ICT and Philosophy: Harnessing the Socio-Digital Transformation

Teknologi- Maklumat- Komunikasi dan Falsafah: Menggunakan Transformasi Sosio-Digital.

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ABSTRACT

Computational science begins from problems and is, basically, a problem solving activity. Therefore having Shariah-Compliant Problems (SCP) out of information & communication- technological- problems is a necessity in realizing Islamic computational science. Based on this philosophical position, the process of macro creativity is outlined. Solutions created are preceded by intention and action. Out of the macro creative process, the paradigm of SCP is formulated. It is within this paradigm of SCP that innovation, i.e. the endless possibilities of micro creativity by way of mathematics, is further examined as a subset of the macro creative process. It is argued that essentially the overarching purpose of information & communication- technological - problem solving from the Islamic perspective and Malay values is the transformation of the scientist's intention and action to the Divine Will guided by the Holy Qur'an and Sunnah of the Holy Prophet (pbuh).

Keywords: God; problems; intention; creativity; research priorities; innovation

ABSTRAK

Sains pengkomputeran bermula dengan masalah, makanya sains komputer pada asasnya adalah kegiatan menangani masalah. Oleh kerana itu, untuk menghasilkan ilmu sains komputer yang keislaman sifatnya perlu kepada Masalah-Akur-Shariah (MAS). Berdasarkan kepada pandangan kefalsafahan ini, proses kreativiti makro dirangkakan. Penyelesaian yang dicipta semestinya diawali dengan niat dan tingkah laku. Daripada proses makrokreatif inilah dapat kita hasilkan paradigma MAS yang menyeluruh. Daripada paradigma MAS pula proses inovasi, iaitu kepelbagaian proses kreativiti mikro menerusi ilmu matematik, dapat dikaji sebagai subset kepada proses kreatif makro. Dalam makalah ini ditunjukkan bahawa pada hakikatnya, tujuan utama menangani masalah teknologi-maklumat-komunikasi daripada perspektif falsafah Islam dan nilai kemelayuan, adalah transformasi niat dan tingkah laku para ahli sains supaya menuruti kehendak Tuhan sepenuhnya, dengan berpandukan kepada al-Qur'an dan Sunnah Rasulullah SAW.

Kata kunci: Tuhan, masalah, niat, kreativiti, keutamaan penyelidikan, inovasi.

INTRODUCTION

Islam is a way of life, a natural (fitrah) religion. Muslims believe in the 6 articles of faith (believing in Allah s.w.t., Angels, Prophets, Scriptures, Qada & Qadr, Heaven & Hell) and the 5 basic tenets of Islam (Syahadah, Solat, Siyam, Zakat, Hajj) guiding all aspects of their lives. In order to analyze anything from an Islamic perspective amounts to analyzing from these fundamental frames of reference, i.e, principles of Islam, the philosophy of ICT problem solving included.

We face problems every day. Problem arises because of our imperfections, unfulfilled expectations, our mathematical models do not correspond to the external world, the solution does not work, inaccurate measurements, usage of inexact mathematical entities, deductive reasoning that relies on approximate premises, inductive reasoning that is not verifiable and compounding acceptable errors (Abdul Latif 1995). The list, however, is not exhaustive. Yet, problems are important in our lives and we progress by solving problems, more so in computational science (Popper 1959). Therefore in harnessing an Islamic socio-digital transformation, our problems should be shariah compliant. What this implies is that the problems that we are working on should be those problems espoused or advocated by the shariah for us to solve. Not all problems are shariah compliant; problems of constructing a brothel, gaming software, pornographic platforms, producing weapons of mass destruction, genetically modified haram food, illegitimate surveillance artifacts, aesthetics surgery, harvesting illegal

crops, human trafficking mathematical models and designer drugs, to name a few. On the contrary, working on problems to eradicate the production of these destructive products are praiseworthy and shariah compliant.

Since shariah -compliant problem is an Islamic problem while it is unislamic otherwise, it follows therefore that there are degrees of islamicity of particular problems. Research priorities demand us to solve problems which are more problematic to the ummah, for example producing food during famine, compared to producing a watch which have nanosecond accuracy for the public at that time. The first problem has a higher degree of islamicity compared to the latter.

