Integrating the Qur'ān Verses into Secondary School Science Curriculum of Yemen: An Islamic Perspective

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Abstract: This study attempted to answer the following questions: "(1) What are the Qur'ān Verses (QVs) that are suitable to be integrated into Secondary School Science Curriculum of of Yemen (YSSSC)? And (2) "In what neutral sciences disciplines (NSDs) of YSSSC these verses can be integrated? To this end, Delphi technique-two rounds (i.e. DTRI and DTRII) as well as interview were used to collect data from ten panelists. Panelists were selected based on two criteria: specialization and level of education. Each of panelists was either professor or assistant professor at Yemeni universities. Panelists were asked to give their own perspectives on the suitability of the QVs for integrating in YSSSC and to give their perspectives in which NSDs these verses could be integrated. A constructed questionnaire consisted of 200 QVs was used to carry out DTRI and DTRII, too. Result of DTRI was 161 of 200 QVs, while all 210 QVs of the DTRII' questionnaire were accepted as a suitable QVs to be integrated in YSSSC. In addition, the suggested QVs were decreasingly distributed (i.e. the highest first, then the lowest) among the NSDs of YSSSC as follows: environment, biology, chemistry, astronomy, physics, and earth. Based on the results of this study, it is recommended that Integrated Qur'ān-science approach might be Yemeni school curricula-based (i.e. science curricula).

Keywords: Qur'ān, science, Natural Sciences, Science Education.

INTRODUCTION

Religion has extreme impacts on all aspects of life (i.e. philosophical, Socio-cultural, and epistemological aspects) (Oyaid 2009; Mansour 2011). According to Albert Einstein, as it is cited by Naik (2000), "Science without religion is lame. Religion without science is blind." (Naik (2000: 8). Thus, an interrelatedness between science and religion should be considered when Muslims are taught science hence science cannot but lead forth according to one's faith commitments and ideals (Brummelen 1988; Oyaid 2009). From an Islamic perspective, such consideration is a significant one for Islamic education, i.e. science education (SE). Thus, Integrating QVs into Muslim School Science Curricula like the science curriculum (SC) of Yemeni secondary school (i.e. an educational stage that Yemeni students can proceed to higher education after completing basic education in which they spend three years to get educational secondary school qualification) is indispensible for teaching Muslim students science to bring conformity between Islamic resources and science to view.

Islam forms a framework of many aspects of Moslem's life. It is not a religion in the same sense that other religions are (Sanu 2011). It is for Muslims a style of life. Allah said "Say oh Mohamed! surely my prayer, sacrifice, life and death are (all) for Allah, the Lord of the worlds; No associate has He; and this am I commanded, and I am the first of those who submit." (162,163:6). Therefore, Muslims accept all concepts and ideas if presented from an Islamic perspective backed with appropriate references and examples from the Qur'ān and Mohammed's (PBUH) teachings. Hence these teachings were the main factor beyond the outstanding contribution of Muslim scientists to man's knowledge, civilization and social achievements (Nasr 2010). Thus, such impact of religion is reflected on lives, beliefs, and scientific literacy of Muslims students. Therefore, including QVs into school's SC will enable Muslims students, like students of Yemeni secondary school, to gain a well scientific literacy and encourage their Islamic faith, as well.

From Islamic perspective, Qur'ān as an eternal and a standing miracle is "the last literal word of Allah the Almighty, which was revealed to Prophet Muhammad (PBUH) in the 7th century through the Angel, i.e. Gabriel, in a clearly understandable Arabic language, it consists of 6666 verses that deal accurately with all creatures (whatever, whenever and wherever) that, i.e. the verses, all Muslims' aspects of life deal with, (i.e. recitation, forethought, learning, teaching etc.) and consider as a worship of Allah" (Bedaiwi 1998; Mustafa 2001). It is, i.e. Qur'ān, for Moslems, a main source of Islam and the absolute fact and nothing was omitted.

This indispensible fact is pointed out in many QVs. For instance, Allah said:

> "And there is no creature on [or within] the earth or bird that flies with its wings except [that they are] communities like you. We

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have not neglected in the Register a thing. Then unto their Lord they will be gathered."[1] ([2]38:6).

Based on such fact, science should be taught in light of Islamic teachings, and could not be apart from its teachings particularly the teachings of Qur'ān. Therefore, education in the Muslim world, mainly SE, should be reformed based on this fact, if there is a will.

It is believed that if Islamic instructions are correctly and sincerely practiced and integrated into the existing implementation of education, particularly SE, the future of Islamic scientific golden age will flourish again. Islamic religion resources, especially, Qur'ān has a bottomless effect on Muslims' motivation which plays a main role in developing science and science teaching. Thus, there is an urgent need to reconsider how Muslims have been taught science and how it deals with their religion sources, mainly Qur'ān.

