4. Meluaskan ufuk minda dan intelek kanak-kanak supaya dapat dirasakan dalam diri mereka kesedaran mendalam tentang segala makhluk Allah di sekelilingnya sebagai ayat-ayatNya sepertilah juga ia membaca al-Qur'an.
5. Menyedia aktiviti yang dapat merangsang pembangunan individu supaya ia menjadi *cultured* (berbudaya), yakni tahu dan berupaya menggunakan atau mengaplikasikan kemajuan diri dalam aspek rohani, intelek dan kebendaan dan juga pakar (mahir) dalam erti kata ia menjadi aset yang berharga kepada keluarga, masyarakat dan negaranya.

Penutup

Dalam konteks perlaksanaannya, masyarakat, yakni ibu bapa, kaum pendidik khususnya harus didedahkan terlebih dahulu mengenainya hal-hal yang menyangkut soal pendidikan ini. Walaupun soal menyedia prasarana, seperti kurikulum, sukatan pelajaran, pendidikan guru, bahan pengajaran, pentadbiran dan pembudayaan iklim persekolahan tidak seabstrak menyedia konsep dan falsafah, namun ia memerlukan sejumlah sumber tenaga daya manusia, kepakaran dan dana dan seumpamanya yang sebenarnya tidak boleh diabaikan. Inilah sebabnya kita mengajak supaya diwujudkan pengembelingan tenaga sepadu yang mungkin bagi memastikan matlamat murni ini tercapai, insha'Allah.

Investigation on the Teaching of Critical and Creative Thinking in Malaysia

Oleh
Rosnani Hashim

Abstrak

Artikel ini merupakan satu tinjauan literatur menyentuh kajian yang pernah dijalankan di Malaysia berhubung dengan pengajaran kemahiran berfikir kritis dan kreatif. Literatur yang ditinjau terbatas kepada institusi pendidikan tinggi awam di Lembah Klang dan Bahagian Penyelidikan dan Perancangan Pendidikan, KPM. Kajian ini dibahagikan kepada empat bahagian: (a) guru dalam perkhidmatan dan pra-perkhidmatan; (b) pendidikan menengah; (c) pendidikan rendah; dan (d) kemahiran kreatif. Kajian mendapati bahawa metodologi yang lazim digunakan adalah metodologi empiris, walaupun ada segelintir yang menggunakan kaedah kualitatif. Kajian ini menunjukkan bahawa masalah yang paling serius yang dihadapi ialah ketidaksediaan para guru melaksanakan agenda ini kerana kekurangan ilmu dan kemahiran.

Introduction

Thinking is the most fundamental of man's abilities. It has a prominent role in the Islamic *weltanschaaung*. Thinking allows man to realize the special status that God has bestowed upon him. Man has been given the thinking ability so that he can read, think, reflect and understand signs of God in the Qur'an and in the world. Indeed, the first verse to be revealed to the Prophet Muhammad: "Read: In the Name of thy Lord who createth"[1], insists upon Muslims to think and reflect on Creation. Thinking not only helps human beings to fulfil their responsibility, but it is also the essence of humanity. For this reason, God regards human beings that do not think as animals because they have lost their essence of being.[2] In the Qur'an, Allah repeatedly asks Muslims to read His signs. According to Rosnani, the frequent appearance of terms such as *fakkara* (to think), *faqiha* (to understand), *dabbara* (to consider), *'aqala* (to think), and *fahima* (to understand) in the Qur'an are terms that mean thinking.[3] For instance, in the Qur'an, Allah has asked man to reflect upon His signs in natural phenomena such as that of the relationship between rain and plants' life, and in the alternation of the night and day by virtue of the solar cycle.[4]

Do we need to teach thinking? Is it not a natural process? We are able to classify, analyze, generalize, deduce, induce, make decisions and solve problems without having been taught to think formally. It might not necessarily be true that being able to think spontaneously would lead to the ability to think effectively and well. The basic issue that justifies the call for teaching thinking in schools is the evidence that after 11 years of schooling, many students are unable to apply the content knowledge acquired in school to real-world problems. The business sector is complaining about the quality of the graduates they received from the universities who sometimes could not even comprehend instruction manuals, what more the way a piece of equipment works. In the case of the United States, the decline in the students' thinking competence was further highlighted by the results of the National Assessments of Educational Progress. Teaching students to think would mean to improve the quality of their thinking so that it would be consistent, productive, meaningful and effective. The ability to think critically and creatively becomes more crucial in the age of information and globalization whereby individuals have to sieve through tons of information which is not necessarily relevant.

