

# ETHICAL VALUES TO ENHANCE HIGHER EDUCATION FOR COMPUTING

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**ABSTRACT:** *The evolution and development for every mankind and society is essentially built on education as a main pillar. The current weaknesses and slow development in the developing countries require an efficient and effective higher education system, especially in computing as an essential path toward bridging the gap with developed countries. Computing education has great role in all aspects of human life (politics, economy, health, and education). Moral and ethical values should introduced to and affect all education process's elements, which lead to better estimate the shape of the next generation of leaders. The increasing problems in societies force many universities to enhance their education process with ethical and moral values. Historically Islamic based ethical and moral values are consider as a great values and principles for human life that leads to build a stable, effective and healthy society that avoid many social diseases. This paper is to prepare a suitable plan to enhance computing higher education with ethical and values that leads to better evolution of society.*

**Keywords:** *Ethics, Computing Ethics, Islamic Ethics, Higher Education.*

## INTRODUCTION

The education is considered a key pillar in leading the development and evolution for any society. Having an effective and efficient education system including higher education is the proper step toward evolution. Higher education in computing is one of the leading factors to succeed in such development and evolution. In this era of knowledge; computer, communication, information and its related applications became an essential part in driving all aspects in human life. The world market for such computing applications is worth hundreds of billions USD and it affects almost all mankind life directly or indirectly. These applications require qualified professionally and ethically experts in Computer and ICT. Computing higher educators and professionals have to accept that their job involves wider responsibilities toward society than simply developing application using their technical skills. They have to work in an ethical and moral responsibility way if they are to be respect as professionals.

One of the tasks for enhancing the computing education is to the proper understanding of the computing ethics. This requires proper understanding of the concept of ethics, ethical and moral values, ethical problems and its role and effect on society and human life.

Islamic ethics is one of the recognizable and effective concepts of ethics, which is still not studied broadly by computer and ICT professionals and educators.

Literatures review shows that ethics have no unique definition but variety which reflects the philosophers or authors viewpoints and their culture with a common area between all these viewpoints. So ethics can be defined as "Set of principles of right conduct", "Theory or system of moral values", or "motivation based on ideas of right and wrong". Wikipedia encyclopedia [1] shows that: Socrates was one of the first Greek philosophers to encourage both scholars and the common citizen to turn their attention from the outside world to the condition of man. Aristotle posited an ethical system that may be termed "self-realizationism"; when a person acts in accordance with their nature and realizes their

full potential, they will do good and be content. Set of surveys on ethical aspect were done which shows a whole array of issues being faced by employees such as: stealing, lying, fraud and deceit [2]. Internationally, the ethical values are also deficient. In a worldwide survey done for few hundreds of companies, over 85% of senior executives indicated that the following issues were among their top ethical concerns: employee conflicts of interest, inappropriate gifts, sexual harassment, and unauthorized payments [3].

In computer and ICT evolution and education, several ethical concerns and problems have to address. It include professional responsibilities, social responsibility, quality as moral issue, ownership and intellectual property rights, privacy, computer crimes, confidentiality, responsibility and liability, professional competence, impact on society and work place, security and reliability, and safety [4]. Ethical problems in computer and software are very costly, harmful and affected high ratio of people. Computer and ICT education produces engineers and professionals whom participate in developing advanced intelligent and mass-destruction weapons systems. The unethical usage of such weapons causes hundreds of thousands of innocent victims as well as the huge destructions for wealth and environment, which means that computer and ICT education systems participates indirectly in such crimes and destructions.

## ETHICAL VALUES AND EDUCATION

Islam considers ethical education process (teaching, learning, seeking knowledge and science), as essential factors in developing and building a proper individual, community, and society. The first verse in Quran [5] revealed to Prophet PBUH was "Read! in the name of your lord who has created (all that exists), He has created man from a clot, Read! and your lord is the most generous, who has taught (the writing) by the pen, he has taught the man that which he knew not" [Qur'an 96:1-5]. Allah SWT orders the Muslims to follow and obey Prophet PBUH as a standard model "You have indeed in the Messenger of Allah an excellent example" [Quran 33:21].

