

TOWARDS A BETTER ISLAMIC SCHOOL EDUCATION: MALAYSIAN EXPERIENCE

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Abstract

We show that the present “Islamic school education” throughout the world is still not “truly Islamic” as it does not fully internalize the concept of the Islamisation of education or Islamic science as promoted by many scholars, notably Ismail Raji al-Faruqi, Syed Naquib al-Attas, Seyyed Hossein Nasr, Syed Ali Ashraf and various groups of scholars, associations or institutions such as ASASI (Academy of Islamic Science Malaysia), IIIT (International Institute of Islamic Thought, USA), MAAS (The Muslim Association for the Advancement of Science, India), and the Islamic Academy, Cambridge, UK. We then propose how it should be done at the school level based on our experiences in Malaysia, so that the schools become a true place for Islamic education.

1. Introduction

The word “education” involves a high level of teaching and understanding which brings together the *nafs* (spirit), thought, reflection and interaction among people. Teaching, education and study can be accomplished either by self-study or at an institution which is now known in English as “school” or in the present Malay world, “*sekolah*”. Before the word “*sekolah*” was adopted in the modern Malay world, especially before the 14th century CE, the words used were *desa tahu* (place for knowing), *surau* (place for worship and learning), or *pesantren* (a place for producing knowledgeable or learned people known as *santeris*), *widyasrama*, *widyasaya*, or *widyaspada* (Pou 1992/2004), *widyalya* (*Sanskrit-English Dictionary* 2011), each of which represents a place for learning, seeking or obtaining knowledge.

When Islam was embraced by the people in the Malay world, especially since the 14th century CE, the Arabic words *masjid* (mosque), *madrasah* (also spelt as *madrasa*) and *pondok* (literally, a ‘hut’ or ‘temporary shelter’, although in modern Arabic it means *funduq* i.e. ‘hotel’) were adopted to indicate a place to obtain education, even though the word *surau*, and in the region known as Indonesia since 1945, *pesantren* continued to be used by modifying it to mean an Islamic education, so that the place no longer produced just *santeris* (knowledgeable people) but ‘*ulamā*’ (learned people who are Islamically knowledgeable, especially in astronomy, biology,

or human sciences, in addition to theology). *Pondok*, especially in Petani/Patani, Thailand and in the region known as Malaysia since 1963, become almost synonymous with *pesantren* in Indonesia.

Before the influence of Western colonialism, the people in the Malay world were not only more comfortable with the words *surau*, *masjid*, *pondok* and *pesantren* as compared to *sekolah*, but also they were still internalising the pre-Islamic words, *widya* and *budi*. For example, *budi* is still used in *Tāj al-Salāṭīn*, a Malay manuscript written by Bukhary al-Jawhary dated 1603, in the form of *budiman* which means a very knowledgeable and learned person or an Islamic intellectual; in fact the word is used in the manuscript to translate the arabic word, *ulil albāb* (the highest rank of Islamic intellectuals). Later, with the influence of secularism from the colonial rulers in the 18th century, the meanings of *surau* and *madrasah* were reduced to be used solely for “religious schools” (officially, *sekolah agama*, or *sekolah Arab* (Arabic schools)) in order to differentiate them from *sekolah* (school, *escuela*, *escuela*) where the subjects taught are non-religious.

Based on the Buddhist inscriptions in the days of the Kingdoms of Funan, Champa and Sri Wijaya in the 1st–13th centuries CE in the *Kunlun/Kolan* language (Ancient Malay) that was told by Chinese scholars and orientalist, knowledge of the Malays during that time (that is, *widya* or *budi*) was blended with the teachings of the Hindu-Buddha tradition, especially on logic (*nyaya*), astronomy (*horasastera*), leadership-managerial knowledge (*manu*, *dharmasastera* and *vantin*) and economy (*arthasastera*). This was not surprising since the term *widya* itself also meant mystical knowledge or Hindu-Buddha religious knowledge. For example, Paramartha’s work (during the Malay-Funan kingdom in the 6th century CE) on language/cognition mixed with the teachings of Buddha (*Yogacara*) as described in Paul (1984); and works in inscriptions (tablets) of the 11th century CE Champa on leadership and managerial knowledge, *cakravantin* (global leader) characteristics, did not dissociate the thinking of scholars from the teaching of Buddha (Shaharir 2011a). Such culture, where knowledge is not separated from religion, evolved in various civilizations, including Christianity in Europe until the 16th century CE, that is, before the emergence of “Modern Science”; not just the more famous Islamic civilization described in detail by oriental scholars such as Rosenthal (1970), who upheld the equality of knowledge with *īmān* or religious belief. But what is desired to be discussed here is the place of learning in the Malay world from the time Islam was rooted in the hearts of Malay families to the present; in other words, the form of the curriculum of the *madrasah*, *pondok*, and the religious schools of the post-colonial era until today. To what extent is the integration of contemporary knowledge (*‘aqlī* intellect knowledge) with Islamic religious knowledge (*naqlī* knowledge) in the “religious school” achieved, especially since the revival of Islamic awareness in the 1990’s in the name of “Islamisation of knowledge”?