The Malaysian Ministry of Education realized the above-mentioned needs and had begun to slowly inject the ideas of critical and creative thinking in the school system as early as in the late 1980s concurrent with the introduction of the Integrated Curriculum for Secondary Schools (KBSM) as a mechanism to realize the National Education Philosophy. The Ministry realized that the old curriculum was not balanced and over-emphasized the intellectual aspect more than the spiritual, emotional and physical aspects. Although cognitive skills were emphasized, they were only those on the lower rung of Bloom's taxonomy, which consist of the 'lower order skills'. The KBSM was an improvement as it encourages discussion and inquiry. Some of the teaching strategies that it proposed were methods of discovery and inquiry, discussion, the Socratic method of questioning and problem solving through the scientific method.[5] The KBSM was to develop and enhance students' intellectual capacity with respect to rational, critical and creative thinking.[6] However, the greatest impetus to emphasize the teaching of thinking in the education system came after the Prime Minister unveiled his Vision 2020 for the nation in 1991. Malaysia's Vision 2020 describes nine challenges facing the nation that aspires to develop holistically which includes development of the various dimensions such as economics, social, politics, psychology, spiritual, and cultural. Interestingly, one of the major challenges lies in fostering and developing a mature democratic society, practicing a form of mature consensual, community-oriented Malaysian democracy. To meet this challenge would require Malaysians to think positively, critically and creatively.

In the effort to produce a progressive society, and consequently a progressive nation, it is essential to build and develop human abilities and resources. During the presentation of Vision 2020, the Prime Minister had mentioned in his working paper titled, *Malaysia: The Way Forward*", "that the most important resource of any nation must be the talents, skills, creativity and will of its people. . . . Without a doubt, in the 1990s and beyond, Malaysia must give the fullest emphasis possible to the development of this ultimate resource".[7] Thus, Malaysia should focus on the development of its resources, in particular its human resources. Vision 2020 calls for the need of a culture of thinking or thinking skills among students so as to produce a progressive society by the year 2020.

The most significant move made by the Ministry after the KBSM was the introduction of the concept of the 'smart school' in 1997, whereby creative and critical thinking would become one of its landmarks, the other being the emphasis on the application of information and communication technologies in teaching and learning.

The Ministry of Education and the Faculty of Education of public universities throughout the country mounted more research on the teaching of critical and creative thinking skills, especially in the 1990s. Unfortunately, this meticulous research were mostly kept on the library shelves gathering more dust and was never able to inform the practitioners in the Ministry and schools. Therefore, practitioners were unable to use research as a framework for making practical decisions. In the context of Malaysia, most of them either could not get access to the relevant literature, do not possess the learning culture for self-improvement, are too busy teaching and preparing students for examination or are complacent with their practices despite the declining educational standards. Eisner wrote on this phenomenon of educational research rarely informing educational practice and suggested some changes in approach that researchers need to undertake if educational research desires to inform educational practice.[8]

This study is an effort to survey and examine studies conducted in the area of thinking and to disseminate them to the practitioners. It is hoped that what has been discovered will be put to good use by teachers and educationists for the benefits of their students and also by policy makers in the improvement of existing programs involving thinking skills. By putting this research together, the writer hopes to understand the strengths and weaknesses of existing practices in the teaching of thinking in schools and propose further directions for improvement. In this attempt, the writer faced several limitations. The studies examined were

confined to institutions in the Klang valley. The writer managed to visit the University of Malaya, Universiti Kebangsaan Malaysia, International Islamic University Malaysia and the Documentation Center of the Educational Planning and Research Division of the Ministry of Education. In this study, discussion of research will be made at two levels. First, the paper will discuss efforts taken by the Ministry of Education, and secondly, research done in the universities.

