

Curriculum Implementation and Reform: Teachers' Views About Kuwait's New Science Curriculum

Ahmad Alshammari
University of Exeter, UK

The MoE (Ministry of Education) in the state of Kuwait is starting to reform the science curriculum in all school academic stages: primary (1–5) grades, intermediate (6–9) grades, and secondary (10–12) grades. The purpose of this study was to explore the opinions of science teachers about Kuwait's new sixth and seventh grade science curriculum, which was implemented in 2008. This study focused on the teachers' views regarding curriculum content and revealed the challenges and difficulties they face in teaching this new curriculum. Data were collected from 136 teachers' questionnaires and four interviews. The findings indicated that the curriculum content did not help students work together and was not related to the students' culture and society. The findings also showed that science teachers faced many challenges in teaching the new curriculum, like a lack of teaching tools in the schools and the fact that the MoE did not provide any course training related to the new curriculum. To conclude, the findings suggest that the new curriculum should be reviewed and modified with the teachers' involvement.

Keywords: science curriculum, curriculum reform, teachers' viewpoints

Introduction

Many countries around the world are reforming their educational curricula (Ha, Wong, Sum, & Chan, 2008). In 2008, the Kuwait's MoE (Ministry of Education) began to change the science curriculum in all stages of schooling: primary (pupils 6–10 years old), intermediate (pupils 11–14 years old), and secondary (pupils 15–17 years old). The MoE decided to reform the science curriculum, adopting a science curriculum that was already in use in another country. This curriculum was modified, adapted, and reviewed to meet the nature and needs of Kuwaiti society. A science curriculum that is taught in the US (United States) (published by Pearson-Scott Foreman in 2008) was chosen (Al-Burak, 2011).

Curricula designed in a western context are often adopted by non-western countries. This idea is supported by Dagher and BouJaoude (2011). They argue that the evolution of the curriculum in many Arab states has been influenced by the curriculum reform taking place in western countries. This influence is clear when developing education systems, designing school curricula, and encouraging students to study and change the content for a more secular population (Bashshur, 2009). Some examples of this influence are the reformed science curricula in Kuwait, Lebanon, UAE (United Arab Emirates), Bahrain, and Saudi Arabia. In the UAE, the MoE adopted a science curricula series published by Harcourt, which is an American publisher (Alqasemy, 2013). In Bahrain and Saudi Arabia, the science curricula published by McGraw-Hill (a US company) was adapted to be suitable for the respective country's culture, society, and environment (Obeikan, 2010).

It is clear that the current science curricula in these Arab countries (including Kuwait) were designed in different countries. According to Dagher and BouJaoude (2011), the culture and society in Arab countries are different than in western countries. They argued that a successful science curriculum design must take into account the culture and society of the student and teacher where it will be taught. For this reason, some studies have criticized adopted curricula being used in different countries. These studies indicate that the transfer of science-related materials to non-western students within a western context does not work because the students feel that science is not linked to their lives and their culture; therefore, learning about western science does not help them to explain environmental phenomena surrounding them (Kawagley, Norris-Tull & Norris-Tull, 1998).

The science curriculum in Kuwait was reformed by policymakers at the MoE. According to Al-Burak (2011), policymakers and specialists from Kuwait University were chosen to review the new science curriculum. After they had worked on and finally approved the curriculum, it was published for teachers. From these details, it is clear that two problems emerged in the process of the curriculum reform: failure to involve the teachers upfront or even consider their opinions on the changes, and teaching the curriculum without first testing it practically in schools. New curricula always need to be tested in advance to discover errors and difficulties that must be ironed out before the courses are formally introduced (Salamah, 2008). Furthermore, it is essential to involve teachers and listen to their opinions in the process of curriculum development because the teacher is the one who links the curriculum to the students. Therefore, if the teacher is not versed in the curriculum, it is difficult to achieve the curriculum objectives (Salamah, 2008). Meryem and Sabri (2009) and MacDonald and Healy (1999) argued that it is important to seek teachers' views when carrying out curriculum reform.