We are interested in the primary and secondary school curriculums, particularly those aimed at producing a “better” generation of Muslims. We have not seen a critical evaluation of the present school curriculum from the perspective of Islamic education especially after the conference in 1996 in the series of World Conferences on Muslim Education which was started in 1977. The process of Islamisation also suffered a setback due to an abrupt and temporary closure of the New York office of the IIIT (International Institute of Islamic Thought), as a result

of the September 2001 attack, and earlier, its branch at Kuala Lumpur in 1998, due to a political upheaval in Malaysia.

Discussions on the current issues of Muslim education throughout the world are common. However, none of the articles in any well known journals on education (such as *Comparative Education*, *Asia Pacific Journal of Education*, *Journal of Education Policy*, and *Religious Education*) discusses the explicit curricula of the present Muslim schools with respect to a well known curriculum development movement known as “Islamisation of education” and more generally “Islamisation of knowledge”, a movement that had its beginnings during the First World Conference on Muslim Education held in Makkah, Saudi Arabia in 1977. Instead, the articles are only devoted to the economic and political relevance of Muslim education in each of the chosen countries. One exception is an article by Milligan (2008) which will be discussed below. On the other hand, Islamisation of education is generally concerned with the present nature of Muslim education, which is regarded as unsatisfactory due to the dualistic nature of the subjects offered at Muslim schools throughout the world. This dualism refers to a complete separation between the contemporary (secular/western) knowledge and the traditional Islamic knowledge in the sense that the two types of knowledge are transmitted in parallel fashion as if they never meet. It was during the conference of 1977 mentioned above that for the first time Muslim scholars agreed that the correct curriculum for Muslim education is one that integrates the two types of knowledge, and that this requires the Islamisation of contemporary knowledge (science and mathematics being no exception), and at the same time bringing forth from the traditional knowledge of Islam that which is most relevant to the present situation.

However, it is well known that the movement has not achieved any significant development since its inauguration in 1977, except perhaps in Southeast Asia, in particular in Malaysia after the establishment of the International Islamic University Malaysia (IIUM) in 1983 and a school education reform in 1988, which we shall address later in this article. We should, however, mention an article by Milligan (2008) who describes the Islamisation of Muslim education in Mindanao, Southern Philippines. According to him the intention of the Mindanao government has created some apprehension among “secular observers”. Perhaps being an Islamist, Milligan wants to show that the intended Islamisation, based on the two proponents of Islamisation, Naquib al-Attas (1978/1993, 1979, 1980, 1981, 1989) and Fazlul Rahman (1982, 1988), is on a pragmatic and not a fundamentalist course which some quarters (“secular observers”) see as “worrisome”. He did not however elaborate on the exact nature of the Islamised curriculum actually intended to be implemented in Muslim schools at Mindanao, perhaps because it did not yet exist at that time, but rather he presented the philosophical basis of the Islamisation of knowledge as laid down by Naquib al-Attas and Fazlur Rahman. But towards the end of his discussion he subscribes more to the Fazlul Rahman concept of Islamisation rather than to that of al-Attas. Fazlul Rahman’s approach, according to him, is an ethico-oriented approach, whereas al-Attas is epistemologically based and hence much more difficult to implement. However, Milligan had not realised that Fazlul Rahman’s approach to Islamisation is not an integrated one, but rather still carried out in a dualistic manner in that the subject matter and the approach of the subject (such as science, mathematics, economics and business) is still unchanged, only that the students are

exposed to a new orientation of Islamic education. Perhaps Milligan's inclination towards Fazlul Rahman version of Islamisation is also understandable considering that it is well known that a concrete example of Islamisation of, say, a science subject, at any level of education, even in its general working definition, framework or method of presenting (the so called Islamised science—Islamised physics, mathematics, economics, etc.), has not been successfully formulated up until now. We believe that those writings (in Malay) on the Islamised science subjects in Malaysia are not well disseminated outside Malaysia. Milligan (2008) did mention that the Islamisation of education in Mindanao was influenced by the Islamisation of education in Malaysia in 1988 without realising that the Islamisation was shortlived and misdirected resulting in its demise in the middle of 1990s without an 'official grave'. However, the Islamisation of knowledge or education together with the term Islamic school and Islamic curriculum are very much alive, especially in private schools, Islamic colleges and universities, and non-governmental Islamic organisations. Therefore the issues which we discuss in this paper are very relevant.