Furthermore, an Islamic civilization can never be established again if Muslims are not religiously educated and scientifically developed. Based on such assumption, integration between oneness of Allah the Almighty, and natural sciences (NSs) should be taken into account as a conceptual framework and philosophical perspective beyond the educational system of Muslim world (Nasr 2010; Salleh *et al.* 2011; Al-ostath 2011). This means teaching and learning about NSs, and Islam will not lead to develop Islamic world, unless a combination between both of them is effectively done. On the other word, making civilization to Islamic societies needs concentrated efforts to Islamize the NSs, i.e. remodeling and recasting every science discipline to be compatible with the principles of Islam, in light of Qur'ān and the tradition of Mohammed (PBOH), in a manner that enhances the belief of Allah's oneness (Nasr 2010; Salleh *et al.* 2011; Sanu 2011; Tan 2014).

This perspective, therefore, could effectively and comprehensively be used as a tool to address the current state of the science teaching in Muslim word. Islam attaches such a great importance to knowledge and education (Salleh *et al.* 2011; Noh *et al.* 2012). Hence, the Qur'an began to be revealed, the first word of its first verse was '*Iqra*' that is, read. Thus, due such Islamic instructions, many great universal Muslim scientists about over thousand years ago (e.g. Al-Biruni, Al-Hamdani, Al-Khwarizmi, Mohammad Bin Ahmed, etc.) were at the forefront of scientific scientists without ever giving up their religion (Abed 2003; Raju 2009). Moreover, Raju (2009) historically reported that modern sciences including NSs are referred to Muslim scientists.

Although Islamic perspective for education in the Islamic world has taken inconsideration on many studies, hardly this issue was studied mainly in the YSSSC. With reference to the literature reviews, many calls have highlighted the necessity of integrating Islamic teachings (i.e. the teachings of Qur'ān) into educational curricula mainly science curricula (Nasr 2010; Salleh *et al.* 2011; Sanu 2011). Yet, there is a gap in the Yemeni existing literature deal with this issue. Therefore, this study attempts to fill such a gap via development a suitable QVs' inventory to be included in the YSSSC.

In case of integrating QVs in YSSSC, there are four models are suggested by James (1994) for integrated school curriculum: contribution model, additive model, transformation model and decision-making or social action model. Both contribution model and additive model are fragmented curriculum (James 1994).

Fragmented curriculum model is less suitable for integrating QVs in SC because its dualism perspective to life. Hence dualism presents life as a two parts: part to serve God, and the other to serve some entities (Green1998). Unlikely, the "regular" curriculum is enhanced (Ribera 2004) with the QVs as a contribution model. Also additive model can serve in integrating QVs in a lesson, unit, book, or even a course of the SC. Likewise, transformation model can also serve for integrating QVs within every subject of the SC and students will challenge to think critically to understand the relationships between the QVs and scientific concepts, events, etc. throughout SC. While in the decision-making or social action model, scientific issues and social issues are explored using the QVs and opportunity is given for students to take action of their own in order to study the QVs deal with such issues.

Therefore, as a model, integrating of the QVs into YSSSC can be achieved by: identifying the appropriate QVs for integrating them within the SSSC's material (1); identifying the themes, units, lessons, and activities

[1]Ayat: Al Quran : KSU-Electronic Mosshaf project. Features : Viewing scanned(soft) copy of real printed Mosshaf. Providing copy of Mosshaf Al-Madina September 22, 2015 (https://play.google.com/store/apps/details?id=sa.edu.ksu.Ayat).

[2]Number before semicolon is meant the number of verse, while the number after means the number of the chapter, surah, in the Quran.

that are suitable for integrating the QVs within them (2); re-conceptualizing subject-matter content into interrelated themes or topics in an integrating manner with QVs (3); preparing teachers, particularly science teachers, who are expected to present the Islamic perspective within their lessons, where possible (4); every scientific discipline, physics, chemistry, biology etc., have to present from an Islamic perspective (5).

PROBLEM STATEMENT

As mentioned earlier, Islam is, for Muslims, a style of life. It is believed if Islamic teachings are sincerely practiced and integrated to the existing implementation and governance structure in education, particularly SE, the future of Islamic scientific golden age will flourish again. Nonetheless, the goal of teaching the Holy Qur'ān, as a main source of Islam, in many Muslim world is merely to enable students of all ages to read, recite, and memorize the Holy Qur'ān, or some of it.

Furthermore, some knowledge in some current science textbooks of Muslim world have been put in a manner that leads to misconception on the Islamic faith. For instance, 'law of conservation of mass' which was translated into Arabic language (i.e. the mass is inexhaustible and stay forever and it does not produce from nothing) (Al-shathili *et al*. 1999). Another example, the term of ' litmus', a visual indicator which is red in acidic, solutions and blue in basic solutions (Harvey 2000: 278). Likewise, this term was translated in a term 'sun worshiper' that is conflicting with some QVs such as (34:10) (i.e. "Say, oh Mohamed! "Are there of your 'partners' any who begins creation and then repeats it?" Say, "Allah begins creation and then repeats it, so how are you deluded?").

