A Conceptual Methodology of Integration of Islamic Perspectives into the Curriculum: Using Medical Imaging as an Example

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Abstract
Integration of Islamic perspectives is already evident in various fields that include among others, Art, Medicine, Engineering, Sociology and Human Sciences. However, there are hardly any Islamic viewpoints in the present literature used for teaching and learning Medical imaging. To do the same for Medical imaging will not only complement the other efforts but also enrich the Islamic educational environment. Thus, this paper presents a conceptual approach towards integrating Islamic perspectives in the Medical imaging curriculum. The objective of the integration is to introduce, mould, remind and enhance the necessary Islamic attributes to the graduates. Internalisation and manifestation of those attributes in their future professional lives could become a catalyst towards promoting and propagating the concept of model Muslim Medical imaging practitioner. The nature of the Medical imaging curriculum is described as one that addresses areas that involve basic sciences, human interactions, use of technology, cost, safety, professionalism and medical ethics that are unique to the profession. The methodology involves an in-depth examination across a typical Medical imaging curriculum. The identification of the various concepts, topics and sub-topics enables the assimilation of the Islamic perspectives to be made across the four years of studies. A literature search was also performed to identify the Islamic perspectives that are used in previous integration processes. The identified perspectives include Islamic Worldview, teachings from the Holy Qur’an and Hadith, Maqasid and Qawaid Al-Shari’ah, Islamic history and civilisation, Islamic jurisprudence and thoughts of Muslim scholars. This is followed by a brief discussion pertaining to the individual tailoring of their possible applications in the curriculum. It is hoped that the conceptual approach can provide a direction in integration of Islamic perspectives in the curriculum with the intention to enrich the Muslim character in the graduates.

Keywords: Medical imaging, curriculum, integration, Islamic perspectives, conceptual.

Abstrak
Introduction

The idea of integration of Islamic perspectives in various fields of specialisation is receiving much attention. This enthusiasm is due to the attempt of Muslim scholars to revive the state of the Muslim community (Ummah) in the 1960s. Driven by the realisation of the “backwardness” of the Muslim community then, the concept of Islamisation of Knowledge (IOK) was then introduced by Muslim scholars (Haneef, 2005). The enthusiasm to pursue the revival of the Muslim community at large is a manifestation of the First World Conference on Muslim Education held in Makkah in 1977. Primarily, the conference called for efforts to be made to establish a symbiotic relationship between Revealed Knowledge and acquired knowledge.

The last two decades saw publications from the various disciplines that examined certain areas of interest from Islamic viewpoints. Earlier efforts used the term “Islamisation of Knowledge” more prominently in the titles, but soon other phrases were used. The more adventurous articles indicated the core Islamic discussion by using terms such as “Islamic perspectives”, “Integration of Islamic perspectives” and a combination of “Qur’anic”, “Muslim”, “Prophetic” or other Islamic related terms, either in the title, abstract or keywords. Others opted for a more conservative approach by addressing the Islamic viewpoints in the text. Irrespective of the approaches, these initiatives are seen as measures to imbue Islamic beliefs, values and practice in these profession-related publications.

While the above efforts to integrate Islamic viewpoints in the literature can be highly appreciated, the need to address the integration at the foundation level of the professions has yet to be fully realised. There was an opinion that courses or subjects offered in Muslim education institutions, particularly in acquired sciences, are devoid of religious values (Hashim, 1999). It is felt that the situation has not changed considerably, particularly in the field of Medical imaging.

Dualism in knowledge, secular and Islamic based, being experienced by students even in Islamic institutes of higher education is an important area of concern. Compartmentalisation of the contrasting knowledge led to dissatisfaction among the Muslims for this does not contribute towards producing graduates and professionals with the Integrated Muslim personality (Yaacob & Embong, 2008). They also highlighted the anxieties pertaining to the effectiveness and adequateness in the dualism in knowledge in preparing the graduates to face contemporary issues in the light of the Islamic worldview. The Islamic worldview in all its practicality guides Muslims to a way of life as envisaged in the Islamic revealed sources. Thus, negative effects from other non-Islamic sources on the Muslim students that may arise from dualism in the knowledge have to be reduced or contained.

There are mixed reactions to the adoption of the concept of integration of Islamic perspectives in the curriculum at institutions of higher learning, including institutions that were specifically established to promote the concept post 1977 conference. The obstacles, constrains and success stories from these institutions are by themselves,

Kata Kunci: Pengimejan Perubatan, kurikulum, integrasi, perspektif Islamik, konseptual.