Research conducted by the Ministry of Education

The Ministry of Education has conducted several projects and programs of thinking skills in schools through the Curriculum Development Center (CDC), and Teachers' Education Division (TED). They have also conducted workshops and provided training to teachers. For instance, the CDC conducted a pilot project on thinking skills across the curriculum in 1992/1993 in the district of Gombak, Selangor. This project involved 10 secondary schools and Form One teachers. The purpose of this project was to expose teachers to thinking skills, how to plan and prepare teaching and learning materials, and formulate strategies for teaching thinking. At the end of this project, teachers were found to agree that thinking skills were useful and should be taught in schools. They felt that due to the constraint of time, the infusion approach is most suitable for teaching thinking. Teachers faced some difficulties in identifying suitable topics to teach thinking. Hence, they suggested that the components of thinking skills should be included in the syllabus of each subject. Since students need to acquire the facts before thinking can be taught, teachers argued that the teaching of thinking should be emphasized at the end of a lesson.[9] This is an irony since infusion would mean integrating of thinking skills throughout the lesson and not just towards the end.

To assist teachers who faced problems in their teaching of thinking such as the lack of time and materials, and too much emphasis on examination, the Ministry introduced the Program for Instruction in Learning and Thinking Skills ("Peningkatan dan Asuhan Daya Intelek"; PADI or PILTS) in 1992. The main focus of the PILTS Program is the identification of a core of relevant thinking and learning skills to be taught, integration of these skills in the content being learned, providing appropriate instructions and evaluation of the skills taught. This program was introduced to teachers, teacher educators, and administrators through workshops, but the extent of the implementation is not known.[10]

The awareness of a need to teach thinking seriously in schools gained momentum when in 1993, Tan Sri Dr Wan Zahid Mohamad Noordin the then Director–General of Education made it the responsibility of the teaching profession

to develop thinking skills in society through reflective inquiry. He asserts that "teachers must engage in reflective inquiry, transmit knowledge, attitude, skills . . . . They should develop thinking skills. The student should not only be taught to answer questions, but also to question answers and to question questions".[11] The Curriculum Development Center even published a manual to explain the concept, model and teaching strategies for teaching critical thinking skills to teachers.[12] A year later he announced that the main target of the Ministry of Education by the year 2000 is to have sixty per cent of the examination questions to be of the "critical thinking" nature. In fact the Sijil Pelajaran Malaysia's History paper in 1994 had already used questions which require critical thinking.

Subsequently, in 1996 the Teacher Education Division (TED) of the Ministry of Education, introduced a course entitled "Critical and Creative Thinking Skills" in its Post-Degree Teaching Program (KPLI). This course was an effort to educate future teachers on how to teach thinking skills across the curriculum. The TED also introduced this subject for its in-service courses.

In 1996 too, the Curriculum Development Center (CDC) decided to implement "Gerak Gempur Minda" (Dynamic Mind Program), a program aimed at enhancing the teaching of thinking skills. This was in response to findings from previous studies that showed that the teaching of thinking skills in schools was not effective. The Gerak Gempur Minda also aimed at instilling awareness amongst teachers, education officers, school administrators, and students on the importance of enhancing students' thinking skills, the need to infuse thinking skills across the curriculum and to guide them in their practices. Four main thinking skills, namely critical thinking, creative thinking, problem solving and decision-making skills were emphasized in this program. The CDC adopted a three-level approach to ensure the success of this program. The first level involved education officers. The second level involved school administrators, subject teachers, counselors, and teacher-advisers for co-curricular activities. The CDC conducted workshops to prepare teaching-learning modules for thinking skills, and to formulate critical and creative types of questions. The third level was meant for students in which thinking skills were incorporated explicitly through their lessons, co-curricular activities and other activities such as thinking corners or thinking suggestion boxes. The task of monitoring the progress of this program was entrusted to the State Education Departments, District Education Offices, and school inspectors. The effectiveness of this program was assessed through an evaluation instrument designed by the CDC, which evaluated students' level of attainment of thinking skills and also the attitudes of students, teachers and administrators. This program

was found to be effective in terms of the fulfillment of the program's objectives. [13]