Thus, the need to find out what and in which disciplines of NSs the QVs can be included in educational curriculum, i.e. SC. Moreover, although the Islamic perspective for education in Muslim world has been taken inconsideration of many studies, hardly this issue was studied mainly in YSSSC. Thus, this study attempts to find out the QVs which are suitable to be integrated in each disciplines of NSs in the YSSSC. Specifically, the aim of this study is to answer the following two questions: (1) What are the QVs that are suitable to be integrated in the YSSSC? And (2) In what NSDs of the YSSSC these QVs can be integrated?

IMPORTANCE OF THE STUDY

As far as this study is concerned, it dealt with the integrating QVs in the YSSSC. Infusing QVs in NSs' curricula leads to great merits. The greatest merit is that such infusing will enable Muslim students to acknowledge their Creator via exploration relationship between universe signs and Qur'ān which will strengthen their faith of Allah's oneness. Hence such infusing encourages students to understand scientific phenomena in light of the Qur'ān context and vice-versa. In addition, infusing QVs in NSs' curricula will enable Muslim students to recognize the negative effects of the false claim that Qur'ān contradicts with science. Then students can reject such a deceit of contradiction between Qur'ān and science (Salleh *et al.* 2011).

Also, infusing QVs in NSs' curricula enables Muslim students of correcting some misconceptions on the Islamic faith as well as science. For instance, term of 'litmus', a visual indicator which is red in acidic solutions and blue in basic solutions (Harvey 2000:278). This term was mentioned in some science student's textbooks (Al-shathili *et al.* 1999) in a manner that leads to misconception on the Islamic faith (i.e. it was mentioned as a 'sun worshiper'). Hence 'litmus', as a creature, has never worshiped anything, but Allah. The almighty. Allah, The almighty said:

> "The seven heavens and the earth and whatever is in them exalt Him. And there is not a thing except that it exalts [Allah] by His praise, but you do not understand their [way of] exalting. Indeed, He is ever Forbearing and Forgiving" (44:17).

In this context, Al-hadabi (2000) suggested that this term can be changed into 'sun flower' or ' sun lover'.

Moreover, developing Muslim students' different thinking styles (i.e. critical thinking, creative thinking etc.), scientific literacy and environmental awareness will be obtained as a result of infusing QVs into NSs curricula (Al-hadabi 2014; Lubis 2015).

LITERATURE REVIEW

Although the Islamic perspective for education in Islamic world has been taken into consideration of many studies, hardly this issue was studied mainly in the context of YSSSC. While some researchers (Salleh *et al.* 2011) attempted to develop a framework for integrating sciences of the oneness of Allah within the school curricula of Islamic world, others presented an Islamic perspective on scientific methods of teaching and learning NSs. In since of this context, Al-hadabi

(2007: 30) developed an Islamic Holistic Model for Environmental Education based on the Islamic perspective.

As far as approval of the originality and compatibility of the holy Qur'ān with science is concerned, Bucaille (1976) made an interesting comparison among divine religions in light of scientific knowledge. Therefore, he collected some scriptures' texts, Bible, Torah, and Qur'ān. As regard to the Qur'ān, Bucaille (1976) scientifically he proved that QVs deal with scientific phenomena (e.g. medicine, astronomy, biology etc.) as an evidence that Qur'ān is the word of Allah and is compatible with NSs, too.

In the same context, Naik (2000) also, cited some QVs and categorized them into eleven categories (i.e. astronomy, physics, geography, geology, oceanology, biology, botany, zoology, physiology, embryology, and general science.) as an evidence that Qur'ān is really the word of Allah, the Almighty, which is undeniably well-matched with science.

On the other hand, some studies used descriptive research to describe the Islamic perspective in the schools curricula in some Muslim counties. For instance, Al-ostath (2011) evaluated SC's content of the Palestine's basic education stage from an Islamic perspective. For content analysis, he used ten criteria as the dimensions of the Islamic perspective. One of those criteria is 'inclusion evidences of QVs into the SC's content'.

Mansour (2011) explored Egyptian science teachers' perspective on religion and science within the context of Islam. He also highlighted an ontological and epistemological consideration of these views, particularly the ways through which Egyptian Muslim teachers understand such a relationship with reference to the Qur'ān viewing toward science and knowledge. Results of Mansour's study (2011) showed that participants viewed that "the Qur'ān was a book for guidance, not just for scientists, but for all humankind in all aspects of life, including how humankind should seek scientific, empirical knowledge, what methods he should use, and what ethics he should follow" (Mansour 2011:32).

Other studies used semi-experimental designs to investigate the effectiveness of integrating QVs in teaching and learning science. In this case, different studies revealed that integrating QVs in teaching and learning science leads to a positive effect on the outcomes of science teaching for Muslim students (Al-Ghamidi 1991; Binteen 2011).

Yusof and Abdul Rashid (2015) attempted to determine students' willingness to learn science within religious socio-cultural context. They used questionnaires to collect data to find out the perception of Muslim students towards science-religion interaction and attitude towards science. Results of this study indicated that Muslim students hold a positive attitudes towards science and religion, too.