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manifestations of the commitments towards integration, that has been dictated by the administration of these institutions. A well planned approach to incorporate Islamic perspectives holistically including the methodological considerations is essential to ensure the best outcomes from the integration efforts.

**Problem Statement**
Medical imaging has its roots in the west with the discovery of X-rays in 1895. The concepts, theories, technology and practice thus have since been attributed to Western thoughts, values and practices. These have greatly influenced the curriculum literature such that religious or spiritual matters, in particular the discussion on the Creator and His creations were effectively side-lined. The lack of Islamic perspectives in the current literatures used in the teaching and learning of Medical imaging is also noted. The present author, being an academician in the field, had practically accessed the majority of the textbooks used to teach the theories and concepts of Medical imaging. To compound the situation further, a study done to examine the extent and frequency of Islamic perspectives in journal articles indexed in the SCOPUS database showed dismal results. Out of a possible 341,000 articles related to Medical imaging, only six articles have keywords that relate to Islam, either in the title, abstract or article keywords. In those articles, the terms “Islam”, “Muslim” and “Moslem” were used to represent Islam or Muslims as subjects of the articles or merely as sites of data collection (Zainuddin & Halimatussa’diah, 2013). Such circumstances do not depict the true essence of the religion and fail to reflect the true characteristics of the Muslim Human character.

Overdependence on current literatures could lead to secularisation of Islamic beliefs, values and ethics from the profession and the professional. Simply, this means that there is a dichotomy between the Western knowledge, also known as human acquired knowledge, and the Islamic Revealed Knowledge. This could result in negative implications on the Medical imaging student, academician and the general Medical imaging practitioner. The scarcity of Islamic perspectives in the literature implies an enhancement and extension of the secular agenda in separating the religious aspects from the professional environment. Students and academicians, with different levels of religious knowledge, beliefs and practice, will not be introduced to the Islamic spiritual alignment with respect to their field of specialisation. They are then opened to appreciating the sectarian thoughts, beliefs, values and practices, distancing themselves further from the way of life that Islam outlines. The idea of using Islam as a directed way of life could be compartmentalised to non-professional areas.

Muslim scholars who were brought up in a secular environment could be lacking in the Islamic exposure or level of Islamic knowledge. This may put them in an inconvenient position to inform, enhance, inspire, convince or influence others concerning the teachings of Islam. The attributes of a scholar in shaping the minds of the students and others in his environment, in terms of applying Islamic principles, might then be defeated. To a Medical imaging professional, the inability in applying Islamic principles in one’s professional activity or otherwise, is amounting to secularisation of Islamic beliefs, values and ethics. Ill-equipped with the necessary Islamic knowledge, their readiness to face contemporary issues and challenges in the ever-expanding field will be doubtful. Furthermore, the failure to realise the avenues to change the mindsets and perceptions, including in those who harbour negative thoughts about Islam would be opportunities lost.

**Objectives of the Paper**
The dearth of Islamic Perspectives in Medical imaging literature hence forth, merely fuels the contention that some vigorous yet systematic initiative should be undertaken to research for and imbue the relevant Islamic inputs in the Medical imaging curriculum. Hence, an effort was undertaken to study and present a conceptual approach in integrating Islamic perspectives into a typical Medical imaging curriculum. The paper outlines the nature of the Medical imaging curriculum, highlighting the major theories and concepts in various courses. This is followed by identification of the Islamic perspectives that could be integrated into those areas. Finally, the
paper presents a conceptual framework towards the methodology of integrating Islamic perspectives, through appropriate examples. The paper distances itself from being philosophical. Much of the presentation relies on secondary data and the experiences of integration elsewhere. The proposed conceptual methodology of integration could also be adopted and/or adapted by others with courses of similar nature in their curriculum.

**Definition of Curriculum**

A curriculum essentially outlines the programme of learning for a particular area or subject. Generally it contains the course outlines that indicate the learning objectives, the instructional strategies and the suggested methods of assessment for evaluation of learning and the learning outcomes. The curriculum is an effective tool in order to tap an individual’s potential—physical, intellectual, moral, spiritual and emotional dimensions (Hashim, 1999).

The steps to achieve Islamisation of Knowledge in the curriculum were detailed out by Hashim (1999). The author highlights that understanding the principles of a curriculum in relation to achieving the goals and educational philosophy of the institution constitutes the pre-requisite towards Islamisation of the curriculum. Determining the educational objectives and relating those objectives to the Islamic philosophy is important before any integration or Islamisation of the curriculum. With those elements in place, the conceptual, methodological and evaluation aspects of the intended Islamisation of the curriculum can be initiated.