After much deliberation, the Curriculum Development Center decided to base its teaching of critical and creative thinking effort on six models as follows[14] :-

1. Swartz and Parks model which features critical and creative thinking, and thinking for clarifying and understanding.
2. CoRT1 and CoRT4 by de Bono for sense of perception and lateral and creative thinking respectively.
3. The CDC 1993 model by the CDC and Professor Jack Zevin, which has critical thinking, creative thinking, problem solving and decision making components.
4. Questions and tasks which are based on Bloom's taxonomy of the cognitive domain and Krathwohl's taxonomy of the affective domain.
5. KWHL (Knowledge, What, How, Learnt) model, whereby information is presumed to be acquired through critical and creative thinking.
6. PILTS model by J.A. Phillips and Fatimah Hashim, which encompasses thinking conceptually, analytical thinking, critical thinking, creative thinking and problem solving.

Meanwhile the Mara Junior Science Colleges, which are placed under the Ministry of Rural Development embarked on the program of teaching thinking to its students in the upper secondary level in the early 1980s. The college system nation- wide employ Edward de Bono's CoRT Thinking Program. According to M. Hussain, one of the college principals, teachers and designers' interest in the program is not as intense as it was when it was first introduced.[15] In fact the Secondary Education Division of MARA conducted a survey in 1988 involving 559 students divided into two groups from Form Two to Form Four. One group of students had been exposed to 3 CoRT or less while the other group to 4 CoRT or more. The results indicated that students who had less than 4 CoRT exposure were more positive towards the five aspects of the Thinking Skills Curriculum than those who had four or more. Almost all the students felt that the course content was useful in their daily practices. However the students felt that the notes provided could be improved further with respect to language, details and exercises. The way the classes were conducted was found to be effective and appropriate. Based on these findings, the Curriculum Committee felt that the Thinking Skills Course should be shortened from 3 credit hours to two and only selected topics from the six CoRT lessons be covered.[16]

Research conducted in local educational institutions

Aside from agencies of the Ministry of Education, research on the teaching of thinking have also been conducted by researchers in the local higher educational institutions. Thirty one studies had been examined in this survey and they had been categorized into the following four areas: (a) pre-service and in-service teachers, (b) secondary education according to subject matter, (c) primary education, and (d) creative thinking. With one exception, all of the studies were conducted after 1994. Only one study was conducted prior to that and that too was in 1986 in the area of creativity. The mode for the study between 1994 and 2001 seems to fall in 1998 and 1999 with 8 and 9 studies conducted in those years respectively.

Methodology of the Studies

Among the 31 studies examined, it was found that the most frequently employed method was the quantitative method (26) as compared to the qualitative method (5). Of the quantitative methods, the most commonly employed instruments were tests (8) and self-constructed or modified questionnaires (8), followed by experimental methods (4), textbook analysis (3), and finally a mix of questionnaires and tests (1), and experimental method, questionnaires and test (1). The qualitative methodology commonly employed, were interviews and teachers' observation. Most of the studies attempted to adhere to sound statistical procedures such as ensuring selection of a truly random sample and ensuring the validity and reliability of instruments employed. For the testing of creative thinking, the Torrance Test of Creative Thinking seems to be the most common instrument employed.

