THE SPHERAL SPECTRUM
OF EDUCATIONAL ROLE AND RESPONSIBILITIES
OF ENGINEERS-*MURABBĪS*:

By:

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Abstrak

Matlamat suci pendidikan menurut perspektif Islam adalah untuk menyuburkan nilai kesedaran ketuhanan dalam diri manusia. Lantaran itu, perlu diakui bahawa sistem pendidikan dalam Islam adalah terikat dengan sistem nilai. Ia turut mengenengahkan pendidikan bersepadu yang terserlah menerusi rekabentuk struktur kurikulum dan corak institusi pendidikan yang melaksanakan sistem tersebut. Orientasi pendidikan yang mengutamakan bidang sains dan teknologi semata-mata sebagai mekanisme untuk membangunkan manusia dan tidak mengutamakan usaha penyuburan nilai kesedaran ketuhanan dalam diri pelajar akan melahirkan personaliti yang hilang sifat kemanusiaannya. Tinjauan terhadap sumber-sumber penulisan Islam berkaitan dengan bidang pendidikan mendapati bahawa tumpuan penulisan banyak diberikan terhadap konsep pendidikan *(tarbiyyah)* dan tidak terhadap keperibadian 'pendidik' itu sendiri sebagai *murabbī*. Makalah ini mengenengahkan beberapa ciri penting seorang pendidik yang pelbagai, seorang yang warak, taat terhadap perintah Allah SWT, berpengetahuan, bersedia untuk mendekati dan memahami individu yang dididiknya, berusaha menyebarkan ilmu, hikmah *(wisdom)* dan nilai-nilai kebaikan kepada masyarakat, memiliki ciri-ciri peribadi unggul yang bersifat multi-dimensi dan amat berminat untuk membentuk personaliti pelajar yang bersifat holistik. Peranan dan tanggungjawab pendidik Muslim yang memiliki kekuatan iman, emosi dan taqwa yang unggul turut diketengahkan dalam makalah ini.

PREAMBLE

Educationists, leaders and societies at large are in agreement on the notion that better educational development depends on the qualities and structural formula of the educational system one adopts to reach its targeted objectives. Having that notion in

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mind, value-laden, comprehensive and ethical oriented environment of education is one system in demand to filter the increasingly educational pollutions. One of the sacred objective of education is to nurture God conscious personalities. However, today's education became service centres to the greedy markets producing dehumanized personalities, a trend if not put to an end may lead to the lowest level of human destiny; a level that wealth becomes the master of the dehumanized individual. To maintain a system of education which is value-bound the world needs to strike a balance in the curricular structure and institutional set up. As the educational paradigm shifts to emphasize science and technology machinization of humans may take shape and subsequently usher into an epoch of irreversibility. As the first *murabbi*, Allah (s.w.t) bestowed the pre-eminent form of *tarbiyyah* to His Prophet (s.a.w) as he declares in an authentic *hadīth*: "*The Lord has educated me and perfected my education.*"[1] The Prophet then transmitted this form of *tarbiyyah* to the Muslim society but only the knowledgeable individuals among the *ummah* has the privilege to inherit prophets as they are to uphold this attribute.

Muslim engineers in general and those in the teaching line in particular, play a vital role in shaping God conscious and multidimensional personalities. One task of this article is to analyze the orientational facets and varieties of dimensions of an engineer-*murabbī*. Attempt is made to achieve an ontological description of the *Muslim-teaching-engineer* using the attributes of *murabbī* as this will help to internalize the logicality and specialty of the concept of *engineer-murabbī*. Through the adoption of anthological analysis we cut across the huge implicit traditional literature diagonally. The article is aware of the fact that ontological approach is not always trajectory but in order to underline the concept of *engineer-murabbī* methodological twist, ontological analysis and unidimensional singularity are necessary to avoid vigorous tendencies. Sufficient academic publications on engineers as designers or technical managers are available but engineers as *murabbīs* have not received academic attraction due to some observable reasons, including that engineers are considered machine-oriented professionals, not *murabbīs*. The article at hand attempts to highlight the role and characteristics of Muslim engineers as *murabbīs*, educators and individuals with *imān* and exalted echelon Islamicity.