**The Medical Imaging Curriculum**

There are several works that aimed to present an understanding to the various theories and concepts that underline the Medical imaging curriculum. Medical imaging has been described as the body of knowledge that has also been influenced by other professions that include radiology, physics, health science, technology and sociology (Ahonen, 2008; Decker & Iphofen, 2005). Meanwhile, Castle (2000) divided the nature of radiographic knowledge into four categories. They are:-

1. “Hard pure” that are represented by the natural science (physics and anatomy)
2. “Hard applied” that relates to science-based professions as in engineering (instrumentation, imaging modalities, and quality assurance)
3. “Soft pure” that is associated with sociology (behavioural science and psychology).
4. “Soft applied” that relates to social professions such as social work education.

The above discussions merely present the general features of the curriculum, without going into the finer details of individual courses. The theories that govern Medical imaging are represented by all the four categories above and inspecting the curriculum will enable a profound understanding of the curriculum to be made.

**Models of Integration of Islamic Perspectives in the Curriculum**

While the idea of integrated curriculum means the teaching and learning of disciplines alongside Islamic heritage, utilising the epistemological sources in Islam (Amin, Yusof & Haneef, 2011), there seemed to be no consensus as to what actually is the integrated Islamic curriculum. Yaacob & Embong (2008) recognised the diverse perceptions to the complexity and ambiguity of the concept of integrated curriculum which results in the different translations among Muslim intellectuals and academician to the concept. Institutional needs, objectives and aspirations towards achieving the goals of integration that have to be balanced with available resources and expertise are some of the factors that give rise to these perceptions. Though it can be negatively perceived, on the positive note these diverse perceptions facilitate the different approaches to achieve a common objective.

Predominantly, the idea of integration of Islamic perspectives in the curriculum serves to highlight the Islamic philosophy of Islamic education and its accompanying elements into the curricula to produce an ideal and integrated Islamic personality as well as a well-balanced generation. The integration process is firmly grounded on the concept of Tawhid (the Oneness of Allah) and the devotion to Allah, respecting
fellow human beings, the environment and upholding justice (Ahmad et al., 2011; Hashim, 1999). In addition, there must be avenues where the students will be able to realise their role as vicegerents and possess the ability to complement revelation with reason (Ahmad, Othman, & Ismail, 2012). All these are conspicuously absent from the Western-concept of knowledge. A well-executed integration process should be able to reduce the dichotomy, creating the much needed harmonisation between Western inspired knowledge and those from the revealed knowledge.

Sekamanya, Hussein & Ismail (2011) described several approaches towards the Islamisation for a given curriculum. Firstly, the comparative approach where the Islamic- and Western-based courses within the curriculum stands on their own. Second, the integrative method that consists of the teaching and evaluation of Islamic and Western perspectives within the individual course is done concurrently. Although this would be the ideal method, it is rarely used. The third approach is concentrated on building a positive Islamic character among students and is targeted for technical and professional courses.

Attempts to fulfil the concept of integration in the curriculum showed mixed results. Common approaches include “insertion” of Qur’anic verses and Hadith in the writings, searching for scientific facts and proofs in the Qur’an, depicting parallels between Islamic and Western concepts, using Islamic terminologies and adding supplementary ideas to the Western knowledge. Somehow these approaches failed to address the core issues of the paradigms and methodologies in the disciplines (Ahmad et al., 2011). The present author posits that these “failed” approaches should not deter further efforts towards realising the integration ventures. Whatever “small” success that results from these ventures should be taken in the spirit of propagating Islamic ideals as espoused by Prophet Muhammad (Pbuh).

**Methodology**

Firstly, a thorough examination of the Medical imaging curriculum adopted by the Department of Diagnostic Imaging and Radiotherapy (DDIR), International Islamic University Malaysia, was done according to the classification of areas outlined by the Malaysian Qualification Agency (MQA) (Malaysian Qualification Agency, 2010). However, as MQA did not detail out the actual coverage for each course, it could give rise to problems towards determining the level of coverage or the sub-topics that were to be addressed by each course in the curriculum.

To further validate the findings, and with the intention to make the integration process more adaptable to others, the researcher resorted to examining the Medical imaging / Radiography theoretical coverages from the United States of America (American Society of Radiologic Technologists, 2012) and the United Kingdom (Quality Assurance Agency for Higher Education, 2001). The rationalisation in this undertaking was to ensure that the various theories and concepts in the DDIR course outlines would at least be equivalent, in terms of coverage, to the curriculum adopted by those countries. This is done taking into consideration two main reasons. Firstly, the Medical imaging technologies available in Malaysia are not far behind when compared to these countries. Secondly, the heavy dependence on literature from these countries is still evident in the teaching and learning of Medical imaging course. Hence, it would be justified to align the course coverage to their curriculum as well. It is hopeful that the findings from this study could be appreciated generally by others elsewhere.