Also a study cited in Binteen's study (2011), conducted by Al-habal and Al-Jawari (1998), they collected and categorized the QVs that deal with the universe. The results of this study revealed that about 1200 of the QVs deal with the natural sciences.

METHODOLOGY

This study used qualitative and quantitative research techniques that have commonly been used in the educational field and have a variety of methods which are useful means to improve the understanding of the educational issues (Marshall and Rossman 1995). It aims to find out the QVs that can be integrated in the YSSSC materials. In doing so, QVs' inventory, as a first step of this study, was developed. This step was carried out by a library work, basically on Holy Qur'ān and related literatures, and induction analysis for the QVs, as well.

The developed QVs' inventory was used to develop the questionnaire of Delphi technique (DT), as an instrument for collecting data from 10 panelists about the suitability of QVs to be integrated in YSSSC. DT was chosen for conducting this study because of its utility in identifying issues, gathering opinions and reaching consensus in areas where there has previously been no answer, or where there is a lack of empirical data (Keeney *et al.* 2006). It, DT, is in essence the use of expert opinion, it is a type of survey research that relies on a degree of the panelists' consensus dealing with an issue without gathering together (Pollard and Pollard 2005; Minghat *et al.* 2012). For this study two round of DT (i.e. DTRI and DTRII) were used.

Two hundreds QVs were listed in a questionnaire and sent to 10 panelists in order to perform DTRI. Panelists were selected to give their own viewpoints on the QVs' suitability for integrating in YSSSC as well as their viewpoints in which NSDs these verses can be

integrated in. Panelists were selected based on two criteria: (1) specialization (i.e. pure science, and curriculum and methods of science teaching), and (2) the educational level. Besides, all panelists are affiliated to Yemen universities as educators. Some of them are professors and the others are associate professors.

Regarding to conducting the DTRI's questionnaire, panelists were asked to put the symbol (√) in front of the QV to indicate the suitability of this verse for YSSSC as well as its suitability for the NSDs (i.e. biology, chemistry, physics, astronomy, earth, and environmental sciences). Also, panelists were asked to add any verses that are suitable for this curriculum. Moreover, an interview was conducted individually with some panelists on the QVs that unsuitable for YSSSC.

While statistical package for social science (SPSS 11.5) was used for analyzing data collected by questionnaire, data of the interview were analyzed by content analysis technique.

Likewise, the same procedures were followed for conducting the questionnaire of DTRII. DTRII's questionnaire consisted of the same parts of the DTRI's questionnaire except for the number of the QVs hence DTRII's questionnaire included 210 QVs (i.e. 161 QVs as a result of conducting DTRI's questionnaire and the interview with some panelists, and 49 QVs as some panelists suggested).

RESULTS OF THE STUDY AND DISCUSSION

Considering the first question of the study "What are the QVs that are suitable to be included in the YSSSC". Table **1** shows the results of conducting DTRI's questionnaire. This table consists of three columns. First column, N, represents serial number of the QVs as it is listed in the QVs' inventory. The second one, QVs, is for the numbers of the verses and chapters in the holy Qur'an. While the third (i.e. %) means the number of the panelists agreed that the verse is suitable to be included in YSSSC. For example, one hundred percent of all panelists (i.e. ten out of ten unanimously agreed that the verse 124 in chapter 4 is suitable to be included in the YSSSC.

As it is showed in Table **1**, 140 (70%) of 200 of the QVs' inventory were rated from (80%) to (100%), while the range of the rest 60 (30%) QVs was (10%-70%).

According to the result of the interview with some panelists, there are three main important justifications for unsuitable of some QVs to be included in YSSSC: (1) 'some QVs stated in this inventory do not relate to the NSDs'; (2) 'some are repeated and dealt with the same topics'; (3) and the others are not suitable for the students of the YSSS'. While some of these justifications are definitely true, some of them are not. For instance, some panelists viewed that verse (34:10), "Say, oh Mohamed! "Are there of your 'partners' any who begins creation and then repeats it?" Say, "Allah begins creation and then repeats it, so how are you deluded?", does not relate to the NSs.

Numerous arguments have been occurred on the issue of relationship between Islamic religion resource (i.e. Qur'ān) and the NSs. There are two conflicted perspectives about such issue. The first one claims that there is no room in the Qur'ān for NSs, while the second assures that the Holy Qur'ān includes all kinds of knowledge including NSs (Bucaille 1976; Miller 1992). Thus, such conflicted viewpoints effect strongly on the Muslim perspective. From this conflicting, therefore, some panelists' perspectives of this study said that some QVs of the DTRI's questionnaire deal not with the NSs. Then, they are not suitable for YSSSC being integrated in.