THE CONCEPT OF *MURABBĪ*

The term '*murabbī*' has originated from *tarbiyyah,* a concept in the English language could be deciphered into educating. *Murabbī* as a conception is an overreaching and comprehensive term in the Islamic system of education. Fundamentally *murabbī*

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[1] Muḥammad bin Ali al-Shawkānī (n.d), *al-Fawā'id al-Majmū'ah,* Cairo: Matba'ah al-Sunnah al-Muhammadiyyah, Bāb Faḍā'il al-Nabī, Hadīth no. 25, p. 327.

conveys the meaning of: bearer, fosterer, rearer, feeder, or nurturer.[2] The term *al-Rabb* in the Qur'an is semantically related to *murabbī*. *Al-Rabb* as in the Qur'an refers to the nourisher and possessor of all the non-*Rabbīs,* for He being the nurturer and the lord. This leads us to the fact that *murabbī* possesses the privilege to perform *tarbiyyah* over non-*murabbīs*. A *murabbī* could be an engineer or parents and his factions are distinctive to him or her. Thus it is essential to note that *murabbī* is an individual who is in search of knowledge not only the knowledge of here but also the knowledge that gives man salvation; moral and spiritual knowledge.

Moreover *murabbī*'s core mission is to guide the students; he or she is directed and motivated by the need to comprehend variety of complex aspects of students' life. Muslim thinkers who have contributed to the development of knowledge as a whole made the nucleus of their mission educating others. Ibn Sina observes that the essence of *murabbī* lies in his/her attitude and character, hence a *murabbī* has to maintain high level of religiosity, observe Islamic ethics and be consistent.[3] On the sort of punishment, *murabbī* may apply on defiant students, Ibn Sina asserted that a *murabbī* may enforce punishment in the form of warning and appreciation. Put differently, in leaning punishment is an ongoing process throughout the teaching progression. Ibn Sina was the first Muslim thinker to urge the *murabbī* to identify the interest of his students individually so as to encourage them to pursue the field in which they perform better. Imam Ghazali lay down several conditions for *murabbī*. Though some of the conditions may not be relevant as time-space-factors denote the importance of issues in any particular period substantial portion of these stipulations are pertinent. To avoid the same recap committed by Ghazali, I shall only mention the paramount aspects of these conditions.

In fact Ghazali himself made phenomenological amendments to his own thoughts and ideas on *murabbī* due to his transformational academic life. For instance, the *sūfī* Ghazali divers from the jurist Ghazali in approach and task. A *murabbī* according to him is one who bestows mercy upon his/her students not only in classrooms but also in other contacts, transmits the right knowledge to the right recipients, encourage students to view knowledge as an end itself, reminds students the role of *akhlāq* and self purification in their academic life, practice what he/she preach and lastly a *murabbī* does not ridicule or undermine students.[4] Some of these

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2   Ibn al-Manzūr, Jamal al-Dīn Abū al-Fadl (1979), *Lisān al-'Arab,* Qāhirah: Dār al-Ma'ārif.

3   Ahmad, 'Abd al-Hāfiz (n.d), *Nazariyyah at-Tarbiyyah al-Khuluqiyyah 'ind al-Imām al-Ghazāli,* Qāhirah: Dār al Fārūq, p. 74.

4   Al-Naqīb, 'Abd al-Rahmān (1984), *Falsafah at-Tarbiyyah 'ind Ibn Sīnā,* Al-Qāhirah: Dār al-Thaqāfah, p. 106.

attributes and conditions remain relevant in our teaching method, in fact Ghazali as a *murabbi* could be regarded the right articulator to set out the standards and attributes of a *murabbi*.