Pre-service and in-service teachers and the teaching of thinking

Studies by Asmah,[17] Kartini,[18] Lam,[19] Rajendran,[20] Rosnani,[21] and Suhailah[22] reported that teachers were not prepared to teach thinking and had little knowledge and skills in the area of critical and creative thinking. In fact according to Rosnani, teachers seem to possess a low sense of personal teaching efficacy with respect to teaching thinking.[23] In general teachers value and understand the importance of the teaching of thinking to their students and were receptive to the idea.[24] Chia employed a quasi-experimental method on 16 teachers using de Bono's CoRT 1 as the treatment.[25] Her study indicated that the teachers had improved understanding of thinking skills and its applications after attending a course. They were able (a) to give better judgement as a result of attending the course on PMI (Plus, Minus, Interesting), (b) to generate points from various perspectives as a result of exposure to OPV (Other People's Perspective), and (c) to produce more comprehensive factors in considering a situation after being taught CAF (Consider

All Factors). This result seems to affirm teachers' perceptions that their understanding and skills in the teaching of thinking could be improved through attending a proper course on teaching thinking.[26]

There seems to be a positive correlation between teachers' perception of teaching thinking and their practices.[27] Asmah found that graduate teachers seem to have better knowledge of teaching thinking as evident from a higher mean score than the non-graduate teachers.[28] She also found that teachers with less than 10 years of teaching experience tended to infuse thinking skills in their lessons whereas those above 10 years only included these skills indirectly. Another discovery she made was that teachers with less than 20 teaching periods weekly were more inclined to foster thinking skills in their lessons. Although many teachers agreed that the infusion method would be the most appropriate, in practice Suhailah found that most of them employed the indirect method.[29]

Kartini and Rosnani discovered that teachers did not seem to possess the necessary teaching strategies in teaching thinking.[30] Kartini found that the most commonly used strategies were allowing 'wait time' for response, encouraging clarification, relating to other subjects or life experiences and identifying strengths and weaknesses in arguments. The least frequent occurrence were identifying and analyzing value judgements, developing inductive reasoning and modeling skills explicitly. She also found that the more experienced teachers seemed to employ most of the 20 strategies she outlined compared to the inexperienced teachers. The problems teachers faced in attempting to teach thinking were found to be almost similar in all the studies.[31] Lam found that Malaysian pre-service teachers obtained a lower composite critical thinking mean score than a similar norm group in the United States.[32]

Rosnani found that there were no significant differences in the practice of teaching lower and higher order thinking skills, teaching strategies and teachers' behaviour across gender, teaching experience, course attendance, and subject specialization.[33] However, significant differences existed between teachers' sense of personal teaching efficacy with similar demographic variables, whereby male teachers, the more experienced teachers, and teachers who had attended courses had higher means than female teachers, less experienced teachers and those who had not attended any courses. Most studies reported that the major problems encountered by teachers were inadequate exposure to the theory and skills of critical and creative thinking, teacher-centred approach, emphasis on public examinations which compelled teachers to focus on the syllabus, lack of time because of teaching load

and other non-teaching load, lack of suitable materials, students' language abilities especially for second language learners.[34]

In summary, this pool of research has shown that the teachers have little knowledge of the different dimensions of thinking and the skills necessary to teach it. They also lack the knowledge and skills of the teaching strategies required for teaching thinking skills, although they value the importance of creative and critical thinking. Teachers lacked training to prepare them for this aspect of teaching and time to prepare lessons that integrate thinking skills. The studies also show that there exists a correlation between teachers' perception of teaching thinking and their reported practices.

Secondary education and thinking by subject matter

With respect to the teaching of critical and creative thinking skills in secondary school, it was discovered that with the exception of history and English language, not many studies had been carried out in the other school subject areas. Razali found that, students' performance on critical and creative thinking skills in mathematics was fair.[35] He next identified three skills that seemed to be put to good use by students, namely, stating the problem, identifying fallacy and working backward. Three skills that seemed to be less applied were translating, comparing and contrasting, and interpreting. Sufiah discovered that the Form Six science students are better in thinking skills than the From Six arts students.[36] This is probably because the nature of the scientific method lends itself more easily to critical and creative thinking. In addition, those students who are streamed into the Sciences were selected among the top students in schools, which means that already the streams have differentiated between the more critical and the less critical students. The level of infusion of thinking skills in the chemistry laboratory practical was found by Han to be below satisfactory. [37]