Uys & Gwele (2005) used the term “macro” in association with the bigger aspect of the curriculum that includes programme outcomes, contents, guidelines and teaching approaches. While the term “micro”, was used to address the individual course objectives, outcomes and outlines. Due consideration is given to adopt the “micro” and “macro” approach to study the feasibility to integrate Islamic perspectives in the curriculum.

It was deemed that the nature of the data generated were those that could not be explained statistically. The courses were then examined in detail where the researcher identified the various theoretical domains in the curriculum. The major and minor concepts in the individual courses were also identified. This was done to enable the
alignment of Islamic perspectives to be made holistically in each course, thus making the integration process more relevant. It was postulated that some of those concepts could be repetitive in the courses.

Results
The MQA listed eight Basic Sciences courses, eighteen core courses and Clinical Practice as the theoretical and clinical components that are required in a Medical imaging programme. The classifications of the eighteen core courses, the theoretical domains include among others, Patient care, Instrumentation, Image generation, Image analysis, Comparative Imaging, Professionalism and ethics, Basic Management, Quality Assurance and Research project. Comparing with the curriculum from the United States of America and United Kingdom, it was found that the core areas are relatively the same. The main differences were in relation to the laws, regulations and professional standards as applied to their respective countries. This can bring to the conclusion that the scope of coverage in the core areas in the Medical imaging curriculum between Malaysia, United States and United Kingdom is similar. This should be used as an advantage to the current integration undertaking, knowing that what is going to be presented can be appreciated by fellow medical imaging practitioners in other countries.

Consolidating all the above findings, the researcher was able to draw out more than fifty major and minor concepts that are related to Medical imaging. A detailed examination of each major or minor concept forms the basis in identification and subsequent integration of the Islamic input. In general, those concepts represent the following areas: health and healthcare, the role of Medical imaging in healthcare, patient and patient care, imaging modalities, procedures, image generation, images, quality, cost, safety, customer satisfaction, professionalism and other basic concepts in imaging.

While a study by Laird, De Marrais & Barnes (2007) found themes that included religious practices, Islamic law and ethics, history of Islamic medicine, the effort by the present researcher found literature that addresses the contents from other Islamic perspectives. Consolidating both studies, the perspectives are Islamic worldview, basic Islamic concepts and teachings, Islamic Revealed Knowledge, Islamic jurisprudence (Fiqh) with references to Maqasid (Purpose / Objectives) Al-Shari’ah and Qawa’id (Principles) Al-Shari’ah, Islamic values and ethics, Islamic history and civilisation, Muslim contribution towards mankind and thoughts of Muslim scholars. The concept of individual tailoring of Islamic perspectives in Medical imaging will form the backbone of the discussion on the proposed conceptual framework.

Discussion: The Proposed Conceptual Framework
The proposed conceptual framework for the integration of Islamic perspectives in the Medical imaging curriculum is based on the following principles:
1. The concept of individual tailoring of Islamic perspective dwells upon the premise that Medical imaging is a relatively new field in Medicine. There is nothing to suggest Medical imaging being specifically addressed in the Islamic Revealed Knowledge. Hence, identifying and aligning relevant Islamic inputs to complement the concept or theories being addressed has been made.
2. No attempt was made to identify and segregate existing knowledge in Medical imaging (human knowledge) into Islamic or non-Islamic domains. Efforts were only concentrated on how the existing knowledge can be aligned to the overall concept of Islamic worldview and relevant Islamic perspectives. Harmonisation, rather than dichotomy, between the two different types of knowledge is the overall objective. Knowledge is considered as acceptable to mankind as long as it is not contrary to what Islam espoused in its teaching.
3. A thorough examination of the various concepts in Medical imaging can ensure that students will experience continuous exposure to the Islamic inputs throughout their four-year programme. In other words, efforts were concentrated to ensure that the integration process is evident in all courses.
4. The use of various types of perspectives can enable the students to be on constant or
continuous reminder to the various Islamic perspectives, facilitating them to internalise and practice the Islamic beliefs, values, practices, ethics, and other Islamic related knowledge.

5. It is common for an individual course to contain more than one concept. Resorting to the use of different Islamic sources within a course can assist to ensure constant reminders towards the holistic nature of the religion as the way of life. By combining those inputs one could enhance his/her basic Islamic knowledge, increase faith and piety as well as promote religious discussions that explore contemporary issues based on the principles and objectives of the Shari‘ah or Islamic jurisprudence (Fiqh). Additionally, those Islamic viewpoints can prepare the practitioner in fulfilling the call to the message (da‘wah) in the field of Medical imaging.