ETHICAL DUTIES AND THE ROLE OF ENGINEER-*MURABBI*

Engineer-*murabbi* does not only deal with students or perform classroom activities rather plays a central role not only in technological advancement and technology assessment, values- conflict solutions, risk assessments as he/she is morally responsible to maintain competency through continued professionalism. Like any other person, engineer-*murabbis* are ethically bound. This is due to the fact that their personal actions in classrooms, laboratories and resource centres or their products and statements involve peril. It is essential therefore, to highlight this aspect of engineer-*murabbi*. Ethical issues are not only about to decide whether or not risks should be taken; risks are to be taken despite the consequences of the action.[5] The risk that accompanies the actions of the engineer-*mubabbi*s is accepted and recognized as it is not possible to avoid in most cases.

Engineer-*murabbi* has an obligation to become sufficiently knowledgeable about the subject matter, functions of the equipment used and the responsibilities of his/her students so that he/she may strike the optimum level of balance in controlling and shaping the risks and ethical issues involves in his/her actions. Similarly engineer-*murabbis* have the responsibility to formulate and test the hypotheses that will advance the status of his methods. At the same time one should note that engineer-*murabbis* are not responsible for determining risk levels or bear it. The responsibilities are born by those establishing the policy and dispensing the funds, which is usually those in the executive and legislative levels of the institution. It is however necessary for the engineer-*murabbi* to be knowledgeable about the risks and his/her ethical duties. Of specific concern here is the role and responsibility of the engineer-*murabbi*. Through education and experience engineer-*murabbi* develops special knowledge and skill. Therefore, he has special role in teaching and in technological assessment. With respect to risk, it is important for engineer-*murabbis* to identify risks associated with technological changes in the laboratories and to educate the public about these risks.

Furthermore, the engineer-*murabbi* must recognize the interaction between technology, *tarbiyyah* and social values. As this interaction is paramount, engineer-

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[5]   Ibn Miskawayh, Aḥmad Ibn Muḥammad (1933), *Tahdhīb al-Akhlāq wa Tazhīr al-A'rāq*, Al-Qāhirah: al-Khairiyah, p. 58

murabbis and accreditation institutions should stress the imperative role of their actions in human development and social sciences as a part of engineering education. Practical experience of this author reveals that courses required for engineering students on humanities, religion and social sciences are totally insensitive to the importance of the interaction between technology and social values.

The Islamization or integration process would be improved if humanities and social science courses were evaluated so as to enhance the level and quality of this interaction to warrant that students are exposed sufficiently to the appropriate subject-matter. On values one identifies some fundamental values including life, justice, knowledge, self-expression liberty, and the pursuit of happiness. However, it is always the case that conflicts arise when one value is placed in opposition to another. As an instance life and freedom are two of peoples' primary values. Each is usually considered co-equal in significance. With unlimited procreation believed to be a basic freedom, environmentalists for example, may insist the centrality of the environment; the result is an ethical dilemma on which value is essential. Due to the uncertainty involved in assessing fundamental value the environmental engineer attempts to find a workable solution to the environmentally-based dilemma but that solution may land the nuclear engineer on a similar ethical dilemma. The development of nuclear energy certainly require diverse level of ethical consciousness. In fact, life as a basic value may be under threat but some individuals may down play the risk and place greater weight on the freedom that accompanies the use of nuclear power as a source of cheap energy creating an ethical dilemma. In dilemmas like aforementioned or the antagonism between two fundamental values, the engineer-*murabbi* has a duty to identify the peril and provide quantitative clues of the probabilities and transmit the knowledge in a form that can be understood by those not having the skills of an engineer so that the public can participate in solving the dilemma. Since technology has a direct impact on values by virtue of bringing about just such changes in the options that are available to society, it appears to lead value change either by bringing some previously unattainable goal within the realm of choice or by making some values easier to implement than in the past.