Prophet Mohammed PBUH in his Hadiths said “seeking knowledge is compulsory for every Muslim male or female”, and “seeking knowledge from birth to death”, “Every one choosing a path for knowledge seeking, Allah SWT will choose to him a path leading to paradise”. Islam integrates all human acts with ethical aspects; so Muslims’ life should be guided by Islamic ethics [6- 9]. Mainly; Islamic resources consider ethics as a “set of moral principles and guidance that recognizes what is right behavior from what is wrong or what one should do or not”. Allah SWT describes Prophet PBUH “Prophet of Allah had been raised to a great spiritual dignity” [Qur’an 68:4]. Prophet Mohammed PBUH said “I was sent to complement the best of ethics”.

Islam supports and rewards people for doing goodness (education, science, medicine, etc) and warns, prohibits or punishes them for evil deeds. Statistical studies shows frequent appearance of educational, scientific, and ethical terms in Quran’s verses or prophet’s Sunnah. Hundred of

TABLE 1: Frequency of Ethical & educational Terms in Quran and Sunnah

Good Ethical Characteristic	No. of Verses	No. of Hadith
Ikhlas (sincerity)	23	34
Amanah, Nazaha, Istiqama (honesty)	65	66
Iswa Hasana, Irshad Islah	67	82
Amr maarof Nahi munkar (order goodness, prohibiting badness)	13	33
Husn alkhlug (good ethics)	61	250
Hikmah & hulum (wisdom)	129	31
Alhamd, Alshukr, Althanaa (Thankfulness)	235	142
Sabr, Kathm ghaidh (patient)	108	64
Adl, Insaf (fairness)	23	62
Sidq (Truth)	92	44
Rahma, Raafa, Rifq (Mercyful)	227	124
Ilm , Amal (Science , Work)	530	139
Tafakr, Tadabr, Taaml (thinking)	83	48

On the other hand Islamic warn people to avoid bad ethics or morals as shown in table 2.

Table 2: Sample of Bad Ethical Terms in Quran and Sunnah

Bad Ethical Characteristic	No. of Verses	No. of Hadith
Abuse, Hurt	127	79
Injustice, Tyranny	218	114
Sedition,	79	77
Corruption, sensuality	65	40
Lying, deception, slander	245	86
hypocrisy	24	51
Denunciation of covenant	9	36
Deviation	151	34
Treason	10	30
Ignorance	23	29
Disclaimer of responsibility	44	7
Crime, aggression	91	30

related terms used in Qur’an and Authenticated resources of Sunnah [10, 11].

Muslim’s scientists and scholars have significant development effort in different fields of science, knowledge and ethics. They consider ethics as the best honorable science or the crown of sciences, which leads to success and happiness for individuals, communities and society. Enhancing education process (teaching, learning, science, and knowledge seeking) with Islamic ethical values will lead to build proper individuals and society. It will bring development, evolution, benefit, strength, peace, and prosperity to mankind [12]. Wikipedia encyclopedia shows that: Greek philosopher “Socrates” encourage both scholars and the common citizen to turn their attention from the outside world to the condition of man. “Aristotle” posited an ethical system that may be termed “self-realizationism”; when a person acts in accordance with their nature and realizes their full potential, they will do good and be content.

Muslims’ authors such as Alfairuzabady [13] and Ibn Mandhor [14] mentioned that linguistically ethics means your default behavior “tab’a or Sajjiyah”, kindness (Moroa’a) or religion, which reflect the mankind natural characteristics that is straightforward consistent besides the acquired characteristics that became as natural characteristics [13- 16]. Ibn Miskawah [17] and Abo-hamid Al-Ghazali [9]; they define ethics as a fixed situation of mankind soul and according to it, the mankind acts or behaves easily and simply without need for thinking or his acts become as default. In current century; Abd al-karim Zaydan [18] mentioned to ethics as set of fixed characteristics and meaningful values in mankind soul and according to the act consider accepted as good or rejected as bad so that he will perform or reject [16- 17].

To understand the Islamic environment that leads to produce great scientists in variety of knowledge; we have to show example of the support of Muslims’ Caliph for education and knowledge seeking. This can help the Muslim’s Ummah if they need to be a developed nation. The Muslim Abbasid caliph, Abu Ja`far Al-Mansoor encouraged translators and gave them large amounts of money. During his era, he paid very generously for translators. The succeeding caliphs follow Al-Mansoor’s way in supporting of knowledge, encouragement of the study of variety of sciences (astronomy, mathematics, chemistry, etc), and in the translation of the works of other non Muslim scientists.