2. The concept of true Islamic schools

In Malaysia, the school that is considered to have fulfilled the requirement of Islam has many names, i.e. *Madrasah*, *Pondok* School, Religious School, Arabic School, Islam School, and Islamic/Islamist School, and a brief history of the emergence of these terminologies has been mentioned in the introduction above. This always raises the question, "What do you mean by a school that meets the requirements of Islam?", in particular in the light of the concept of "Islamisation of knowledge" at the beginning of the 1980s. Without doubt the popular name for these schools now is "religious school" (meaning "Islam(ic) religion school"), even though in essence what is being sought after by its clients (the parents) is "*Sekolah Islamik*" or "*Sekolah Islami*" (both are considered to be equivalent to "Islamic school") among the three groups of religious schools now in Malaysia: Federal Religious Schools (Government), State religious school under respective States Islamic Council (*Majelis Agama Islam Negeri*) or its equivalent, *Rakyat* or People's Religious School (Private), and Private Religious Schools, each with its own elements of Islamic nuances. Since 9/11 (September 11th, 2001), the term *madrasah* has often been called by the West as "*Taliban* school" or "terrorist school", and even the term "Islam" (whether it appears as an adjective or a noun) is also being stained with a negative image to the extent that the Muslims themselves are not keen to use the term anymore.

In other words, many Muslims now feel that the term *madrasah* or *madrasa* is not so "refined" or "accurate" as the English word "Islamic" or the Malay-Arabic word *islami*, *islamik* or *islamiyah*. The term "*Sekolah Pondok*" has long been felt "out-of-date" (although "the islamic boarding school", *pesantren* in Indonesia does not trigger such a psychological disturbance); while "Arabic school" has also long been less spoken of because it has been felt to be not so accurate due to the reduced usage of the Arabic language as a medium of instruction in many subjects in schools, while the "religious school" ("religion" means "Islam") and its religious components are being diluted because of the incorporation or penetration or intrusion of the national curriculum and "non-religious" subjects such as science and mathematics. For the purposes of assessing the Islamic elements in the schools, we still use the

term “Islamic schools” (or sometimes “true Islamic school”) as a better *gedanken* model as a concept of “schools that are truly compatible with the requirements of Islam at all times”.

True Islamic school is a school that is able to deliver *tarbiyah* (education/upbringing) to Muslim children so that they are able to appreciate the fundamental values of Islam (*farḍ ‘ain* and classical *farḍ kifāyah* education, and *sunnah*) and to understand contemporary compulsory knowledge in Islam (contemporary *farḍ kifāyah*) in the Malay-Islam mould without any significant differentiation between “science” and “non-science”, but as *widya* or *budi* (integrated knowledge) that adopts the concept of knowledge and faith in Islam. This definition can easily be adopted by any Muslim country by replacing the word “Malay” by the respective national language of the country as explained further below.

We believe further that an Islamic school in a country X must necessarily have the language of X as the medium of instruction and must accommodate elements of the X culture in the curriculum as long as the elements are not in contradiction with Islam. For example, the Islamic school in Malaysia is necessarily the Malay-Islamic school. This is not only consistent with the United Nation recommendations regarding the role of mother tongue in education, but it is also an Islamic way since in *al-Qur’ān* it is stated that God ensured that every nation (*qaum*) has a prophet and the prophet taught the revealed knowledge in his own language (Qur’ān: *Sūrah Ibrāhīm*, *āyah*/verse 4). The positive role of a people’s own language in enriching an existing (imported or transferred) knowledge, and enhancing creativity (producing new knowledge), is something yet to be fully realised by Muslims, since most of the Muslim countries adopt their colonial languages in their education systems, which can be regarded, at the very least, to be against the spirit of Islamisation, if not against Islamic teaching. In this respect, for example, the Malay-Islamic education is made up of Islamic worldview which is embroidered with the splendour of Malay language and culture, thus enriching and strengthening the present subjects of knowledge.