ENGINEER-*MURABBI'S* ROLE IN SOCIETAL DEVELOPMENT

Modern Muslim engineers who are Islamicaly orientated have the ability to construct better social standard of human values and better life as engineers have both technical and social responsibilities and their work is becoming part of human values. As the feature of modern engineering, system modelling and design can interact with social value. Modern engineering with values revolve around the

following:

i.   It is a form of human cultural activity

ii. It is essentially for the human development in the practical purposes

iii. It involves exercising human responsibility particularly in choosing problem and design approaches. This involves making choices in respond to normative value such as those derived from religions and other ontological related normative values.

iv. It ultimately involves forming and transforming the material world for the better use of man

Therefore, engineering is about solving problems in the realm of the societal outlook which includes products, processes and systems, and takes into account the environmental requirement. Engineering as a science of human endeavours generates direct benefits to human development. Engineers therefore have to translate into action the dreams of humanity, traditional knowledge and the concept of science to achieve sustainable management of the planet through the creative application of technology.

Engineering is highly specialized and professionalized to the technological activity which is devoted to the systematic design production and operation of techniques and technical system to meet practical human needs and specified constraints. It is the art of directing the great source of power in nature for the use of man. To imbue the best engineering enterprise engineers and engineering practices has to be considered imperative service to humanity. This is so because engineering is the total social enterprise with the total significance on all aspect of human life and a major role to play in moving the society towards the particular goals such as wealth creation, improving the quality of life. Talking about the importance of engineering and engineers in social development and societal well-being one may inquiry the position engineers among other members of the society. The question of where engineers fit in the pattern of social stratification or to which class the engineers belong is one of the factors, which determines their public influence. Needless to say however, the status of engineers varies from a society to another. In many societies including Malaysia, engineers have enjoyed high social status and one indication of this social status comes from numerous surveys on the issue.

ENHANCING STUDENT MOTIVATION

One of the most vexing problems an engineer-*murabbī* faces is how to increase student motivation to learn, particularly in cases where students are not interested in

learning or not motivated adequately. Necessarily therefore, an engineer-*murabbī* has to comprehend the concept of motivation and apply to his students according to institutional philosophy and cultural outlook of the students. Motivation is the inner drive to achieve; it is a set of attitudes about oneself; the learning task and the cognitive process necessary to translate those attitudes into effective actions. Note that looking at the aforementioned definition an engineer-*murabbī* may not be able to motivate his/her students rather create conditions that make it more likely for students to become more motivated.

One of the most current theories on motivation bases itself on two basic elements; the element of expectancy and the element of value. Expectancy is the degree to which people expect to be able to perform a task successfully provided they apply themselves. Value is the degree to which they treasure the rewards that will follow when the task has been successfully accomplished.[6] According to this theory the engineer-*murabbī* has to create the conditions under which two attitudinal changes occur: students expect that they will be able to perform successfully and at the same time keep in mind that reward will follow, the value. Besides the one factor that influences motivation to learn. The diagram below elucidates the identity and functions of these factors.
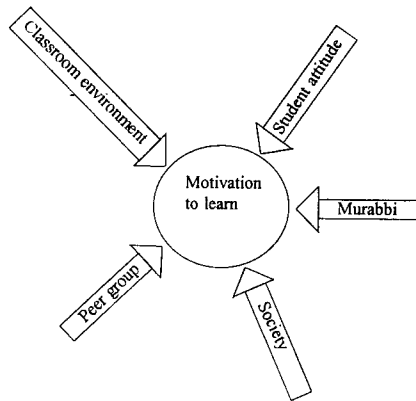
The attitude held by the student is the most vital factor of influence in the motivation to learn. Student attitude toward effort and ability is important to understand the general parameters of success. In general, successes results when a person with the required ability puts forth the needed effort. Muslim students lack

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5   Al-Ahwānī, Aḥmad Fuʿad (1968), *al-Tarbiyyah Fī al-Islām,* al-Qāhirah: Dār al-Maʿārif, p. 131.

this balance view. To make it worse Muslim students view that failure is solely from a lack of ability, a feeling that force them to give up too easily. Low expectation, negative feelings about the system, helplessness, the feeling of embarrassment and humiliation in the class are common traits of Muslim students in achieving motivation for learning.