The idea that has been discussed earlier (i.e. the relationship between Qur'ān and nature science) can be obviously seen from the results of the interviews that were conducted with DTRI's panelists. Although the results of the interview revealed that panelists thought that Qur'ān is soundly related to NSs, some of them consider that some of QVs of the DTRI's Questionnaire are not dealt with NSs. Consequently, after the interview some panelists thought that 21 QVs which rated less than (80%) (i.e. 1:76, 2:76, 37:75, 38:75, 39:75, 11:35, 8:99, 16:31, 47:21, 47:21, 40:4, 61:10, 16:34, 15:34, 96:6, 64:27, 49:4, 14:15, 15:15, 53:4 and 26:55.) are suitable to be included in YSSSC. Then, 161 of 200 QVs were remained as a result of DTRI and the interview with the panelists. On the other hand, only 39 QVs were rejected after the interview.

For instance, panelists thought that verse (26:55) (i.e. "Everyone upon the earth will perish") is unsuitable for including in YSSSC because it is unrelated to NSs. Similarly, verse (64:27) was considered as unsuitable for including in YSSSC from the panelists viewpoint on the round on DTRI.

As far as dealing of 26:55 with science consideration, a new argument based on astrophysical phenomena that dangerous black holes (Michael 2008)

Table 1: Results of the DTRI's Questionnaire

N	QVs	%	N	QVs	%	N	QVs	%	N	QVs	%
1	124:4	100	51	58:7	90	101	24:30	90	151	260:2	90
2	22:34	100	52	39:24	100	102	12:34	90	152	45:53	90
3	5:22	100	53	22:23	90	103	95:6	80	153	47:12	80
4	2:13	100	54	13:34	90	104	20:55	80	154	16:34	70
5	3:13	100	55	96:18	90	105	22:55	80	155	15:34	70
6	4:13	100	56	97:18	90	106	33:55	80	156	37:18	70
7	7:99	100	57	46:53	90	107	35:55	80	157	34:31	70
8	7:26	100	58	6:81	90	108	41:55	80	158	11:50	70
9	190:3	100	59	76:18	90	109	54:6	80	159	54:30	70
10	10:31	100	60	77:18	90	110	78:16	80	160	46:30	70
11	49:42	100	61	6:16	90	111	164:2	80	161	41:24	70
12	50:42	100	62	7:16	90	112	70:17	80	162	81:21	60
13	5:39	100	63	8:16	90	113	4:33	80	163	191:3	60
14	6:39	100	64	10:16	90	114	78:36	80	164	21:50	60
15	6:50	100	65	11:16	90	115	56:3	80	165	4:16	60
16	7:50	100	66	12:16	90	116	35:24	80	166	32:42	60
17	9:50	100	67	13:16	90	117	68:36	80	167	3:45	60
18	10:50	100	68	14:16	90	118	80:16	80	168	5:45	60
19	47:51	100	69	15:16	90	119	40:24	80	169	45:18	60
20	48:51	100	70	12:23	90	120	18:27	80	170	19:80	60
21	49:51	100	71	13:23	90	121	16:15	80	171	69:17	60
22	77:81	100	72	14:23	90	122	19:15	80	172	17:27	60
23	21:23	100	73	17:23	90	123	22:15	80	173	96:6	60
24	10:34	100	74	18:23	90	124	26:15	80	174	98:6	60
25	11:34	100	75	19:23	90	125	17:13	80	175	81:16	50
26	25:57	100	76	20:23	90	126	8:13	80	176	44:25	50
27	125:6	100	77	12:35	90	127	41:30	80	177	19:67	50
28	41:29	100	78	67:40	90	128	1:95	80	178	77:36	50
29	99:6	100	79	22:30	90	129	33:74	80	179	79:16	50
30	60:27	100	80	23:30	90	130	10:55	80	180	71:36	40
31	61:27	100	81	45:24	90	131	11:55	80	181	72:36	40
32	63:27	100	82	43:24	90	132	12:55	80	182	73:36	40
33	36:36	100	83	27:35	80	133	14:55	80	183	179:7	30
34	36:37	100	84	28:35	80	134	19:55	80	184	1:55	30
35	50:17	100	85	6:10	80	135	5:10	80	185	2:55	30
36	66:16	100	86	45:25	80	136	8:55	80	186	3:55	30
37	67:16	100	87	46:25	80	137	9:55	80	187	4:55	30
38	68:16	100	88	47:25	80	138	1:76	70	188	64:27	20
39	69:16	100	89	86:27	80	139	2:76	70	189	22:8	20
40	51:17	100	90	48:25	80	140	37:75	70	190	55:8	20
41	24:10	100	91	49:25	80	141	38:75	70	191	19:30	20

(Table 1). Continued.