On the other hand Bold experiments and unique innovations in mathematics were carried out by Muslim mathematicians who developed this science to an exceptionally high degree. The regions from which the "Muslim mathematicians" mostly came was centered on Iraq.

Algebra may be said Muslims developed it and applied it to higher purposes. Thus, the first great Muslim mathematician, Al-Khwarizmi, invented the subject of algebra (al-Jabr), which gave mathematics a whole new dimension and development path so much broader in concept than before. The Muslims invented the symbol for zero and they organized the numbers into the decimal system - base 10. They invented

spherical trigonometry, discovered the tangent and were first, "to introduce the sine of arc in Trigonometrical Calculations" Zero is an invaluable addition made to mathematical science by the Muslims. They have also shown remarkable progress in mathematical geography.

**ENHANCING COMPUTING WITH ETHICAL VALUES**

This research paper works toward enhancing the computer and ICT education with Islamic values. It represents the integration between the Islamic ethics (according to Qur'an and Sunnah) and current CICT education process. The proposed ethical principles are guidance that should be taught to computer and ICT professionals; especially the Muslims. The following figure:lis a framework for enhancing CICT education with ethical values.

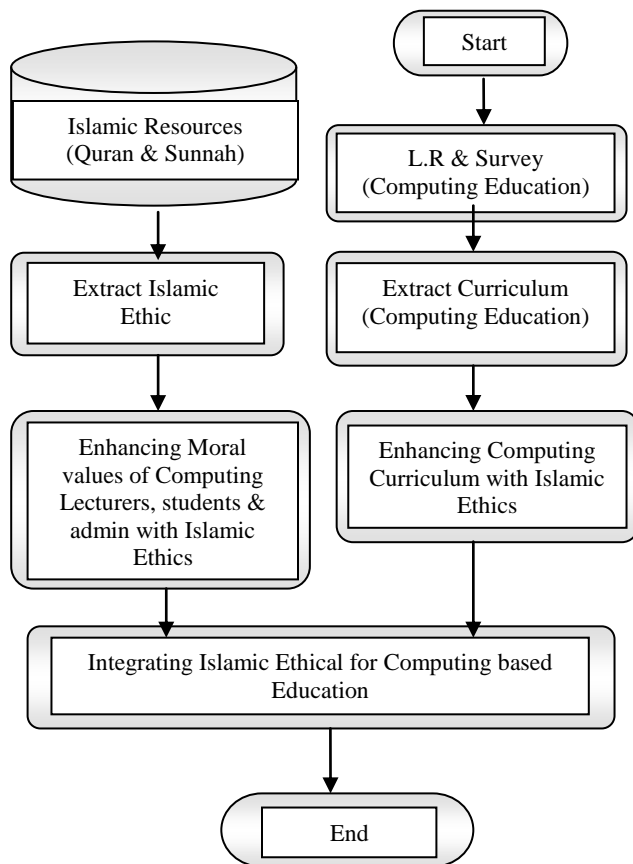


Figure 1: Framework for enhancing Computing education with Ethics.

This set of ethical principles is for all mankind; including CICT professionals. It includes:

- Mankind works as vicegerent or caliph to worship Allah SWT: The main goal of creating all mankind by God (Allah) is to worship him; by developing and reconstructing the earth or universe for the best (as Caliph) through their good acting and deeds. Allah SWT said "they Lord said to the angels: I will create a vicegerent on earth" [Qur'an 2:30], and "I have only created Jinn and Men, that they may serve (worship) me" [Qur'an 51:56].