Since the importance of involving teachers in curriculum reform has not been given attention in Kuwait, the author has chosen in this study to give teachers the chance to comment on these new curricula and have listened to their opinions. This is one of a few studies in Kuwait to involve teachers and explore their views. The aim of this study was to explore the science teachers' opinions about the new science curriculum in Kuwaiti schools. The research questions for this study were as follows:

- (1) What are the science teachers' views about the content of the new science curriculum?
- (2) What are the challenges and difficulties facing the science teachers in teaching the new science curriculum?

Method

Both quantitative and qualitative methodologies were used in this research to obtain more data from a wide variety of sources. Therefore, data can be collected from multiple sources, for example, as Patton (1987) said, in any educational study, it is preferable for the researcher not to depend on any one method of collecting data but instead to have various methods at his/her disposal.

Data Collection

This study used mixed methods of data collection (questionnaire and interview). Creswell (2002) noted that such a design allows data to come from various information sources. Johnson and Onwuegbuzie (2004) defined mixed methods as a synthesis of quantitative and qualitative methods in one investigation. This process reduces the shortcomings inherent in one method and adds to the strengths of the other. Creswell (2002) further

noted that mixed methods research designs can yield profound and detailed data from the combination of sources. Tashakkori and Teddlie (2003) likewise acknowledged that the use of mixed methods is an effectual way of validating the information gathered from one approach.

Questionnaire

The author developed a questionnaire to be distributed to a group of teachers to explore their views about the new science curriculum, its challenges and difficulties, and also to learn background information about the respondents, such as age, gender, qualifications, and experience of teaching science. Closed-ended and open-ended questions were used in this study. According to Cohen, Marion, and Morrison (2000), many forms of questions can be used. A 4-point Likert scale was used for the questions that measured the views of the respondents. Each item was rated on a 4-point Likert scale (“Strongly agree”, “Agree”, “Disagree”, and “Strongly disagree”) from 1 to 4. Cronbach’s alpha was used to measure reliability, and the scale had a score of 0.62.

Interview

Semi-structured interviews were used in this research; the author used neither free conversations nor highly structured questionnaires (Kvale, 1996). As such, semi-structured interviews have the ability to investigate defined topics and to ensure that the interview provides results while also affording the respondent with freedom of expression to ensure that all topics are addressed (Kvale, 1996). In this study, science teachers were asked to give interviews to thoroughly explore their opinions of the new science curriculum and the challenges and difficulties they face in teaching the new curriculum. A tape recorder was used during the interviews, which lasted for 30 to 60 minutes. After each interview, the author summarized the answers given and asked the interviewees to confirm whether this summary and interpretation reflected what they meant.

Research Sample

A sample for this study was chosen randomly from intermediate schools in Kuwait. Science teachers who teach Grades 6 and 7 were the target population for the study’s questionnaires, interviews, and observation. There were two samples for this study: One for the questionnaire and another one for the interview. The questionnaire sample included 136 science teachers (71 males and 65 females), and 4 science teachers completed interviews (2 males and 2 females).

Results

Questionnaire Results

Teachers’ responses are shown in Table 1, which indicates that the teachers were not happy with the content of the new science curriculum in Grades 6 and 7. Based upon the answers, it was evident that most teachers (78%) thought that the content was difficult to teach. These science teachers encountered challenges when teaching this new curriculum; these difficulties will be discussed in detail. A low percentage of teachers (23%) reported that the content of the new science curriculum was related to Kuwaiti culture and society. This finding was likely because the teachers recognized that the new science curriculum was designed in the US, which has a different culture and society than Kuwait. As shown in Table 1, the remaining items got low percentages, which reflected what the science teachers thought about the content of the new science curriculum.

The next part of the questionnaire was about the challenges and difficulties facing the science teachers in teaching the new science curriculum. This question was open-ended to give the teachers an opportunity to

explain the obstacles. The most common teachers' responses are shown in Table 2.