There may be no dispute on the scope and level of *farḍ ‘ain*, (although there are problems in terms of the methods of implementation which will be explained later), but with classical *farḍ kifāyah*, there may be the need for a “long meeting” to discuss its scope and level. What is meant by classical *farḍ kifāyah* is often found in classical *fiqh* books under titles such as “management of funeral rites”, “sales and purchase law”, and others. What needs to be emphasized here is that classical *farḍ kifāyah* should be complemented with contemporary knowledge, for example “sales and purchases law” should be extended to include modern knowledge such as “science of business management, finance, banking, and insurance/*takāful*”. Here one could see a clash between the Islamic and non-Islamic approaches. The contemporary/modern knowledge is based on principles that are often contrary to the corresponding Islamic principles that are created and formulated with sophistication and style by scholars not well versed in Islamic thought, but are still having a strong influence over present Muslim scholars and practitioners. Thus school curricula in these areas need to go through a big change. Contemporary *farḍ kifāyah* deals with all sorts of modern *‘aqlī* (rational) knowledge constructed mainly in the un-Islamic mould and this justifies the greater need for education to be delivered through methods supported by “Islamisation of knowledge” scholars and activists.

In terms of education and research, “Islamisation of knowledge” is the approach to teaching, educating and studying a topic or subject of contemporary knowledge in such a way that it reveals its origin, compatibility or incompatibility with Islamic and the Malay-Muslim values (in general the X-Muslim values). The Malays have slowly Islamised their pre-Islamic concept of knowledge (*budi* and *widya*) by adopting ‘*ilm* (Islamic knowledge) since the 13th century, but their Islamic or Islamised knowledge have undergone a westernization or have been slowly replaced by Western knowledge since their colonial era in the 17th century and more vigorously since the 20th century. Thus the present Islamisation means, among other things, an assessment of this situation.

The assesment is also of the extent that an element of contemporary knowledge exhibits a balance between Islamic elements and other religions or foreign ideologies and thoughts which are strictly liberal. Indeed, there is an abundance of writings on the meaning and principles of the “Islamisation of knowledge” (see for examples, Shaharir 1990 and the compilation of bibliography by Shaharir et al. 2007) and every teacher in “religious schools” in particular should select some of the works to better their understanding and enrich their knowledge in order to, God willing, become better teachers in schools.

Clearly, the subject of *farḍ kifāyah* (classical and contemporary) that is offered in religious school (public, state and private) is the greatest challenge in the curriculum of these schools, as evaluated below. However, this does not mean that there are no problems with the subject of *farḍ ‘ain* offered in schools as discussed by Shaharir (2001b), and the appropriate content at school level is shown again here with some additions, towards the end of this paper.

3. An evaluation of the existing Islamic schools

Having defined our “true Islamic school” in section 2, the current status of public and private schools in their Islamic context can be assessed. However, the focus here is on religious schools (public, state and private), especially in Malaysia.

It is common knowledge that the subjects offered as components of *farḍ kifāyah* in the curriculum of religious schools in Malaysia are in a form separated from *farḍ ‘ain* and classical *farḍ kifāyah*. Science and mathematics at all levels, for example, contain topics that have absolutely no relation to the topics to be taught in *farḍ ‘ain* and classical *farḍ kifāyah*. The same can be said about subjects like economics, commerce, accounting and others that have been introduced into the curriculum of the public schools (under the Ministry of Education, Malaysia). Such an educational system, known as the parallel Islamic-secular education system, or simply a dualistic education system, is certainly far from the system of Islamic education that should be found in “true Islamic schools”, as outlined in the previous section. Such a dualistic education system is the one practised and offered to Muslim children in *madrasahs*, religious schools, Muslims schools, or Islamic schools, throughout the world, not only in Muslim countries but also in the West (e.g. the U.S.A. and U.K.), and countries in Asia (See ASASAINS 2007) so much so that the call for this system to be changed was made at the First World Conference on Muslim Education held in Makkah in 1977. The call was repeated in each of the subsequent conferences all the way to the final conference that seemed to bring no significant progress.