N	QVs	%	N	QVs	%	N	QVs	%	N	QVs	%
42	50:41	100	92	53:25	80	142	39:75	70	192	20:30	20
43	56:7	100	93	54:25	80	143	11:35	70	193	21:30	20
44	97:6	90	94	48:30	80	144	8:99	70	194	49:4	20
45	32:14	90	95	5:55	80	145	16:31	70	195	14:15	20
46	33:14	90	96	6:55	80	146	47:21	70	196	15:15	20
47	3:5	90	97	7:55	80	147	40:4	70	197	53:4	10
48	12:65	90	98	80:36	80	148	61:10	70	198	34:16	10
49	29:2	90	99	90:5	80	149	34:14	70	199	26:55	10
50	57:7	90	100	44:24	90	150	18:14	90	200	2:1	10

threaten with the end of the world. Evidently, such a scientific prediction was shortened in one sentence "Every things upon the earth will perish" (26:55). Consequently, some panelists changed their perspective about the intimate linking of this verse with the NSs after they were interviewed.

Likewise, panelists changed their perspective after interview about such verses, and their relationship with some scientific laws that were mentioned in some student's science textbooks. The misconception on the 'law of conservation of mass' "the total mass remains constant during a chemical change" (Ebbing and Gammon 2009:7). This law was translated into Arabic language and included in some Muslim student's science textbook (i.e. the mass is inexhaustible and stay forever and it does not produce from nothing) (Al-shathili *et al.* 1999). The statement of this law, as it's Arabic translation, is conflicting with some QVs such the verse (26:55), it was mentioned above, and the verse (34:10) (i.e. "Say, oh Mohamed! are there of your 'partners' any who begins creation and then repeats it?" Say, "Allah begins creation and then repeats it, so how are you deluded?").

Also in this context, Alh-hadabi (2000:56) suggested that statement of this law can be modified into "according to the creatures' abilities, the mass is inexhaustible and stay forever and it does not produce from nothing". So, nothing can produce mass from nothing, but Allah the Almighty; and mass cannot be perished by nothing, but Allah. Although some modification was occurred on the Yemeni student's science textbook (hidabi *et al.* 2013:131) dealing with the statement of this law. Nevertheless, a mistake was occurred in this modification; hence the authors of this textbook referred this modification to Antoine Lavoisier.

Concerning DTRII's results, DTRII's questionnaire consisted of 210 verses .161 verses, as a result of conducting DTRI's questionnaire and the interview with some panelists. In addition, 49 additional verses were included to this questionnaire as some panelists suggested. Consequently, all verses of DTRII's questionnaire were accepted as suitable verses to be integrated in the YSSSC, as it is showed in Table **2**.

In relation to the second study question "In what NSDs the QVs can be included in YSSSC?". Results of DTRI deal with the suitability of QVs' integration in NSDs in the YSSSC, Table **3** summarizes the results of DTRI. Hence suitability percentage as well as the mean of each verse of the DTRI's questionnaire were figured out. To calculate the mean of each NSD's percentages of the Table **1** were categorized into 10 categories according to the responses of panelists on the DTRI's questionnaire. Then, the mean of each NSD was calculated by dividing total frequencies of each NSD on the number of the percentage categories. For instance, the mean of environment discipline = 25/10 = 2.5.

As it is showed in Table **3**, the highest accepted QVs to be included in the YSSSC were the verses for biology discipline, while the lowest were the verses for physics discipline. Consequently, the means of the accepted verses' percentages for NSDs are as follows: 9.9 for biology discipline, 4.1 for astrology discipline, 3.5 for Chemistry discipline, 2.9 earth science discipline, 2.5 for environment discipline, and 2 for physics discipline.

Likewise, suitability percentage and mean of each item of the DTRII's questionnaire were figured out. As it is showed in Table **4**, the highest accepted QVs to be included in the YSSSC were the verses for Environment discipline, while the lowest accepted QVs