The engineer-*murabbī* obviously plays a major role in shaping students attitude as he/she serves as a role model and influences student perceptions and behaviour. In his attempt to motivate students engineer-*murabbī* has to employ sense of efficiency, focus on learning readiness to share control and high expectation for students. Sense of efficiency is the engineer-*murabbī* belief that he/she can make a difference in students learning. Engineers-*Murabbī* who have these characteristics support students and tolerate their disagreement and challenges. The primary role of engineer-*murabbī* is instructional, hence focusing the instructional aspects increases student motivation to learn; the central business of the classroom. The third motivating factor is that of readiness to share. Engineer-*Murabbī* has to share control to influence student motivation in a positive direction or else he/she will have passive victims; not motivated to exert effort, as they believe not appreciated.

The final motivating factor is that of reasonably high expectations. An effective engineer- *murabbī* is unlikely to bestow severe criticism and ridicule with sarcasm on student who failed a test or incorrectly answered question in class. This type of engineer-*murabbī* shows indifferent attitude to those from whom he/she do not expect much. The attitude communications and students will respond accordingly. Giving the learning task appropriate to their developmental level with reasonable expectation based upon their level is the motivating factor.

CULTURAL DIMENSIONS AND CHARACTERISTICS OF ENGINEER-*MURABBĪ*

Prior to our discourse on the characteristics of engineer-*murabbī*, an epigrammatic highlight on the cultural dimension of engineer-*murabbī* is necessary. Like any other individual engineer-*murabbī* is culturally bounded. In fact the very idea of "goodness" varies based on culture and scope. As a result, there is no any empirical study of good or bad engineer-*murabbī*. As the descriptions are culturally embedded there could not be one covering parallel unit of analysis, a phenomenon that makes cross cultural studies on engineer-*murabbī* difficult.

There are numerous characteristics and techniques that produce a successful engineer-*murabbī*. These may be as varied as the engineer-*murabbī*s themselves.

However, there are certain time-tested attributes, characteristics and practices, which contribute immensely to the engineer-*murabbi* success. Enthusiasm is one of the attributes of an engineer-*murabbi*. Enthusiasm in this regard is the phenomenon where students can feel the excitement and easily detect the engineer-*murabbi*s love for the job and the subject. Another characteristic is preparation; he/she knows the subject and plans lessons. Punctuality which means arriving on time, begin and end class on time, is another paramount attribute. Support and concern for students should not be neglected or overlooked. Let students know that you care about their success, take time with them, allow creativity, be friendly, courteous, supportive and encouraging. Engineer-*Murabbi* needs consistency on this and it could be done in various forms. He/she does not miss class, consistent in attitude and dealings with students. Other attributes could be those of politeness and firmness.

ENGINEER-*MURABBI*S' CONCEPTION ON THE IDEA OF KNOWLEDGE AND MORAL EDUCATION

In the West, they talk about moral education in the Muslim world they attempt to develop Islamized knowledge; both aim at ethico-value bound knowledge. To begin with there are several approach to the idea of knowledge in the Western conception of the issue. The idea that knowledge must be grounded in certainty and the assertion that truth can be defined as what serves human needs best has become more influential through the works of pragmatists thinkers.[7] Celebration of learning as discovery has been given apparent scientific authority through the works of psychologists.[8] Whilst Descarte's contention that much of our knowledge is already in our minds at birth has been revived by Chomsky and his followers. Doubts about objective truth, growing confidence in humanity's ability to shape the world according to its desires and a belief that a lot of what we know is, in a sense already there, have combined to produce a heady brew called constructivism which sees learning not as discovery or finding out, but as invention or fabrication by means of imagination.

In educating, for the good life, a pioneering article which deserves rather more attention than it seems to have received William Frankena makes a distinction between the moral or morally good life and the non-morally good life.[9] In virtue theory, these two kinds of good life are normally called the virtuous life and the

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[7] Carr, David. (1998), *Education, Knowledge and Trust: Beyond Post-Modern Impasse*, London, p. 197.