6. It is also possible that some concepts are addressed in different contexts. Naturally, the Islamic perspectives may be different when the concept is examined at individual micro level. The richness of Islamic perspectives that address the same concept but with different context will thus be evident.

7. The proposed approach mirrors the divine methodology as in the case of the revelation of the Holy Qur’an. The Qur’an was revealed in stages, over a span of twenty-three years. The revelation in stages aimed to assist in remembrance as outlined in the Holy Qur’an, Chapter 17; 106, “(It is) a Qur’an which We have divided (into parts from time to time), in order that thou mightest recite it to men at intervals: We have revealed it by stages.” (Ali, 2009).

8. The proposed use of multiple Islamic perspectives is aimed to articulate the beauty of Islam in its true essence. It also enhances and enriches the integration process whereby the use of a specific perspective to the area being discussed can be tailored to achieve a certain objective; enhancing one’s religious beliefs or religiosity, promoting what Islam champions or changing the mindset of the practitioner.

The justification of each Islamic perspective and their possible applications in Medical imaging are given below. It is to be noted that the applications depicted are not exhaustive. They merely represent the applicability aspect that should form the basis for other applications.

**Islamic Worldview**

The word “worldview” is derived from the German word “Weltanschauung”. The American Heritage Dictionary (Mifflin, 2001) describes it as “the overall perspective from which one sees and interprets the world” and “a collection of beliefs about life and the universe held by an individual or a group.” The Islamic worldview recognises the Oneness or Unity of Allah, more appropriately addressed to as Tawhid. This is followed by the authorisation that Allah bestowed upon man as a vicegerent on earth while at the same time is subservient to Him. A characteristic that is unique to man from other creatures, besides the physical is the ‘aql (the intellect). This is to be used to develop his spiritual self as well as to facilitate for decisions; what constitutes the acceptable and what does not, or those that only bring good to self, fellow human beings and the environment. Enjoining what is good, forbidding those that are bad, upholding human rights and justice and preserving things that are sacred are among the elements that the Islamic worldview champions. He is responsible to utilise all available resources as well as the knowledge gained from scientific endeavours to benefit self and mankind. Hence, the principles of the Islamic worldview are relevant to all aspects of life, more importantly in the aspects that are concerned with human endeavour including acquiring and disseminating of knowledge. These activities need to be guided by the values, ethics and theological standards as encompassed in Islam (Faruqi, 2007). It is acknowledged that there are differences between the Islamic and the secular worldviews. However, it is to be reiterated that Islam does not reject current practices, which might be associated with secular practices, as long as they are not contrary to the Islamic worldview of the unity of Allah.

The principles of the Islamic worldview can be incorporated in discussions pertaining to health, health care and the objectives and principles of Medical imaging services. For example, Islam commands the preservation of justice and human

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rights, which complements the four principles of health care that are beneficence, non-maleficence, justice and autonomy. Furthermore, the concept of the vicegerent, with all the responsibilities mirrors the concept of authorisation and recognition to practice, seeking and providing medical assistance, that are placed upon medical imaging practitioners. A thorough understanding of the Islamic worldview should be the foundation in the study of Medical imaging. This understanding should prepare the practitioner in associating what Islam champions to not only the professional aspects but also to the social, political and economic dimensions outside the profession. The principles of this worldview can be further appreciated within the multi-components of the curriculum.

Basic Islamic Concepts and Teachings

Basically every Muslim is acquainted with the three tenets; the Pillars of Islam, the Pillars of Faith (Iman) and the concept of Ihsan. The fundamentals of Islam are the Shahadah (testimony to the unity of Allah and messengership of Prophet Muhammad), the five daily prayers, fasting in the month of Ramadhan, paying of zakah (tithe) and the pilgrimage. The pillars of Iman are connected to faith to Allah, the Angels, the sacred books, the Prophets, the Day of Judgement as well as destiny and predestination (Qada’ and Qadar) by Allah. The concept of Ihsan meanwhile relates to one’s worshipping Allah as if one is able to see Him. These three tenets of Islam address the acceptance of the Divine law & faith as well as remembering and be conscious of Allah at all times.