Table 2: Results of the DTRII's Questionnaire

N	QVs	%	N	QVs	%	N	QVs	%	N	QVs	%
1	124:4	100	56	45:53	90	111	48:25	80	166	17:13	80
2	22:34	100	57	44:24	90	112	49:25	80	167	8:13	80
3	5:22	100	58	45:24	90	113	53:25	80	178	41:30	80
4	2:13	100	59	12:34	90	114	54:25	80	179	1:95	80
5	3:13	100	60	4:95	90	115	48:30	80	170	32:74	80
6	4:13	100	61	15:47	90	116	5:55	80	171	33:74	80
7	7:99	100	62	49:37	90	117	6:55	80	172	16:81	80
8	7:26	100	63	13:34	90	118	7:55	80	173	1:76	80
9	190:3	100	64	46:53	90	119	8:55	80	174	2:76	80
10	10:31	100	65	6:81	90	120	9:55	80	175	37:75	80
11	50:42	100	66	96:18	90	121	10:55	80	176	38:75	80
12	5:39	100	67	97:18	90	122	11:55	80	177	39:75	90
13	6:39	100	68	76:18	90	123	12:55	80	188	11:35	90
14	6:50	100	69	77:18	90	124	14:55	80	189	8:99	90
15	7:50	100	70	6:16	90	125	19:55	80	180	16:31	90
16	9:50	100	71	7:16	90	126	20:55	80	181	47:21	90
17	10:50	100	72	8:16	90	127	22:55	80	182	49:4	90
18	47:51	100	73	10:16	90	128	33:55	80	183	14:15	90
19	48:51	100	74	11:16	90	129	35:55	80	184	15:15	90
20	49:51	100	75	12:16	90	130	41:55	80	185	53:4	90
21	77:81	100	76	13:16	90	131	264:2	80	186	26:55	100
22	21:23	100	77	14:16	90	132	265:2	80	187	40:4	100
23	10:34	100	78	15:16	90	133	266:2	80	198	61:10	100
24	11:34	100	89	12:23	90	134	33:36	80	189	16:34	100
25	25:57	100	80	13:23	90	135	34:36	80	190	15:34	100
26	125:6	100	81	14:23	90	136	35:36	80	191	2:1	90
27	73:22	100	82	17:23	90	137	37:36	80	192	88:27	90
28	26:2	100	83	8:75	90	138	38:36	80	193	90:5	90
29	41:29	100	84	19:2	90	139	39:36	80	194	96:5	90
30	99:6	100	85	20:2	90	140	40:36	80	195	5:78	80
31	60:27	100	86	18:23	90	141	54:6	80	196	6:78	80
32	61:27	100	87	19:23	90	142	15:81	80	197	1:86	80
33	63:27	100	88	20:23	90	143	18:88	80	198	3:86	80
34	64:27	100	89	17:88	90	144	19:88	80	199	6:86	80
35	36:36	100	90	1:91	90	145	20:88	80	200	7:86	80
36	36:37	100	91	2:91	90	146	78:16	80	201	98:19	80
37	50:17	100	92	3:91	90	147	164:2	80	202	108:20	80
38	66:16	100	93	4:91	90	148	70:17	80	203	90:5	80
39	67:16	100	94	5:91	90	149	4:33	80	204	32:14	80
40	68:16	100	95	6:91	90	150	95:6	80	205	33:14	80
41	69:16	100	96	1:92	90	151	96:6	80	206	1:85	80

(Table 2). Continued.

N	QVs	%	N	QVs	%	N	QVs	%	N	QVs	%
42	21:39	100	97	2:92	90	152	78:36	80	207	18:84	80
43	51:17	100	98	86:27	90	153	80:36	80	208	19:84	80
44	24:10	100	99	12:35	90	154	47:12	80	209	29:2	80
45	50:41	100	100	67:40	90	155	5:10	80	210	12:65	80
46	56:7	100	101	22:30	90	156	56:3	80			
47	97:6	90	102	23:30	90	157	35:24	80			
48	57:7	90	103	24:30	90	158	68:36	80			
49	58:7	90	104	43:24	90	159	80:16	80			
50	39:24	100	105	27:35	80	160	40:24	80			
51	22:23	90	106	28:35	80	161	18:27	80			
52	258:2	90	107	6:10	80	162	16:15	80			
53	18:14	90	108	45:25	80	163	19:15	80			
54	259:2	90	109	46:25	80	164	22:15	80			
55	260:2	90	110	47:25	80	165	26:15	80			

Table 3: Distribution of QVs among NSDs in YSSSC Based on DTRI's Results

Percentage	Environment	Biology	Astrology	Earth	Chemistry	Physics
100%	8	63	22	14	14	8
90%	2	11	7	5	6	3
80%	3	15	10	5	13	4
70%	5	3	0	0	5	3
60%	1	2	0	0	1	0
50%	4	2	0	1	0	0
40%	0	0	0	0	0	0
30%	0	1	0	0	0	0
20%	1	1	1	3	0	1
10%	1	1	1	1	1	1
Mean	2.5	9.9	4.1	2.9	3.5	2

Table 4: Distribution of QVs among NSDs in YSSSC Based on DTRII's Results

Percentage	Environment	Biology	Astrology	Chemistry	Physics	Earth
100%	60	58	16	22	18	18
90%	13	11	14	9	15	6
80%	50	41	43	21	18	15
Mean	41	37	24	17	17	13

were the verses for earth science discipline. Consequently, the means of the accepted verses' percentages for NSDs are as follows: 41 for environment discipline, 37 for Biology discipline, 24 for astrology discipline, 17 for Chemistry and Physics disciplines, and 13 for earth science discipline.

Table 5: Comparing between Results of DTRI & DTRII Based on Distribution of QVs among NSDs in YSSSC

	Natural Scientific Fields						DTRs
	Environment	Biology	Astrology	Chemistry	Physics	Earth	
Means	2.5	9.9	4.1	2.9	3.5	2	DTRI
	41	37	24	17	17	13	DTRII

In Comparing between the results of DTRI and DTRII, results revealed that the order of the NSDs have changed, as it is illustrated in Table **5**.

While the highest mean of QVs distribution among NSDs in YSSSC of the DTRI was the mean of QVs for biology discipline (9.9), the highest mean of QVs' distribution among NSDs in YSSSC of the DTRII was the mean of QVs for environment discipline (41). Likewise, the lowest mean of QVs among NSDs in YSSSC of both DTRs (i.e. 2 and 13) was the mean of QVs' distribution among NSDs in YSSSC of the DTRII was the mean of QVs for earth discipline.