[8] *Ibid*, p. 25.

[9] *Ibid.*

flourishing life. After a brief and tentative exploration of this important distinction, Frankena suggests that we should also distinguish between two kinds of education - namely, moral education, educating for the virtuous life, and non-moral education, educating for a flourishing life.

Being a Muslim or otherwise virtues are real qualities of character which serve as necessary correctives to the real harms and evils which follow in the wake of vice. However, since the conflict between virtuous life and that of vice oriented life, we have to make principle moral choices on the basis of our available knowledge of the circumstances. This meanwhile, requires the judgments of a morally wise agent. This itself is complicated. A given virtues such as courage or temperance may be differently exhibited by the same person in different circumstances, or more radically we may recognize the virtues of honesty, justice and courage in beliefs and actions significantly at odds with our own.

Educational concern, with the promotion of what is humanly worthwhile, the current obsession with what we may termed as values education in the Muslim world seem to call for special observation. One must note that while much of the recent spate of recently established institutions, Islamic universities, seem on the face of it to be concerned with a range of values, (spiritual, religious) the primary focus has however undoubtedly been upon the *ethical* and *moral* aspects of personal formation.

The term *'ilm,* means to know or to be acquainted with. *'Ilm* also means love, cognizance, intellection and natural sciences.[10] This Arabic term, *'ilm,* captures the meaning of knowledge, science, scholarship and epistemology. The active participle *'ālim* means someone who knows or have knowledge in a given field. Islamic epistemology as a theory of knowledge reflects on the standards of genuine *'ilm* or the management of subject matter of what is believed to be true knowledge. Knowledge in Islam therefore is a "complete comprehension of a thing in its "whatness" and the "exactness" or *"māhiyah al-shai'."* It is the opposite of superficial *(sathiyyah)* and ignorance *(jahl).*[11] Al-Baqillani, a Muslim theologian, refers to knowledge as "the knowledge of any "existent" no matter what substance, form, or essence it may take. True knowledge according to him requires a critical attitude and open-mindedness which allows the seeker to consider the opposites and examine other possibilities.[12] According to al-Farra', knowledge varies in terms of its degrees of certainty between two ends; *'ilm* (scientific knowledge) and *jahl* (ignorance). In

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[10] Hans, Wehr (1974), *A Dictionary of Modern Written Arabic,* London, p. 635.

[11] Safi, Louay M. (1996), *The Foundations of Knowledge,* Kuala Lumpur: IIUM and IIIT, p. 71.

[12] Al-Ghazāli, Abū Ḥamid (n.d), *Mi'yār al-'Ilm,* ed. Sulaymān Dunyā, al-Qāhirah: Dār al-Ma'rifah, p. 13.

between there is *shakk* (scepticism) and *zann* (probable knowledge).[13] *Shakk* could mean two opposite understandings of a thing, which are allotted equal possibilities. *Zann* on the other hand is one of the two possible interpretations, which is made probable. On the sources of knowledge, the divine revelation has always been considered as the ultimate source of knowledge but it was never the sole source.

Muslims accept the Qur'an as the revealed discourse, which is general in nature, however, at the same time intellectualism or reason has been recognized as the limited source of knowledge. The types of knowledge for the purpose of this discourse should also be mentioned.

There are three kinds of knowledge in Islam; instinct knowledge, acquired knowledge, and revealed knowledge. Instinct knowledge is in born knowledge that is purely gifted by the Almighty. Allah gives this type of knowledge to His creatures out of mercy *(rahmah)*. Human beings and animals are both eligible to receive this type of knowledge, for instance babies naturally know how to suckle the mother's milk; they are knowledgeable enough of how to suckle and when to suckle the milk from the mother. The bees make honey and humans can only make artificial version of the bee honey. The second type of knowledge is the acquired knowledge. Acquired knowledge is also a gifted knowledge by God but in different forms, circumstances and in different categories. Humans are given the ability to conceptualize, acquire, comprehend and search different types of knowledge, through faculties given by Allah to mankind. By acquired knowledge, we mean knowledge that is acquired by human beings through research and profound reflective. Angels and animals for instance, do not have this privilege of acquiring this type of knowledge. Mental capability, methodological development, accurate thinking and adequacy of intellectualism are some of the parameters in acquiring this type of knowledge. The third type of knowledge is the revealed knowledge. Mankind receive revelation from God through Prophets. This type of knowledge is the ultimate truth. Without conscious faculties the last two paramount types of knowledge could not be comprehended. I shall highlight two imperative faculties of knowledge for this purpose, *al-qalb* and *al-'aql*.