The recognition on the shariah -compliantness of some of these problems can be either naive or sophisticated. Naive shariah compliant refer to judging a particular problem based on it's utility to the ummah alone. While utility (maslahah) is necessary, it is not a sufficient condition. It is necessary to produce food but it is better to produce healthy food. If it fulfill the necessary and sufficient condition then it is sophisticated shariah compliance. For example, producing instant noodles for the masses in economy of scale is good but to have healthy instant noodles is better. In the same token, producing cars is good but better still producing safe cars. As Muslim researchers, we should prioritize on sophisticated shariah compliance.

PROCESS OF CREATIVITY

What defines man? According to Aristotle, man is a political animal. Seneca believes that man is a rational animal. Among linguists, many would have agreed that what differentiates man from the other is that man have language, '*makhluk yang berkata-kata*'. Aristotle's position would not be supported by today's research in animal's behavior. If we believe in Darwin, chimpanzees is likewise a political animal. If we don't, the need for acceptability within the polity of the respective species domain are no less necessary in tandem with the survival of the species (Abdul Latif 2005). In short, while we can agree that man is a political animal, being political is not what defines man. The quality of being political does not differentiate him from other creations, so to speak. In response to Seneca, there is no doubt that man is rational. However, rationality alone does not define man. If rationality is the essence of man, than the computer is always a better man, which obviously is not the case. The component of irrationality, which includes the affective domain, is no less important as recent studies have shown.

If we take into account the argument that only man have the proto ability to communicate by way of language, the counter arguments are two fold ; 1)that animals have language of their own which is now experimentally verifiable due to the advances made in science, and 2)other creations, for examples angels and devils, could likewise communicate by way of human language as explicated in the Scriptures. Accordingly, having language is not the primary factor that distinguish man from other creations, including animals.

In view of the above positions, I have argued on another occasion (Abdul Latif 2008) that the most important innate disposition that defines man from other beings is his primordial ability to create. It is due to this unique, innate ability that man can be made responsible and morally accountable in all his undertakings, scientific activity included. In short, man is not so much a political or rational being, rather the only creative being. Unlike other beings, he can create his physical self, his emotion, his knowledge, and creates icons into idols; if he can create what he thinks as God, others are trivials. There is no other beings that have this innate propensity. Thus in short, I have stated that 1)man is the only creative being and 2)it is this intrinsic creative ability that differentiates one man from another.

A scientist is, above all, a human being. What distinguish him from another human being is that he solves problems scientifically, i.e., he creates solution in a scientific manner. The creative process begins when we encounter a problem. In the case of routine problems, to be creative implies to solve the same problem in different ways. We may or may not have the *intention* of solving the problem. The primacy of intention over action is self-evident (Abdul Latif 2006). The scientist's creative disposition then, results from the interplay of human consciousness, the integration of our sensibility, cognitivity, emotionality and spirituality. Man is part of the circumference of the *creatio-matrix* of which The Creator is at the center. The Creator, the Divine, creates *ex-nihilo* of which we could not. Granted that we have the intention to create, we will make the problem into a subject of contemplation (*theoria*). Having the will is the result

of consciousness, of knowing that we do not know about the problem to the extent that we want to know. This state of wanting, of prior knowledge, spurs us into a physical action of problem solving, a creative process of knowing. An aggregate of actions mould habit and character, which transforms into personalities embedded with values. It is the conjunction of intention and action in the creative process that we produce solutions, namely, new knowledge. New knowledge, in whatever form it maybe, certainly occupies space and time. No phenomenon, event or human products can exist in the absence of space and time, or rather, geometry and arithmetic, points and numbers. Rightly so, only man has the primordial ability to mathematize, to create new patterns, forms and substances, which depends on mathematical, computational reasoning and accuracies.

There is also a metaphysical argument to support the philosophical position in this paper here, that among all of God's creation, only man can create (Abdul Latif 2012). In order to create, we need energy. Warm represents life, cold represent death. The prime source of energy in this universe is non other than the sun. It is the source of all heat, i.e, fire and only man can use fire. The main reason for this ability is a metaphysical one. Man is held accountable for his innate ability to create. His unique ability of using fire is to remind him of Hell, should his creativity or his creations warrants him to be placed in Hell in the Hereafter.

