum is better than the traditional curriculum in thinking (items 4.6, 4.11, and 4.13). The percentage of lecturers who agree that the traditional curriculum "always" encouraged thinking ranges from 18.18% to 34.09%; however the percentage of lecturers who agree that the new curriculum "always" encourages thinking ranges from 72.73% to 86.36%. Chi-square test results range from 18.37 to 41.54, which are higher than the critical value. These statistically significant differences are in favor of the new curriculum. Lecturers agreed that the new curriculum is better in assessing higher-order thinking skills (item 4.11), encouraging students to develop their inquiry abilities (item 4.13), and including real issues that students are required to tackle (item 4.6).

However, the results of lecturers' responses to item 4.5, related to developing the curriculum for the new curriculum, were still 54.55% in their selection of the "always" response, suggesting that the new ICT curriculum needs to emphasize this area more.

5. CONCLUSIONS
Certain changes were made in the IT curriculum with respect to educational goals, content, teaching methods, and methods of assessment. For example, course content in the new ICT curriculum does not contain all the information needed for students to learn a subject, thereby requiring the students to do their own research to complement the information in their texts. Regarding teaching methods, lecturers now share the class time with the students, thus engaging students in their learning experience. Generally speaking, the new curriculum has changed from a textbook, lecturer-centered model to a learner-

Table 4. Frequencies, percentages, and Chi square of lecturers' responses to assessment items

No.	Item	Traditional Curriculum			New Curriculum			Chi Square
		1	2	3	1	2	3	
4.1	Enable lecturers to measure students' progress toward goals.	32 72.73%	8 18.18%	4 9.09%	22 50.00%	18 40.91%	4 9.09%	5.69
4.2	Focus on students' abilities to recite information.	21 47.73%	15 34.09%	8 18.18%	13 29.55%	17 38.64%	14 31.82%	3.64
4.3	Help lecturers identify students' weaknesses to set remedial sessions.	27 61.36%	14 31.82%	3 6.82%	18 40.91%	21 47.73%	5 11.36%	3.70
4.4	Focus on objective exams.	32 72.73%	8 18.18%	4 9.09%	8 18.18%	15 34.09%	21 47.73%	28.09*
4.5	Can be used to develop the curriculum.	21 47.73%	16 36.36%	7 15.91%	24 54.55%	14 31.82%	6 13.64%	0.41
4.6	Include the real issues and problems that students are required to tackle.	15 34.09%	13 29.55%	16 36.36%	33 75.00%	9 20.45%	2 4.54%	18.37*
4.7	Not limited to pencil-and-paper tests.	20 45.45%	7 15.91%	17 38.64%	26 59.09%	7 15.91%	11 25.00%	2.07
4.8	Encourage students to memorize sample answers.	24 54.55%	15 34.09%	5 11.36%	6 13.64%	11 25.00%	27 61.36%	26.54*
4.9	Allow students to express themselves freely.	9 20.45%	15 34.09%	20 45.45%	33 75.00%	10 27.73%	1 2.27%	31.91*
4.10	Include the three domains: cognition, psychomotor, and affective.	9 20.45%	23 52.28%	12 27.27%	26 59.09%	16 36.36%	2 4.54%	16.66*
4.11	Test higher-order thinking level analysis, synthesis, and evaluation.	10 27.73%	12 27.27%	22 50.00%	32 72.73%	9 20.45%	3 6.82%	26.39*
4.12	Includes various assessment methods to measure students' abilities.	17 38.64%	14 31.82%	13 29.55%	29 65.91%	11 25.00%	4 9.09%	8.26*
4.13	Encourage students to develop their abilities in inquiry and discovery.	8 18.18%	22 50.00%	14 31.82%	38 86.36%	5 11.36%	1 2.27%	41.54*
4.14	Encourage students who think similar to lecturer.	12 27.27%	15 34.09%	17 38.64%	17 38.64%	15 34.09%	12 27.27%	1.72
4.15	Its exercises lack new creative ideas.	15 34.09%	17 38.64%	12 27.27%	15 34.09%	12 27.27%	17 38.64%	1.72
4.16	Require students to read other resources than the textbook.	12 27.27%	6 13.64%	26 59.09%	28 63.64%	7 15.91%	9 20.45%	14.73*

1 = Always, 2 = Sometimes, and 3 = Never. *Statistically significant at 0.05.

centered model, providing more active student participation in the educational process.

We could summarize the results of the research in four major points:

•   *Findings Related to Goals:* The lecturers' "always" responses to items related to developing critical, and creative thinking (1.5, and 1.6), for the new curriculum, were 81.82%, and 81.82% respectively. It indicates that the new curriculum is taking care of these items. Lecturers feel that goals were more clearly stated in the traditional curriculum than in the new one. This indicates that the new curriculum needs to place more emphasis on this area. Also, lecturers do not seem to be satisfied with the variety and comprehensiveness of goals. While adopting a new curricular approach may appear paradoxical to some in view of the religious conservatism of Islamic society, intellectual exploration is actually consistent with Islamic tradition, which introduced many scientific advances to the world.

•   *Findings Related to the Area of Content:* The results showed that the percentage of lecturers' favorable responses to all items pertaining to the new curriculum is higher than the corresponding ones for the traditional curriculum. Chi-square test results showed statistically significant differences between all items except the four related to focus of content, appropriateness to students' mental abilities, making use of students' prior experiences, and taking into consideration students' differences. The results indicated that the traditional curriculum contains more necessary information than the new curriculum. The results also indicated that the new curriculum is more effective than the traditional curriculum in developing students' decision making abilities.

•   *Findings Related to the Teaching Methods:* The influence of the new curriculum on teaching methods was as high as that on content. The results indicated that lecturers viewed the new curriculum to be better than the traditional curriculum in all items of this section.

•   *Findings Related to Assessment:* These results indicated that lecturers view the new curriculum as better than the traditional curriculum in most of the items of this section. Chi-square test results showed statistically significant differences in majority of the items in this section. Lecturers indicated that the new curriculum is better than the traditional curriculum with respect to assessing students' progress toward the higher-order thinking, inquiry and discovery. New curriculum also includes various assessment methods to measure students' abilities.

Responses to the survey indicate the curricular changes to promote the shift from passive to active learning by the students are taking place. Some areas still need improvement, but the current trend is one that will be consistent with guiding our students to become critical and creative thinkers, able to search out, understand, analyze, and synthesize the information they will need to become world citizens and world leaders.

The study clearly established that the impact of a new ICT program will benefit students' performance day by day. Hence other Arabian Universities should follow the example of UAE University and introduce new ICT courses in their university education.

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DISCLAIMER
The opinions expressed in this paper are purely those of the authors. They do not represent the view or opinions of the UAE University authorities.

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ENDNOTES

¹   In the Holy Qu

'   Ran there are approximately 6236 verses.

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