In Malaysia, the call was answered in 1988 when the Ministry of Education announced the new educational philosophy and launched the Integrated Curriculum for Secondary Schools (*KBSM*) which was spurred by the “Islamisation of knowledge” movement as well as the establishment of the International Islamic University Malaysia in 1983. *KBSM* was made famous by the slogans *pendidikan bersepadu* (the major contributor being Tajul Ariffin 1993, 1988), *pendidikan terkamir* by Shaharir (1986), both translated as “integrated education”, and *penerapan nilai* (the inculcation of values), or *nilai moral merentasi kurikulum* (moral values across the curriculum) by the Ministry of Education. It was interpreted by many Muslims as a kind of Islamic education. However it did not achieve its objective mainly because the textbooks never changed their approach, and Islamic-secular education system was also to run in parallel even with the newly introduced elements, that is, “the inculcation of 16 moral values” in each of the *fard kifāyah* subjects. The sixteen values are compassion, independence, high integrity, respect, love, justice, freedom, courage, mental and physical purity, honesty, diligence, cooperation, moderation, gratitude, rationality, and public-spiritedness or community spirit (Kementerian Pendidikan Malaysia/Ministry of Education Malaysia 1992, or Adnan 1993).

This inculcation of values into the *KBSM* is not what was intended by the founder of “Islamisation of knowledge” (as pointed out several times, for example, by Shaharir 1989 and 2005b) since the method was not very different from the efforts of a group of Muslims, popularly known as apologists or Buccailleists (after Buccaille 1976), in their interpretation of existing knowledge. The Buccailleist approach (such as that of the famous Turkish writer, Harun Yahya 1999; and the Malaysian writers, Danial 2007, Ghozali 2006, and Arip 2007) to contemporary knowledge has been so well received among the Muslims that several authors have become very famous and are even raised above the genuine scholars. In the Arab World the situation is even more alarming, as depicted by Guessoum (2011), where the wider concept of Buccailleism is promoted which is termed *i‘jazism*. The main drawback of this approach is that it stalled Muslims’ own research or exploration programmes before the Western scholars, and hence the Muslim scholars can never be in the frontline or even in the same line as the Western scholars. They merely become the agents of reinforcing Western knowledge (the same knowledge which is often referred to by most critical scholars, not necessarily Muslims, as secular, or even atheistic knowledge), as well as maintaining a false perception about science in its claim to universal values or neutrality or the absence of its exclusive values. What is required in the “Islamisation of knowledge”, in the early stages of its development by a scholar, is to show that there exist “values” that are not necessarily compatible with any of the 16 *KBSM* moral values or even more general “Islamic values”, in each branch of the contemporary knowledge taught in school. These “values” may be from Western ideology, or from a system of belief other than the Islamic system of belief or belief systems of “Malay-Muslims” and others (Chinese-Muslims, Indian-Muslims, etc.).

Actually, according to the concept of our “true Islamic education” defined in section 2, the model of book-writing that was outlined above was already in existence in the Malay-Islamic civilization, as evidenced by the corpus of Islamic knowledge, from the 17th century to the 19th century CE, before European colonialists established a strong presence in this region. Examples are the *Jawi* Malay works, such as by Nur al-Din al-Ranyry (Nuruddin al-Raniri) and Bukhary al-Jawhary (Bukhari al-Jauhari)

in the early 17th century CE, ‘Abd al-Rawuf al-Fansury (al-Sinkyly?) (Abdul Rauf or Abdurrauf Singkel) in the second half of the 17th century CE, ‘Abd al-Shamad al-Falimbany (Abdul Samad or Abdussamad Palimbang) in the 18th century CE, Muhammad Arsyad al-Banjary (Arsyad Banjar) at end of the 18th century CE and early 19th century, Ahmad al-Fatdany and Ahmad ‘Abd Latif al-Khatib al-Mankabawy (Abdul Latif al-Khatib Minangkabau) at the end of the 19th century CE. Their great works contained contemporary *kifāyah* knowledge—during that time, although a bit behind time compared to what they had in the West—that were discussed in the books of *fiqh*, *tawhīd* and *taṣawwuf* and their *mu‘āmalah* as shown in more detail by Baharrudin (2008). Examples are as follows:

- (1) *Sīrat al-Mustaqīm* by Nur al-Din al-Ranyry in the 1620’s and *Sabīl al-Muhtadīn* by Arsyad al-Banjary in the 18th century, which can be found at the Malaysian National Library Malaysia (*PNM*); both discuss the *fiqh* of Shāfi‘ī school of thought, with the application of elements of astronomy in topics related to the determination of prayer times, the direction of Qiblah, eclipses and the sighting of the new moon.
- (2) Special books on *farḍ kifāyah* such as on leadership and management with an appreciation of Islam, such as *Bustān al-Salāṭīn* by al-Ranyry (1639) and *Tāj al-Salāṭīn* by Bukhary al-Jawhary (1603). Both were recently Romanised/Latinised and published by DBP, Kuala Lumpur.
- (3) Mathematical sciences in *Rawḍat al-Ḥisāb* by Ahmad ‘Abd Latif al-Khatib al-Mankabawy (at end of the 19th century CE, which is in the collection of Wan Mohd Saghir) with the problems in *fiqh* and *mu‘āmalah*.
- (4) *Taṣawwuf*, by Abdul Majid al-Marhum Dri Maharaja Wangsa Hj Mohd Salleh Baqar Husyn, 1310 AH (around 1890 CE), which contains elements of astronomy and cosmology-cosmogony and can be found at *PNM*.
- (5) An essay in the Manuscript MS1659 (at *PNM*) entitled, *Mutiara yang Putih* (the title in Arabic is illegible) by Shaykh ‘Abd al-Ra‘uf Ibn Shaykh ‘Abd al-Rahman. This was a *taṣawwuf* work that discusses existence (*wujūd*), necessary (*wājib*), impossible (*mustaḥīl*), and possible (*mumkin*) in contrast to contemporary concepts in this field (ontology, set theory, logic, possibility and probability).
- (6) The manuscript MS781(2) by Nur al-Din al-Ranyry, available at *PNM* without the title and year, contains discussions on logic and matters analogous to the present atomic theory, i.e. the theory of *jawhar* (substance), ‘*araḍ* (accident), *maḥal* (place), *zā’id* (increment) and ‘*adam* (non-existence), and explanation on the reality of mass and body. All the knowledge is presented in integration with Islam and this can at least give potential new ideas in contrast to the ideas of contemporary science.
- (7) Manuscript MS1659 (without the year and author/translator), and MS147 entitled *Jāmi‘ al-Jāmi‘ al-Muntaqarabyaht* (both are available at *PNM*) a work on *taṣawwuf* which also contains a theory of psychology where the levels of human needs are discussed in a more comprehensive manner than is commonly found in current Islamic works, let alone in contemporary economics/psychology. The levels of human spirituality are not only divided

into commonly quoted levels, *nafs ammārah*, *lawwāmah*, and *muṭma'innah*, but with four additional levels: *nafs sawiyyah*, *nafs mulhamah*, *nafs raāḍiyah*, and *nafs marḍiyyah*, each of which is described in detail.

These examples are sufficient to show that the works of the Malays in the 17th to the 19th centuries CE are scientifically integrated and are relevant to the concept of the Islamic school curriculum. Examples of contemporary knowledge that are being worked upon, based on the approach of the Islamic school curriculum, are described briefly as follows.

4. Examples of *farḍ kifāyah* education in our true Islamic school

4.1. An Islamic approach to school mathematics

An approach to mathematics education in school which adopts the envisioned Islamic approach had been done in 2000-2002 through a project under the sponsorship of PERSAMA (Malaysian Mathematical Science Society) known as the *Matemadesa* approach. Some examples of the implementation of the *Matemadesa* principles for some Lower Secondary School Mathematics topics are reviewed in the book edited by Shaharir (2001a). Examples of the implementation of this project for Upper Secondary School Calculus and Mechanics/Dynamics can be read in Shaharir (1985, 1989, 2002a,b, 2004a,b).

In the light of the Islamic approach outlined above, pupils should be given an insight into the nature of numerals and numbers as well as the numerals used by Malays, Arabs/Muslims, Indians and Chinese, as suggested by Shaharir (2000a,b) and Alinor (2008). The simplest explanation of the law of addition, multiplication and division and fraction that is related to the model of fairness and the *farā'id* law, should be given. This concept is elaborated below.

Let us take, for example, the case “2 plus 3 = 5”. Here the numerals are pure numbers without any unit, and as such represent an abstract concept. When these numerals are used to represent a real situation, we must attach some unit to them, for example, 2 apples and 3 apples. Thus we have arrived at some form of reality. But even at this stage we cannot proceed to conclude that we have “5 apples” because the two apples may be of different kinds (varieties, shapes, sizes, qualities, etc.). For example, “2 Granny Smith apples plus 3 Red apples” is not equal to 5 apples, unless we are just happy and interested only in the number of apples irrespective of their kinds. But even that also involves subjective judgement because “happiness” and “interest” are value-laden. Thus we need further assumption(s) about the apples such as “the apples are of the same kind and identical in all respects”. Only in this situation the expression “2 plus 3” means two identical apples are added to three identical apples of the same kind. Then we obtain 5 identical apples of the same kind. Now “apples of the same kind with each one of them having identical properties” is not easy to be materialized, if not conceptually impossible. Thus “2 plus 3 = 5” is an example of an ideal situation. In general, a table of addition is always an ideal situation. It is also subjective in the sense that the things involved in addition are culturally/religiously dependent and the numerals are subjected to some form of agreement on approximation on the nature of things involved.