It is to be acknowledged that not every Muslim has the same level of religious exposure or knowledge. By careful integration of the three tenets above, there are opportunities to introduce and reinforce those tenets within the students. The concept of Ihsan for example will have a great influence in one’s professional life. He performs his duties right for the sake of Allah and he is mindful that Allah is aware of how one carries out the duties. A practitioner with the necessary Islamic knowledge can use the brief moments of interactions with patients to remind or even enhance the patient’s spirituality and religiosity and possibly attend to the patient’s spiritual needs. Patients might need some directions on how to carry out their religious obligations, taking into consideration their medical condition. It might be justified to include relevant religious perspectives that are related to the Medical imaging procedures during patient education sessions. To be able to perform these initiatives not only streamlines the concept of role modelling in the eyes of the peers but also fulfils the obligations of the true Muslim Medical imaging practitioner in calling or guiding others back to the religion.

Islamic Revealed Knowledge - The Holy Qur’an and Hadith

These two main sources of Islamic Revealed Knowledge are foundations of the Islamic creed. Their importance has been reiterated by Prophet Muhammad (Pbuh) who in his last sermon, was reported to have said “I leave behind me two things, the Qur’an and my example, the Sunnah and if you follow these you will never go astray.” One could appreciate that the Holy Qur’an highlights a multitude of aspects that include religious matters, linguistics, doctrines, moral, history, pedagogy, psychology, economics, scientific, technological, administration and others (Thameem, 2011). There are two kinds of statements in the verses of Qur’anic text. Firstly, the Muhkamat verses are those that provide clear, concise indication of the idea underlying a particular passage or passages. The Mutashabihat verses meanwhile, are allegorical or symbolic statements that may convey several meanings, or are generalized metaphors that are well beyond the comprehension of human perception (Mustapha, 2009). Several authors have used the two types of verses to discuss Islamic perspectives in communication and teamwork (Ahmad, 2012; Ibrahim, 2005; Mohamad, 2010), scientific thinking (Shogar, 2011) and Qur’anic values in engineering (Shuriye & Ismail, 2011). The teachings evident in the Qur’an can be tailored in discussing healthcare and Medical imaging services. There exist possible applications of the “Mutashabihat” verses to Medical imaging with respect to certain concepts for example in discussing anatomy, use of
technology, safety concerns and economic considerations.

The American Heritage Dictionary of the English Language (2015) defines Hadith as “a. A report of the sayings or actions of Muhammad or his companions, together with the tradition of its chain of transmission. b. The collective body of these traditions. c. Arabic: report, news, tradition from, to report from”. Prophet Muhammad's (Pbuh) way of life is viewed as a model for Muslims and his conduct forms the foundation in the ethics and values that Muslim practitioners should mould themselves. Internalising and display of those ethics and values are essential to enable others to duplicate those ethics and values. In other words, elements involving professionalism and patient care could benefit from the Hadith.

Islamic Jurisprudence (Fiqh)

Fiqh is closely associated with the Shari’ah, the Muslim way of life. Islamic jurisprudence covers practically all aspects of a man’s life. It provides the basis on how to behave or act when confronted with certain situations or matters, be it personal or otherwise. Primarily it informs the Muslim on how to address issues that are related to worship, marriage, inheritance, rights of self, family, neighbours, business transactions, etc. Islamic jurisprudence is based on Islamic revealed knowledge (The Holy Qur'an and Hadith) and the consensus ('ijma) and opinions of renowned Islamic scholars (Qiyas / Ijtihad). The four main sects, namely the Hanafi, Maliki, Shafie and Hambali sects teach us one important lesson. Respect for each other’s opinion as long as it does not transgress the basic beliefs or act in a way that could nullify the Shahadah.

There five Islamic legal rulings namely; Obligatory (Wajib), Desirability or recommended (Sunat), Simple Permissibility (Harus), Undesirability or offensive (Makruh) and Prohibition (Haram) that serve to guide man in dealing with day-to-day activities and problems. They indirectly remind man on the obligation to enjoin good and forbidding evil, outlining clear indications on the repercussions on doing bad / evil and the virtues of doing good. The application of these legal rulings is to achieve the benefits, preventing harm and maintaining order and justice to mankind.

The application of fiqh in Medical imaging has yet to receive the necessary attention. It is felt that fiqh should be used as the base to address the ethical issues that has yet to be fully explored in the field. These contemporary issues that could benefit from Islamic viewpoints include the use of technologies, addressing specific rights of the patients, preservation of the dignity (awrah) and inter-gender patient-practitioner interactions. Identifying the fiqh issues in various classifications of the curriculum can provide the practitioners to necessary references to change or modify practice so that they will be aligned to Islamic perspectives.