As a result of conducting interview, the distribution of QVs among NSDs of the supposed QVs' inventory for the YSSSC was changed. The change of the QVs' distribution is due to some panelists awareness on some Islamic and environmental issues. Before interview, panelists thought that some QVs dealing with some scientific disciplines have no relationship to the environment discipline, as it is illustrated in Table **5**. Whereas after interview panelists positively convinced that some QVs deal with not only one discipline of NSs but deal with more than one discipline.

From Islamic perspective, the relationship between the various NSDs with each other is an integrated and cooperative relationship to worship Allah, the almighty, as an ultimate goal for the purpose of creating and sustaining the life on the earth. That what is reported by one sentence of the Qur'ān. Allah said: " And I did not create the jinn and mankind except to worship Me." (56:51).

A study of the Qur'an reveals that in the various verses of the Qur'ān one finds that Qur'ān invites the believers to study the whole universe including both heaven and the earth as well as everything in between in order to discover the various natural phenomena and their schemes in all NSDs.

For example, as far environment discipline concerned, from Islamic perspective, there are many verses in Holy Qur'ān that manifest the relationship between man and environment and which can be included in the YSSC's materials to foster students' values, attitudes and knowledge towards Qur'ān, environment and science. Several QVs affirm the fact that everything surrounding man is subjected to him as a steward on the earth. But this stewardship absolutely does not mean that man is the real owner of the earth, rather he is only a manager of it. Therefore, man is responsible for Allah's rule and His commandments on this earth. Consequently, Man has been granted stewardship to manage the earth in order to achieve the intended purposes of his Creator; to worship Allah the Almighty as the main purpose; to utilize it for his own benefit and the benefit of other creatures and to fulfill his own and their interests.

Therefore, QVs' inventory should be school science curriculum-based. It should be given more foci on preparing Muslim students as scientific citizens. It is important that SC's materials used in SE to provide opportunities for affective response and not merely knowledge. Yet, based on results discussion of this study, materials of YSSSC should be reformed according to Qur'ān-science integrated approach. Furthermore, the Qur'ān-science integrated approach can be used not only for integrating QVs in all subjects of secondary school, but in the whole Yemeni school curricula.

Also, results of this study may be used in reviewing and evaluating the included QVS in the YSSSC as a whole. Since the QVs' inventory presented by this study can serve to help evaluators and developers of school curricula (i.e. YSSSC) to address the weaknesses of the integrated QVs in such curriculum materials. Besides, this study may be used as a guidance to find out the QVs in whole Yemeni school curriculum.

CONCLUSION

The mere fact is that science is not apart from the culture of any society. science offers means for societies welfare and well recognizing the creations of Allah and natural phenomena as well. Thus, for Muslims, science should be taught in light of their

culture resources mainly Qur'ān. One of the most significant idea about the Qur'ān is that it includes many verses, which correctly describe natural phenomena in various disciplines such as environment, biology, chemistry etc. As a result of going over the literature review dealing with Qur'ān-science relationship, many studies revealed that various QVs verify that there is no conflict between science and Qur'ān.

Therefore, NSs should be presented to Muslims generation of the 21st century in a manner that integrates NSs with Islam sources (i.e. Qur'ān) in order to enable Muslim students of the in depth study of Qur'ān and make new scientific discoveries to push onward the frontiers of scientific knowledge. Such integrated manner of QVs in SE is the only assuredness for flourishing the scientific knowledge in the Muslim world.

As a conclusion, our school students today are the leaders of our future. So our welfare in future is relied on the kind of educational curriculum that our children are taught. Therefore, to carry out successfully development in different aspects of knowledge particularly in science and technology, our SC should be evaluated in light of integrated Qur'ān-science approach. So that, the purpose of this study was to find out the suitability of the QVs that can be included in YSSSC. In doing so, QVs' inventory was developed as a questionnaire to fulfill such purpose. 210 QVs were considered suitable QVs to be included in YSSSC, as a final result of this study. Nevertheless, as this study dealt with the inclusion of the QVs in YSSSC from the perspective of only ten panelists. Therefore, the results of this study are restricted to these panelists' perspective.

RECOMMENDATIONS

Qur'ān in school SC has given a little attention in Yemen. It should be integrated via the materials of the school curricula not only through the curriculum of science subject, but also through all subjects' curricula. Integrated Qur'ān-science approach as a new approach means change SE to be more sensitive toward the Islamic education sources (i.e. Qur'ān) via reform school SC based on the Integrated Qur'ān-science approach. It is recommended that Integrated Qur'ān-science approach should be school curriculum-based; should be given more focus on preparing students as scientific Muslim citizens. Thus, as a recommendation, if such Yemeni educational policy is to be successful, then it has to have a solid foundation about the Integrated Qur'ān-science approach.

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