Sarasvathy found that communicative oracy task foster higher order thinking in teaching English language.[38] Pereira found that if students were exposed to learning strategies that focused on thinking skills such as marking or highlighting pertinent information, and writing out phrases or sentences, then they could cope better with literary texts. And if they actively used the relevant thinking skill, then the quantity of their responses to literary texts improved. [39]

It was found that the History textbooks for the lower secondary school students seemed to focus most on information gathering and exploring evidence.[40] The least common skill was that of making analogy. Although History teachers thought

off the thinking skills to be taught in their lesson plans, it was poorly executed during the actual lessons.[41] Students' achievement in history was found to be positively- correlated to their level of thinking skills.[42]

Zaharah analyzed the Islamic Education text books for the Upper secondary level and found that those texts have incorporated critical and creative thinking skills activities but were poor on decision making skills.[43] She also discovered that the Fourth Form textbook has higher critical thinking skills activities than that of the Fifth Form. In Geography, Fong found that two thinking skills were found to be most common and they were categorizing and sequencing, and applying concept or main words.[44] Azlan studied Creative Design (*Rekacipta*) students' pattern of thinking and discovered that students in the sample were more inclined towards critical than creative thinking although they desired to specialize in creative designing.[45] This affirms the present trend and practices of recognizing critical thinking and not creative thinking ability in schools today.

In sum, the level of teaching of thinking through infusion is still low in the secondary schools. There is positive correlation between students' achievement and level of thinking skills and between thinking skills and coping with literary texts. Science students perform better than arts students in critical thinking. Although some teachers planned to teach thinking, this was not executed for various reasons, mainly the lack of time. Students were found to be more critical than creative, and presumably this is expected since the examinations given were of this nature.

Primary education and thinking

A study by Ravi on the teaching of critical and creative thinking skills in the primary level revealed that the Year Six students from a National Type (Tamil) Primary school had a fair level of critical and creative thinking skills.[46] In another study on Year Six students, Chen found that the students' level of critical and creative thinking skills in science were below satisfactory.[47] According to Lim accelerated Year Five students were better in critical than creative thinking, and a positive correlation exists between critical thinking skills and achievement. The accelerated Year Five students were better than the regular Year Five students in critical thinking.[48] Booneswary discovered sufficient evidence that higher order questions could enhance students' ability in encoding and retaining information in the subject of local studies.[49]

Sevanesan found that students performed better in mathematics objective test than subjective test in all seven thinking skills assessed.[50] The seven thinking skills

encompassed the four basic steps in problem solving, which are, identifying the problem, planning a strategy to solve the problem, implementing the strategy, and reviewing for alternative solutions. The students did not perform well in the subjective test, in particular in the skills of understanding variables, writing number sentence and using the heuristics of drawing. However, performing better in the objective questions is not a true reflection of the students' thinking ability because they could be making correct guesses rather than really solving the problems using thinking skills.

In conclusion, the studies revealed conflicting findings with respect to the level of critical and creative thinking in primary schools. There might be several reasons for this, namely the nature and location of the schools and also the different instruments used.

Creative thinking in school

Fibriyani found that there was a wide range of creativity among Form Six students, the highest being ideational fluency (skillful at generating a large number of relevant ideas), and the lowest being in originality (the production of novel and unusual ideas).[51] She also found that students' creativity in terms of figural flexibility (ability to change line of thinking and switch to a new approach) was higher than ideational flexibility. Yong investigated creative abilities of Malaysians teenager students and found that (a) the creative abilities of the students in the research were comparable to students of similar age and educational level in the United States; (b) Boys were more creative than girls in both the figural and verbal creativity; (c) IQ and self-concept had a low but significant correlation with overall creativity; (d) cognitive levels and academic achievement had a significant correlation with creativity, (e) students' socio-economic status, home environment and parental influence were not significantly related to creativity.[52]