Al-Qalb is an organ of cognition and the locus of the intellect *(al-'aql)*. It is the *qalb* that comprehends the highest source of knowledge, Divine truth. This was mentioned in the Qur'anic dictum:

"Do they not travel through the land, so that their hearts may thus learn wisdom and their eyes may thus learn to hear? Truly it is not their eyes,

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13   Al-Farrā', Abū Ya'l (1980), *Al-'Iddah fi Usūl al-Fiqh,* Beirut: Mu'assasah al-Irshād, p. 45.

rather it is their hearts which are in their breasts that are blind". (Surah al-Hajj: 46).

The *qalb* is a place of where inner senses such as common sense, imagination *(khayāl),* reflection *(taffakur)* and memory *(hāfizah)* take place, it is the operating agency of psyche which transforms the spiritual potentiality into actuality. Decisions are made by the *qalb* and the *'aql* and the nervous system function as instrument to implement them. Intellection is an expression of *'aql* and is capable of both spiritual and intellectual perceptions. It works hand in hand with *al-qalb*, but is lower in rank as *'aql* is used for knowledge coming through the five senses using the thinking process, while *al-qalb* absorbs knowledge beyond the five senses. Both faculties however, work hand in hand to comprehend, control, and differentiate matters and through it man acquires wisdom, *hikmah;* the knowledge of the nature of things.

Engineer-*Murabbī* teaches Islamized version of knowledge, which is in turn what truth and moral education are all about. Engineer-*murabbī* perceive that the ultimate aim of education is to produce a Muslim personality with knowledge, faith, dedication and virtuous attitude based upon the Qur'an and the Sunnah; a conscious servant and vicegerent of Allah on earth with a high degree of taqwa. Taqwa here means comprehensive consciousness of God that the person's presence in this world is to serve none other than the *al-Rabb*. Enginineer-*Murabbī* also regards education as a tool to prepare cognizant mind, competent personality, conducive environment and knowledge-based society. A better mind will have influence over other facets of our life system. From this perspective, education is understood by the engineer-*murabbī* as a mechanism, which is paramount in changing one's life. However to change minds and formulate personalities the engineer-*murabbī* requires a substantial account of critical thinking. I basically, believe that the very possibility of moral education in the Muslim societies depends upon making sense of the idea of critically re-evaluating our way of thinking.

ENGINEER-*MURABBĪ*: A CRITICAL THINKER

Fostering critical thinking has been viewed as a central educational aim at least as far back as Plato and all God-sent Prophets and its importance has been emphasized by Muslim and Western thinkers. Rousseau, Kant, Ibn Sina, Dewey, Ibn Khaldun, Locke and Ibn Rushd are few in the list. It is primarily in the past two decades, however, that the subject has received sustained academic attention and has become the focus of educational reform. This emphasis on critical thinking is likely due in part to a reaction against traditional approach of teaching and educational practices which were thought to promote the practice acquisition of knowledge, and in part to a concern with a perceived inability on the part of students to assess evidence and

arguments effectively, a phenomenon prevalent in the Muslim world. It is believed that critical thinking is central to the critical appraisal of information which constitutes a part of subject matter expertise; the generation of effective solutions to problems; the abilities to evaluate competing claims, cut through political rhetoric and emotional suasion, and to engage in open-minded discussions and generally to the development of autonomous responsible individuals who weigh the consequences of their actions, engage in advanced and thoughtful planning, and deal in effective and innovative ways with educational and teaching problems.