Maqasid (Purpose / Objectives) and Qawa'id (Principles) Al-Shari’ah

The Maqasid and Qawa’id Al-Shari’ah came into existence to complement the Shari’ah. Maqasid Al-Shari’ah literally means the objectives of the Shari’ah. It relates to five purposes of Islamic Law. They are protection of diin or religion, life, progeny, mind and wealth. The formulation of the Maqasid Al-Shari’ah became prominent during the life of Imam al-Ghazali (450-505 A.H / 1058-1111 A.D.), followed by Al-Shatibi (d. 790H). Qawa’id Al-Shari’ah relates to the principles of Shari’ah. The formulation of the Qawa’id Al-Shari’ah or legal maxims, were attributed to the Hanafi jurists. Legal maxims are basically a reiteration of either the Qur’an or the Hadith and were developed gradually and the history of their development in a general sense is parallel with that of the Fiqh itself. Prominent contemporary Muslim scholars who have discussed the above elements of the Shari’ah in general is Hashim Kamali (Kamali, 1998, 1999), while Omar Hassan Kasule has directed those discussions to the field of Medicine (Kasule 2004; 2006).

One can easily find references that use Maqasid Al-Shari’ah and the Qawa’id Al-Shari’ah in addressing contemporary issues concerning fiqh in Islamic Banking, Finance and Medicine. The fact that their formulations were based on the Islamic Revealed Knowledge and ijtihad of the scholars, they can provide a more concrete
direction in life, making them highly reliable and convenient perspectives.

Noting that *fiqh* in Medical imaging has not been noticeable, the use of *Maqasid* and *Qawa‘id Al-Shari‘ah* can help in forming the Islamic understanding to the macro and micro concepts in Medical imaging. The five objectives in the *Maqasid Al-Shari‘ah* can be benefitted to discuss, among others, safety concerns, professionalism and the use of technology. The various principles in the *Qawa‘id Al-Shari‘ah* can be aligned to the principles of healthcare; beneficence, non-maleficence, justice and autonomy. It is anticipated that discussions pertaining to the application of the *Maqasid* and *Qawa‘id Al-Shari‘ah* in Medical imaging is going to be lengthy. Preparing the students to appreciate the adaptability of both these perspectives in relation to their field of study could facilitate for better understanding to the wisdom of Allah.

**Islamic Ethics and Values**
The Islamic Worldview has its foundation in “enjoying what is good and forbidding what is bad”. This foundation relates to Islamic ethics and values and is aligned to professional ethics and values. Medical imaging practitioners are bounded by certain professional ethics and values that are drawn up by members of the profession belonging to a certain professional body. These are evident in the documents or professional guidelines entitled “Code of Professional Ethics”, “Code of Professional Conduct” or “Practice Standards”. These guidelines are usually applicable in countries where these documents are formulated. *Muslim* Medical imaging practitioners all over the world can formulate their own *Muslim* codes of Islamic ethics and values. Professional guidelines from different countries can be consulted to derive some common characteristics, which will form some universally accepted ethics and values in Medical imaging. Consolidating the findings from these guidelines, the formulation of the Islamic Medical imaging practitioner’s code of ethics and practice can be made, by aligning it to Islamic principles in the *Holy Qur’an* and *Hadith*. It is to be appreciated that those Islamic ethics and values are rooted in Islamic Revealed Knowledge that are at least 1400 years old. They are not based on mere human intuition, biased interests, the majority or any specific culture of the human civilisation.

**Muslim History and Civilisation**
It is to be acknowledged that Muslims had glorious period of history as well as its falls culminating to the present status. The history and civilisations dwelled around the cities of Mecca, Medina, Damascus, Baghdad, Cordoba, Cairo, and Istanbul (Constantinople). Four eras worth noting began with the Caliphate of Ab-Rasyidin (Companions of the Prophet): Abu Bakr, Umar, Uthman and Ali with their individual successes and tribulations. This was followed by the Umayyad Caliphate that was marked by territorial expansion. A notable figure during this Caliphate was Caliph Umar Abd Aziz, reputed to be the 5th Caliph. His reign was taken as a golden era where justice prevails. The Abbasid Caliphate was more profound in the field of knowledge and technology. Personalities such as Ibn Rushd, Ibn Sina, al-Kindi, and al-Farabi are among those whose contributions were given due recognition. The fields of optics, medicine, astronomy, architecture and engineering were prominently developed during this era. Meanwhile, the Ottoman Empire founded by Osman Bey in 1299 was marked by the conquest of Constantinople in 1453. The empire effectively ceased to function in 1918. Secularisation, economic problems and nationalism were some of the factors that were attributed to the fall of the empire. With this fall, the concept of the Islamic Caliphate has yet to be revived. *Muslim* practitioners should study and learn from the glorious eras and the reasons behind the fall of the various *Muslim* civilisations. Efforts need to be intensified to enable the students to realise where the *Muslims* were, once. Glorification of the golden eras signifies the time when the *Muslims* and Islam were at the height of human civilisations. This could be a catalyst to provoke the present day *Muslims* to enhance their efforts in bringing back those glorious moments.