PARADIGM OF SCP

The aforementioned process of scientific creativity at the macro level is not linear. If it is linear then computational science will not be as open ended as we all know. The bending of light rays, the cyclical orientation of the cosmos, our ephemeral existence, the temporalness of beings, the planetary orbits (Abdul Latif 1991), the finiteness of galaxies, the alternation of day and night, life and death, the wisdom of the Ancients, all of these point to the perennial fact that in everything created there is a seed of destruction in it; no computational theory is infallible. Computational solutions begets new computational problems, albeit at a different level. Problems 1 entails problems 2 *et.cetera*. Accordingly we have the consequential development of three Paradigms of Syariah Compliant Problem as follows:
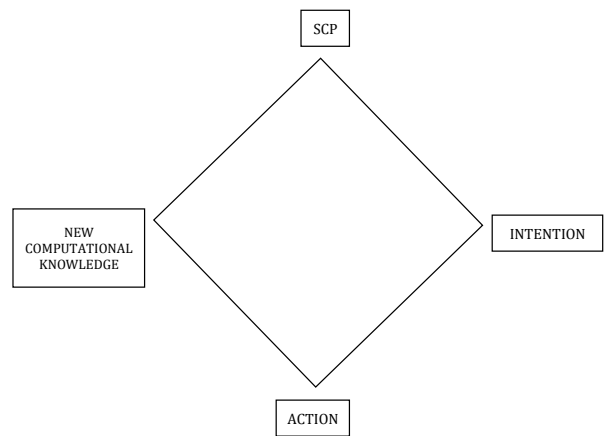

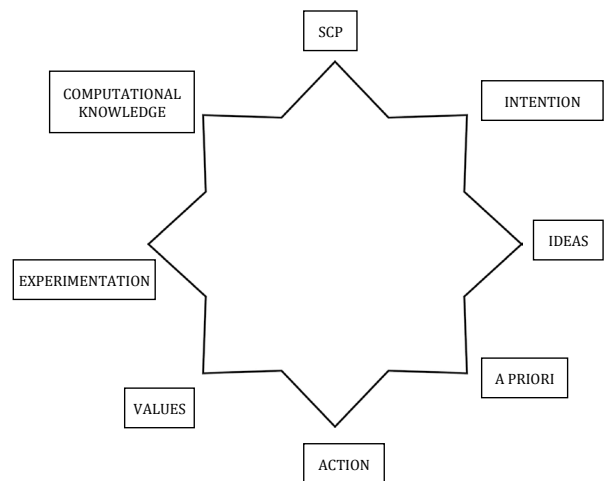FIGURE. 1 1st Paradigm of SCP

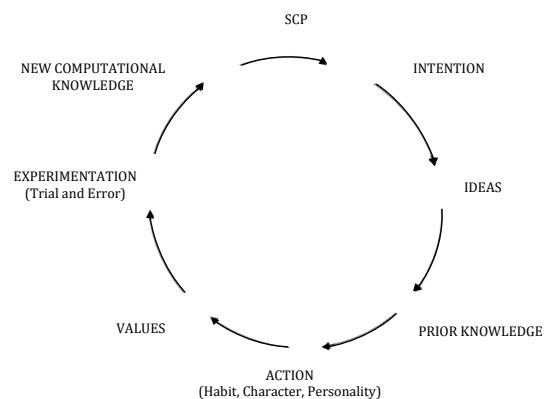FIGURE 2. 2nd Paradigm of SCP

FIGURE 3. 3rd Paradigm of SCP

Every shariah-compliant problem has its own lifetime. It is in this sense that I speak of degrees of islamicity. Islamicity is by way of comparison. A more shariah-compliant problem implies a longer

lifetime, to wit, a higher degrees of islamicity compared to its competitor or complementer. It follows that in order to have a highly Islamic science we must have a highly shariah-compliant problem.

From the Islamic perspective, the levels of reality basically point to the material, subtle and spiritual world. The world of sense experience, the observables, belongs to the material world whereas the non-observables, the world of electrons, aether *et cetera* can constitute the realm of the subtle domain. The spiritual world refers to the domain of angels, devils, jinn and so forth.

Just as there are levels of reality, there are levels of truth. Truth at the level of sense experience are susceptible to change. At the higher level, which is the subtle world, the truth are more exact and the hierarchy continues. There is always a correspondence between the computational scientist, the observer, who is the microcosm with the whole cosmos, 'the observed', which is none other than the macrocosm.