Now, “2 times 3 = 6” can be treated in a similar way. If “times” is interpreted as addition among things with identical properties, then “2 times 3” means “3 plus 3” or “2 plus 2 plus 2”. To obtain the answer 6, one has to assume the units involved are the same and to have an ideal situation again, namely the two 3s or the three 2s are identical in all respects. Therefore the so-called tables in arithmetic such as the multiplication tables are valid in an ideal situation. Similarly, one interprets division in the same way. In order to have “6 divided by 2 = 3”, or “6 divided by 3 = 2” one has to conceptualize identical objects. There are also cultural/religious considerations attached to addition/subtraction and multiplication/division as discussed below.

The simple division of “8 divided by 2 = 4” is subjective and culturally/religiously dependent. Take the case of apples again. First we must make sure that there are 8 apples of the same kind and they are identical (an ideal situation). The numeral 2 must represent two persons of the same standing (same legal status, age, gender, contribution, etc.). Then the two will most likely agree to have 4 apples each. It is clear that a division of 8 thousand US dollars left by a deceased person to two of his beneficiaries most likely would not be 4 thousands US dollars each, especially if it is based on *farā'id* (Islamic law of inheritance). According to *farā'id* law, 8 divided by 2 has various answers depending on the relation of kinship between the two people concerned. There are many possible answers depending on the exact circumstances.

We must show that mathematics is culture-laden. The meaning of “one” is culturally and religiously dependent. “One” in Islamic theology is not the same as in Catholicism. In Islam “one” is strictly and uniquely only one or single, whereas in Catholicism “one” involves “trinity”, the oneness of {the Father, the Son and the Holy Ghost}. Different concepts of numbers among some ethnic groups are discussed by Dantzig and Mazur (2007) and White (1947/1956), whereas Spengler (1926/1956) argued that the development of numbers from integers to rational numbers and complex numbers is culture-laden. A more technical argument is to consider the meaning of a number by the cardinality of a set, and the set which gives the same cardinality is not unique, due to the concept of set of sets. Thus “one” is the cardinal number of a set of a single element, symbolically the set $\{*\}$. But the set of set of the single element also has the same cardinality, symbolically $\{\{*\}\}$; and so does $\{\{\{*\}\}\}$... and so on.

Other example of culturally dependent concept of numbers is based on etymology of words for numbers in a particular language. As an example we find that the words for numbers in Malay are etymologically different from the corresponding words for numbers in English. In Malay, each word for a number between six (which is *enam*) and ten (which is *puluh*) is formed by performing an operation on things derived from the etymological meaning of the word for the number five (which is *lima*) which means “a perfect palm”. Thus numbers in Malay are quinary, and not tenary or decimal numbers.

One might ask, “In what way is it different from secular math?” We think the above explanation attempts to answer this question. The above discussion is not an attempt to negate the ideal abstract concepts of addition, division, etc. but to draw attention to the difficulties involved when they are applied in real life situations. Further, the importance of the nature of addition, multiplication and division, as an idealization is, we think, very Islamic because the absence of absolute certainty even in arithmetic enhances the teaching of Islam.

4.2. Sales-purchases approach, *mu'āmalah* and business management

Apart from the laws of sales and purchases in *fiqh*, topics on contemporary business management and *mu'āmalah* in general should be introduced. Discussions on sales and purchases that involve *riba'* with examples of modern *ribā* and interest calculation (the mathematical percentages) should be discussed. Discussion of sales-purchases without *ribā*, including the current practice of “finance by Islamic banking”, must also be taught. The difference between *zakāh* and tax (including the law) and its calculation should be emphasized. Perhaps the formulation of “Islamic loans” based on the *muḍārabah* principle could also be discussed. (For details, see the thesis by Maheran (2006) at the School of Mathematical Sciences, Universiti Kebangsaan Malaysia and a series of publications in 2004-2006 that can be obtained from the Internet through the website <http://myais.fsktm.um.edu.my/>).