The falls of the *Muslim* civilisations can be attributed to the dilution in the concept of *Walaa’* (obedience) to those in authority, internal
struggles for power, loss of Islamic values by those in power that trickled to the masses, external influences (wars and political strangulations), the indoctrination of “development” and “secularisation” even by secularised Muslims themselves. It would be worthwhile to provoke the minds of the students towards the present state of the Muslim community worldwide. They should be able to identify the lessons learnt from the eventual decline of the various caliphates and be able to distance one from the very same reasons that precipitated the decline. The students should be guided to contribute towards the revival of the Muslim Ummah specifically in the field of Medical imaging through research that benefits the practice. The application of Islamic perspective serves to rekindle the mind of the Muslim individual to the glorious days of the Muslim civilisation and the steps that the individual should identify to contribute to the revival of the Muslim community.

Muslim Contribution Towards Mankind
The contribution of Muslims in various fields of specialisation is gaining the necessary recognition. Decades ago, the Muslim contributions were suppressed by “Latinisation of the Muslim contribution”. In the history books then, Ibn Sina was addressed as “Avicenna”, while Al-Zahrawi, was referred to as “Albucusis”, Ibn al-Haytham as Al-Hazen, Ibn Rushd as “Averroes”, just to name a few. This effectively denied Muslim students at that time to associate Muslim scholars and their contributions to mankind. Furthermore, these eminent scholars were found to be polymaths or multidisciplinary specialists. Al Kindi was a philosopher, mathematician, physician and astrologer. Al-Farabi was a scientist, philosopher cosmologist, logician and physicist. Ibn al-Nafis the physician who was the first to describe the pulmonary circulation of the blood also specialised in medicine, jurisprudence, literature and theology. The contributions are not only seen within the context of development and sciences, but also in influencing the mindsets, beliefs and values of Muslim and man generally. Bukhari, Muslim, Tirmidhi, An-Nawawi and Al-Ghazali are Muslim theologians who greatly influence the way Muslims think and behave. These examples show that the early Muslims practiced Islam from the spiritual as well as the non-spiritual wellbeing.

Not forgetting the present day Muslims who has ten Nobel Awards winners to date. Two Muslim scientists, one in Physics and the other in Chemistry were among the Nobel Laureates. Present day Islamic intellectuals, professionals, graduates and individuals need to come to terms to aspire for those glorious moments and replicate the values held by past and present Muslim scholars in the search for excellence and providing benefits to man. The need to revive the inquisitive mind of Muslim students towards the realisation of their existence on earth, and how to fulfil that realisation is therefore indicated.

Thoughts of Muslim Scholars
The contribution of Muslim scholars in moulding individuals can be appreciated through the works of Abu Hämed Mohammad ibn Mohammad al-Ghazālī (Al-Ghazali) and his Iḥya Ulumuddin and the works of other past Muslim philosophers. The thoughts of present day Muslim scholars including Syed Qutb, Al-Faruqi, Al-Attas, Taha Jabir Al-Alwani, Abul Ala Maududi, Dr. Yusof Qardawi, etc to revolutionise the Muslim minds and revive the Islamic endeavour through the concept of Islamisation of Knowledge should be given serious attention. Harmonisation between human sciences and Islamic Revealed Knowledge are currently undertaken. Medical imaging students should be informed of these initiatives and their objectives. The most important thing is how to achieve a harmonisation that students will find relevant for their future undertakings.

Conclusion
It can be seen that various Islamic perspectives can be integrated into a single course or classification. The limited avenue for this paper to adequately address the above Islamic perspectives to the macro and micro concepts in Medical imaging leaves much to be desired. The baseline conceptual approach has been established, through the examination of the curriculum based on an accepted standard of reference from an authorising body and the
identification of the Islamic perspectives that can be imbued into the curriculum. Future work involves a holistic effort to integrate the above perspectives into the programme’s theory and practice. The discussion of the application of the individual Islamic perspectives can thus be expanded. It is believed that the integration of the Islamic perspectives should not only be seen in terms of alignment or harmonisation of the opposing knowledge but more importantly in ensuring an effective integration. The effectiveness in the integration should be manifested in the graduates internalising and portraying true Muslim character.

References
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