Without having true laws, how can we know about its true characteristics? It is only by acquiring true laws that we can have correct knowledge about virus and able to give reasonable diagnosis concerning the symptoms of disease associated with it in any health diagnostic system. It is obvious then that we can have progress in computational science only for striving for true laws. Non observables exist objectively in the subtle and spiritual world. Clearly in Islamic science, ICT included, there is more than a single mode of reasoning, in deciphering nature in consonant with different levels of reality.

In addition to the above argument, our response against naive inductivism is unequivocal. A series of events agreeing to a hypothesis never really verify it; the classical problem of induction (Salmon 1984). And to this effect, falsificationists have argued rather convincingly that although we can never prove the truth of a hypothesis, we can demonstrate its falsity-therefore the need for rigorous experimentations.

INNOVATION

The difference between creativity and innovation is not so much in matter of kinds, rather in matter of degrees. In the creative process and the paradigm of SCP which I have delineate, innovation is a micro process of creativity. We innovate when we add values to our creation. If we accept that products of computational science exist in the material plenum due to its experimental aspect and the requirement of testability, then it is by way of mathematics that innovation is possible. I have defined mathematics on another occasion as ' *the language of creativity based upon geometry and arithmetic'* (Abdul Latif 2009). Geometry, which is about points and space, and arithmetic, which is about movement of points and therefore time, underlies creativity and likewise, innovation. The interplay of points and numbers, of events, of space and time, in short-of mathematization, results in the endless possibilities of innovation. Since innovation is a part of creativity, a micro process of differentiation of particular product in comparison to creativity *per se*, its propensity is related to the degrees of islamicity of the scientific problems in the Paradigm of SCP. A more islamic scientific problem, i.e. with higher degrees of islamicity, have more potential for innovations, especially at the nascent stage. For example, Islamic biotechnology has more potential for innovation than that of mere classical biology. In view of this example, I would state that a computational problem which has a far reaching cross disciplinary impact has more knowledge content than one which has none. It follows that in order to have more innovations, we need to have more trans-disciplinary computational problems bounded by the parameter of Islamic values.

By and large, Islamic values which should underlie innovation are fundamentally non-other than those values that benefits humanity and in consonant with human nature because Muslims believe that the most valuable people are those that are most valued by others since anything that cause harm to others is considered unIslamic. Personal and professional values such as striving for excellence, mutual respect, respect for elders, accommodativeness (inclusion), seeking knowledge, punctuality, trustworthiness, justice, and sincerity are praiseworthy whereas betrayal, slander, envy, and avarice are blameworthy. Above all, the spirit of togetherness, namely 'professional congregation' as an ummah, could not be emphasized enough because it is in our ability to work together, to communicate-cooperate-corroborate, that Muslims, the Malay world included, can progress; it is the only way forward.

Gunung sama didaki, lembah sama dituruni, lautan sama direnangi; terendam sama basah, terapung sama hanyut, terampai sama kering; berat sama

dipikul, ringan sama dijinjing; hati gajah sama dilapah, hati kuman sama dicecah; hujung dunia pada akhirat, hujung adat pada muafakat; hilang adat tegal muafakat, muafakat membawa berkat.

From the perspective of the Malay world and civilization, organizationally speaking, there is always a right place (tempat) and time (masa), instead of simply a right ' place' according to the islamic traditional definition of justice as pointed out by the author in his argument and redefinition of justice (Abdul Latif 2012) in any problem situation. Thus:

Yang buta meniup lesung, yang bisu menghalau ayam, yang pekak mencucuh meriam, yang tempang menjaga jemuran, yang berani pergi berlawan, yang pandai pergi berbincang

Islam advocates a well-balanced change, innovation and progress based on the saying of the Holy Prophet (pbuh) that "The best in all things is their mean". The ultimate objective in all endeavors is the mean since both extremes are blameworthy precisely because submitting to the extremes will cause imbalanced. It is by way of striving for the total educational experience that the mean is achieved, bearing in mind that what is 'the mean' is contextually defined, i.e., relative to the existing fundamentals of the person. It is not the case that we are subscribing to the law of averages.