Table 1

Science Teachers' Views About the Content of the New Science Curriculum

Items	Percentage (%)
Encourages student to contribute to society	46
Encourages student to work with others	33
Takes into account individual difference among students	41
Helps students use science in their daily lives	26
Considers Kuwaiti students' society and culture	23
Includes content that is difficult for teaching	78

Table 2

Challenges and Difficulties Facing the Science Teachers

Items	Percentage (%)
Work overload	87
Lack of teaching tools	64
Large class sizes	51
Short class period	78

Interview Results

The interviews were used to support the results of the questionnaire and also to explore the teachers' views in depth and give the study results more confidence. The interview results were not different from the questionnaire results. The teachers' responses about the curriculum content could be divided into four points. The first point was that the content was not related to Kuwaiti culture and society, and many lessons, examples, and picture did not correlate with the students' culture and environment. All teachers in these interviews agreed on this point. Teacher A said, "In the animals lesson in Grade 6, the animals' pictures are not related to the students' environment. It was the first time they had ever seen these animals".

The second point was that the content was difficult for the students' age group; some lessons had been taught in Grades 9 and 10 under the old curriculum, but now the same lessons were scheduled in Grades 6 and 7. Teacher C gave an example of this point, "The periodic table was taught in Grade 10, and now we are teaching it in Grade 7".

The third point was about the large amount of the new curriculum content; each lesson contained a lot of new information, and the classes were not long enough to cover all the content. For the fourth point, all the teachers interviewed agreed that the new content needed to be developed and reformed to better relate to students' culture, religion, society, and geographic environment.

The next part of the interview questions related to the challenges and difficulties of teaching the new curriculum. All four teachers in these interviews agreed on these five challenges. A lack of appropriate teaching tools was one of the problems that faced the teachers; they argued that teaching tools were not available in their schools, and the MoE and school administrators did not provide these tools. The teachers saw the lack of teaching tools as having a negative effect on their teaching and the students' comprehension. The MoE did not provide any training courses about the new curriculum for the teachers, who hoped that these training sessions would help them develop their teaching skills. The teachers mentioned that the science class time was short, and they had a problem fitting all the lesson information into each class. The large number of students in the

class was also problematic because the teachers found it difficult to control them, spending too much time disciplining instead of teaching.

From the questionnaire and interview results, it was clear that the new curriculum content needed further development and reform and also that the science teachers experienced some problems and challenges in teaching the new science curriculum. These results will be discussed in more detail in the next section.

Discussion

The results of the questionnaire and interviews showed the science teachers' views about the content of their new science curriculum and the difficulties they faced in teaching this curriculum. Most of the teachers thought that the content could not be related to their students' culture and society because it was designed in the US for students that had different cultural and social lives from Kuwaiti students. This result is in agreement with the study of Dagher and BouJaoude (2011), who argued that the science curriculum design must take into account the culture and society of the students and teachers. The findings also agree with Kawagley, Norris-Tull, and Norris-Tull's (1998) argument that the transfer of science to non-western students in a western context is not of interest to them because they feel that science is not linked to their lives and their culture. In addition, the results showed that most science teachers surveyed thought that the new content was difficult to teach. The educators felt it was difficult because the MoE did not provide course training related with the new curriculum and did not involve them in the curriculum reform (Al-Burak, 2011).

The results about the challenges and difficulties facing the science teachers showed that the science curriculum presents many problems, such as work overload, lack of teaching tools, a large number of students in the classroom, and the short length of class time. These problems result from many factors, such as that the MoE did not pilot test the new curriculum before implementation in the schools despite the fact that it is accepted that new curricula always need to be tested in advance to discover errors and difficulties that must be ironed out before the courses are introduced (Salamah, 2008). The teachers were surprised with an entirely new curriculum, so it was natural to expect some problems in their teaching.

The teachers were not also involved in the science curriculum reform even though many studies have found the including teachers in any curriculum reform and development is important because the teachers are the ones who will teach the curriculum; if the teacher is not versed in the curriculum, it is difficult to achieve the curriculum objectives (Meryem & Sabri, 2009; MacDonald & Healy, 1999).

Based upon the results, it is clear that the current science curriculum needs further development and reform; the findings of this study will be a resource for the MoE to refine and improve the current science curriculum. This study was limited to science curriculum teachers in Grades 6 and 7; future studies will hopefully include all stages of the new science curriculum.

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