Attempts to foster critical thinking aim, then, at the promotion of active learning, independent thinking, personal autonomy, and reasoned judgment in thought and action, and these particular goals are grounded in broader views regarding knowledge, reason and the person. They presuppose, for example, that our knowledge can never be certain but is always fallible, that there are such things as good reasons, and that personal autonomy is an important value. Despite such shared goals and common underpinning, however, there is not one common conception of critical thinking which is universally accepted among theorists and which grounds various particular educational efforts to foster critical thinking. Related to the problem of conceptualization is the issue of generalizability, that is whether critical thinking involves a generic skill or set of skills, or is specific to subject matter. On a similar observation much current debate has centred on challenges to critical thinking. Rather, there is considerable debate regarding how critical thinking is best conceptualized.

Although there are important differences among the various proffered accounts of critical thinking, approaches can be categorized broadly into two kinds: descriptive and normative. Descriptive conceptions tend to be psychological in origin, are framed in terms of cognitive skills and focus on the mental processes or procedures involved in thinking. The process approach holds that being good at critical thinking is basically a matter of being proficient at certain mental processes. These processes are generally thought to include such things as classifying, inferring, observing, evaluating, synthesizing and hypothesizing. "Thinking is a holistic process in which different mental operations work in recital[14] and they allude to "intellectual skills training". The procedures version views critical thinking in terms of following a series of steps or procedures.

Both these types of descriptive approaches have been criticized on a number of grounds.[15] One difficulty is that mental process in the sense of what goes on the brain, are unobservable, and it is impossible to determine whether particular mental

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[14]   Muhammad, Fadumah Ismā'il (1993), *Al-Qur'an wa al-Nazar al-'Aqli*, IIIT, p. 109.

[15]   *Ibid.*

operations correlate with particular cases of skilful thinking. Moreover, a description at the level of brain processes would not be very helpful in attempting to foster high-quality thinking.

To sum up critical thinking is one of the crucial values, which lead the engineer-*murabbī* into mental prosperity. In fact it is the key to epistemological advancement and metaphysical truth of the engineer-*murabbī*. Critical thinking is also important in developing sense experience as the basis for knowledge. The mental exercise of engineer-*murabbīs* is comparatively subordinate to that of others for the former lack critical thinking in research. The knowledge of real experience comes with the value of critical thinking. Teaching Muslim students this value would be great service to the mental development of the *ummah*.

CONCLUDING REMARKS

Engineer-*murabbī*'s role is centrally instructional (expected to teach, planning lessons, setting exam and managing classrooms) on top of this an engineer-*murabbī* may choose to serve as informal counselor to students, lending sympathetic ear and helping them solve social and academic problems. The traditional role of *mu'allim* (conventional Muslim teacer) has to be transformed to take professionalism in to account. As decision making process involves several substantive issues of paramount to his/her role in the process of teaching, *murabbīs* are to comprehend themselves as decision-makers. As an engineer-*murabbī* one has to exemplify the values that lead to intellectual curiosity and learning, so as to foster those values in the students in the class. The ways that you set up for students to interact also contribute to the daily creation of the learning environment. The most important element in the learning environment is invisible. It is made up of the values, attitudes, and actions that we and our classes take part in every day. Treat all learners equally in the class has practical importance. Being fair in our treatment of student in class make them understand that we care about the success of each of them. Call on female students (sisters) as often as you call on male students (brothers), and support their answers with rewards and guidance in order to create opportunities for every student to experience successful learning. Encouragement of participation will not only make students focus on learning activities but will also make it clear that your expectations are high. Engineer-*murabbīs* are expected to establish structures for learning. Learning is best when dynamism involves, a dynamism which takes place in a context of order and stability. Avoidance of negative communication is one the way of engineer-*murabbī*. Yelling at students will destroy the environment that nurtures learning, discourages learner from responding and humiliate or endanger the trust that they place in you as engineer-*murabbī*.