From an Islamic perspective, an ethical act is a Godly act. An act is virtuous if it is done with a noble intention and praiseworthy consequence. Therefore the purity of intention in innovation which is further based on faith is a significant matter in Islam. In fact those who are perceived to be good must be construed as having a superior moral character. It is not possible to have an unethically good Muslim. In so far as professionalism is concerned, the Holy Prophet (pbuh) says that "God loves those who do their best when they perform any given duty." This is the 'right' or 'Godly' attitude so to speak. Thus we have the ethical concepts of goodness (khayr), righteousness (birr) and striving to achieve distinction (itqan). The Holy Prophet (pbuh) says that "success comes with patience, relief with affliction and ease with hardship."

Since the pursuit of computational knowledge is a virtuous act, it is crucial to safeguard the spirit and the soul. The joy of the soul in the virtuous act of solving a SCP is better than the pleasures of the flesh since the former is more lasting. Contra

positions espoused by secular philosophies of science, for example (Hempel 1966) and Maxwell (1962), we should be actively involved in solving problems islamically because we believe that all scientific problems are religious problems and solving them is the way to Heaven apart from death. Our research priorities should not be decided with the objective of hoarding wealth (as opposed to creating wealth) because those who submit to wealth will suffer in the hereafter.

It is interesting to note that the 10th century mathematician, al-Biruni (Abdul Latif 2014), recommends that we should strive earnestly " for the suppression of evil and the welfare of truth". He maintains that the mathematician should not feel ashame if he loses his prosperity but "the real disgrace if he loses courtesy, generosity and etiquette". The computer scientist should not labor for his personal fame. Instead, the mathematician should put the pleasure of God above everything else in his quest of computational knowledge. He should let the pleasure of God, who is the Most Virtuous, to be the ultimate arbiter between his choice of actions including storing, retrieving, transmitting, manipulating and communicating data and information.

Adhering to noble values is a time honored approach to ensure the right computing decisions in problem solving are taken. As the saying goes, if one does not know what harbor he seeks, any wind is the right wind. However, values alone are inconsequential. It has to be organically integrated with acts in order for the computer scientists to realize the lofty objectives of their endeavor. In brief, void of instructive and heuristic solutions of values and ethics, the meaning of Islamic philosophy of problem solving in the Paradigms of SCP formulated earlier towards socio-digital transformation, at the very least, remains elusive.

CONCLUSION

The Divine is the beginning and the end of all computational problems there is. The quest for Islamization is concerned with practice, with human decisions and conduct in solving computational problems. In order to avoid misunderstanding, I must reiterate that the Paradigm of SCP framework formulated is not a reductionist kind. The unifying presence of the Divine as the center of the *creatio-matrix*, the common denominator, which in

essence is The Absolute Computationer and the hierarchy of various levels of reality ; the Absolute Computationer remains and is the Ultimate source of all degrees of computations for ultimately it is to Him and Him alone that all creations will return. Computational knowledge is acquired by man in the sense that it issues forth from The Divine, the Perfect Computationer. At the meta-computational level, computational science is open ended. It is the nature of computational knowledge pertaining to the world of sensible to remain incomplete. Completeness of computational knowledge is the prerogative of God alone since theology is central in our Islamic philosophy of computational science.

In view of the existence of various planes of reality, we can chart a one to one mapping between the faculties involved in the research process of solving SCP and the levels of reality. The external senses map into the world of brute facts which is the terrestrial world. The mind and other internal senses are mapped into the so-called intermediate world or the subtle world. Finally the soul who attains the computational meanings and ultimately the spirit, *the locus of intentions* in solving all information & communication- technological-problems, each corresponds to the celestial world and the world of infinity, which is non-other than the world which includes Divine Qualities and the Divine Essence.

In conclusion, computational activity formulated in this paper is an activity guided and bounded by the values and parameter of Islam. In our quest to gain computational knowledge, we should be conscious of Divine Wisdom, which is manifested in nature and all its intricate problems. As Muslim computational scientists, while we believe that computational truth in the domain of the material world is relative, this belief alone does not amount to the rejection of the existence and the dominion of the Absolute Truth, which is non-other than God Himself. In fact, the whole purpose of scientific computational problem solving to the Muslim computer scientist in any ecosystem is to discover this pervasive Reality and its infinite consequences: most importantly the submission and transformation of his will and acts to Divine Will guided by the Holy Qur'an and the Sunnah of the Holy Prophet (pbuh) in the most general sense of the word. Wal'Lahu a'lam.

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