- Life of Mankind is fixed and should spend in performing goodness and collect their wealth in legal ways: The Qur'an. "To every people is a term appointed: when their term is reached, not an hour can they cause delay, nor an hour can they advance" [Quran 7:34]. "verily, we showed him the way, weather he be grateful or ungrateful" [Qur'an 29:3].
- No secret act and each act associate with intention: God (Allah) knows all what we declared or keep it secretes as well as all our acts are associated with our intentions (Niyah); so we have to be clear in our work. "Allah he kneweth what manifest and what hidden" [Qur'an 87:7]. Prophet said "All your acts are associated with your intention".
- Performing duty is a worship: computer and Software engineering professionals have to know that, performing their duty is a worship and Allah will reward them for goodness and punish them for badness. Allah said in Qur'an "Then shall anyone who has done an atom's weight of good, see it and anyone who has done an atom's weight of evil, shall see it" [Qur'an 99:7-8]. Prophet in his Hadith said "work is worship".
- Understanding and following the standard ethics, especially Islamic ethics: computer and ICT professionals have to understand the standard Islamic ethics (based on Quran and Sunnah). They have to consider it as the highest standard that they should follow in their life and work. "Verily this Qur'an Doth guide to that which is most right (or stable)" [Qur'an 17:9]. "The religion be for Allah is Islam" [Quran 3:19].
- Justice should integrate with mercy to drive people and society toward goodness.
- Remember the Judgment day: Computer and ICT professionals have to know that doing goodness and producing useful knowledge will be rewarded by Allah in their life and after death to the Day of Judgment.

**ENHANCEMENT OF DISCIPLINES WITH ISLAMIC ETHICAL VALUES**

The other main target for this project is to offer a guideline for the Enhancement of Disciplines with Islamic Ethical Values. The framework for enhancement of disciplines with Islamic Ethical Values show that; the most formidable challenge faced by the Muslim scholars in their efforts to establish an Islamic system of education is what Sardar (1991) refers to, as true integration between 'physics' and 'metaphysic'. The concept of *Ilm* (true knowledge) in Islam includes:

- Integration of knowledge with the Islamic values, principles and teachings.
  - Looking at factual concerns with metaphysical insights.
  - Promoting an outlook of genuine and balanced synthesis of Islamic thought and contemporary concerns and issues.
- The integration of curriculum from an Islamic point of view should be undertaken in the following framework.
- Islamic concepts and ethics is the highest authentic revelation received through the prophets.

- Empirical knowledge is based upon the most important faculties bestowed by Allah SWT upon mankind. Their maximum usage and utilization are mandatory for man.
- All knowledge ought to be derived on the basis of a Single Source, i.e., Allah SWT.
- Islamic thought in any discipline should not be marginalized.
- Islam as a complete code of life and a dynamic movement to change this world ought to be explicitly recognized while re-laying the foundations of a given discipline.
- Based on Islamic procedure of education, each discipline must adopt an inter-disciplinary approach from an Islamic point of view.
- The main goal of Islamic system for education is to establish an Islamic way of life), Islamic education is also problem-centered (*Amr bil Ma'ruf wa nahi unil munkar*) and child-centered (*tazkiyah al-Nafs*, i.e., the development of an Islamic personality).
- The only authentic and absolute sources of knowledge in Islam are the Qur'an and Hadith.
- Thinking in all creatures of Allah SWT; Maximum use of creativity, imagination and perception in the light of the teaching of the Qur'an and Hadith is essential in order to promote the third most important faculty Allah has bestowed upon us, i.e., *Fu'ad: Say: "It is He Who has created you, and made for you the faculties of hearing, seeing and understanding: Little thanks it is you give."* (67:23)

## CONCLUSION

Education is a leading factor to improve life development. Computer and ICT are affecting all aspects of our human life. Although ethical principles for computer and ICT professionals were adopted by several organizations; but facts show that we still facing many ethical related problems. Islamic sources (Holy Qur'an and Sunnah) provide a high standard of ethics for individual, community and society. Islamic ethics are stable, comprehensive, fair and standard which are suitable for all nations and times; and when followed leads to create an ethically great society. Since there is lack of effort in considering Islamic ethics in CICT education; this paper proposes a framework and roadmap for enhancing CICT education process with Islamic ethical principles. This effort can help in solving many of the current ethical related problems in society. It offers a good opportunity for CICT engineers and higher education institutes to understand and implement such standard and comprehensive ethical values in their life as well as having their right role in life development.

It provide a guideline for curriculum enhancement with Islamic values, building sample e-learning web-based and database for Ethical values, and developing a mathematical model for ethical evaluation for people and organizations based on ethical values. All this leads to the enhancement of computer engineering education and its products.

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