4.3. Approach in economics

The approach to economics that takes into consideration the need for “Islamisation of economics” on every necessary topic in the syllabus of public school has not happened to date. This is a project that needs to be accomplished by every “religious school” that wants a more meaningful Islamic curriculum. However, there have been writings in the area of economics from the perspective of Islam, and those who wish to produce Islamic economics textbooks or develop curriculum should read these even though most of these writings are normative (qualitative and philosophical) or mathematical, for example, the difficult writings by Masudul Alam Choudhry (they are numerous and easily accessed from the Internet).

In Shaharir (2005a), we argued that the concept of “the best” which is modelled by the term “optimum” is incompatible with the concept of the best in Islam, that is *wusṭā* (moderate, just, balanced, etc.). Thus we have suggested a new definition of “the best” or “optimum” based on the concept of *wusṭā*; or we simply replace optimum by *wusṭā*. There, we discussed how the various concepts of “multiobjective optimization” are modified by the “multiobjective *wusṭā*ization”. This is of course beyond school curriculum because at school level it is only optimization of a single objective function without constraints which is taught in mathematics or economics. Thus we need a mathematics for *wusṭā*isation of a single objective function as shown by Shaharir (2011b), but further works on *wusṭā*isation of several variable functions are needed.

As far as the economic development is concerned, the Western scholars have heavily criticized it and embarked on a new economics which they term as eco-nomics and some speak of the economics of happiness. We have reviewed these states of affairs of economics in Shaharir (2008, 2012) and at the moment the subjects are still at its infancy especially from the Islamic perspective. But we have enough materials to incorporate such criticisms in our present Western centered economics curriculum even at school level.

4.4. Approaches in *farḍ 'ain* education

There are several titles in *farḍ 'ain* that need to be indigenized (i.e. adapted and explained in contemporary Malay language and culture). This has already been

mentioned in the discussion of a few *farḍ kifāyah* topics above on *zakāh* and taxation. Monies (in appropriate unit) or properties that are subject to *zakāh* should also be included.

In Malaysia, for example, the amount of *zakāh* is, in some textbooks, still calculated using non-local or non-contemporary units such as *dirham* (for currency), *mithqal* (for weight), *ausuki* (for volume) or *gantang* (a non-contemporary local unit of volume). Further, only common types of domesticated animals (sheep, cattle, buffaloes, goats and camels) are said to be subjected to *zakāh*. The calculations of *nisāb* (minimum amount on which *zakāh* is payable) are based on the rate of conversion from *dirham* to the present Malaysian ringgit. This does not take into consideration the present socio-economic conditions of people, and so is likely to render such calculations inaccurate. These discrepancies call for a revision of the *zakāh* system as prevalent in Malaysia.

Similarly, units of measurement dealing with the classification of “water purity” must be reformed. This involves laws regarding “Islamically clean water” and “scientifically clean water” which should be distinguished from the contemporary scientific understanding of “pure, safe, clean or healthy” water. As to the measurement of water purity in Malaysia, for example, it is not uncommon to find an agreement that water is Islamically clean (for cleaning and cleansing) if its amount is at least “two *kolah/qullah*” (*qullatan*) irrespective of change in colour, smell and taste. Firstly, the unit *qullah* should no longer be used but replaced by a standard equivalent current unit. Secondly, the concept of Islamically clean water must be wisely differentiated from the scientifically clean water.

A new syllabus and discussion on *musāfir* must also be formulated. In general, the issue of indigenization in Islamic studies as discussed by Shaharir (2001a,b) is considered highly relevant to the writing of textbooks for Islamic schools.

5. Conclusion

Since the First World Conference on Muslim Education held in Makkah in 1977, educational institutions in Muslim countries have been called to reform their school curricula so that the institutions are more in line with the philosophy and objectives of Islamic education. In doing so, teachers/lecturers need to rewrite all educational textbooks in accordance with changes in educational philosophy and objectives. Repeated calls were made, not only through a series of World Conferences on Muslim Education up until the last one, but also in repeated seminars on “the Islamisation of Knowledge” or “Islamic Education” throughout the world. Unfortunately, as was described above, the resolution of the First World Conference has still not been fully accepted and implemented. Perhaps there is no harm in the author making the call again here for Muslims to collectively work towards the success of the Islamisation of knowledge and education in order for us to live better both in this world and in the hereafter.

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