There were significant differences in creativity between males and females with the males scoring higher in figural activity and the females higher in verbal activity.[53] There were also significant differences in responses between science and arts students. The science students tended to exhibit greater questioning characteristics while the arts students showed interest in people. The science students were interested in living things while the arts students were interested in the literary world. Science students performed better than the arts students in both figural and verbal activities. Chan asserted that since the general sex patterns were reaffirmed in this study, hence the Torrance Test of Creative Thinking could also be used to measure creative thinking among Malaysian students but with some

care because of the cultural differences.[54] Studies have found that Malaysian students' level of creativity was equivalent to that of their counterparts in America.[55] Boys tended to be more creative than girls, and creativity is not related to students' intelligent quotient (IQ) and socio-economic status.[56] Nedujchehya investigated the effects of computer utilization on creativity among selected Form Two students. The results showed that the experimental group performed better in figural creativity and elaboration compared to the control group. There was no significant difference in fluency, originality and abstractness of title. Low creative students gained significantly higher on all aspects of creativity except in fluency.[57] Yong discovered that pre-service teachers lacked originality.[58]

The research shows that students have more fluency of ideas rather than originality. It also shows that males and females, and science and art students, differ in their creative ability.

Challenges in the teaching of critical and creative thinking skills

It is evident from this survey that the biggest problem with the teaching of critical and creative thinking is teachers' lack of understanding and knowledge and the accompanying skills on thinking. No proper education and training on thinking have been offered to all teachers, especially in-service teachers whereas the Ministry and subject teachers prefer to adopt the infusion approach in teaching thinking. The short courses held, sometimes even just for one day, were not adequate and effective. Even though pre-service teachers were offered a course on the concept and theories of thinking, it was taught at the theoretical level. There was little emphasis on practical teaching strategies based on subject areas, whereas this is what teachers need most. Although the emphasis should be in the infusion method, this was not demonstrated in the teaching of the particular subject methodology during the pre-service courses. Therefore, this newly introduced course is not adequate and effective. That is why teachers could consider teaching thinking in their lesson plans but could not execute it in the classrooms. Therefore, the Ministry of Education ought to review the course on critical and creative thinking skills being offered in the teachers' colleges for content and teaching approach. It should also ensure that instructors who teach the course should be have proper academic qualifications and/or experience in the area.

Another possible area to work on is the textbook. School textbooks should be revised to incorporate critical and creative thinking skills. The presentation of material and the nature of the questions and activities should manifest this shift. Good textbooks will provide a lot of help for novice teachers in the teaching of thinking.

School co-curricular activities should be encouraged and students should be given the opportunity to hold different responsibilities throughout their school career. Co-curricular activities could enhance students' critical and creative thinking skills by demanding them to decide on action or design activities for their clubs or societies. Students learn as much from co-curricular activities and the hidden curriculum as from formal lessons and this experience will endure for ages.

Teachers complained of having too much work and not having enough time for lesson preparation for thinking, but this could also be due to lack of training or too much focused on examinations and completing the syllabus. The Ministry of Education has not explored fully all the programs that are available in the fields aside from the six programs mentioned earlier. The Ministry has not considered the Philosophy for Children program and a few others. It can be surmised from the survey of studies on this subject, that there have not been much long-term theoretical studies on basic cognitive psychology to assist understanding on critical and creative thinking in the case of Malaysian school children. Finally, no study has been reported on the effort of instructional and administrative leaders to improve the teaching of critical and creative thinking in schools.

Conclusion

It is clear that various studies have been carried out by both the Ministry of Education and local higher education institutions in trying to understand and improve the teaching of critical and creative thinking skills in Malaysia. These studies mushroomed in the mid-1990s and this provides an indication of the direction education is heading in this country. It is interesting that most of these studies do not contradict one another but rather affirm each other. This would provide a strong ground for research to inform practice because conflicting results would sometimes confuse the practitioners and lead them to abandon research reports. Despite the weaknesses currently found, it is noteworthy that the issues of teaching thinking has been brought up to the surface and teachers seem to be more aware of it today than previously. That awareness itself is a good beginning. The weaknesses in practice will probably be overcome given maturity of the program and experience.

The basic issue is in providing models of good critical and creative thinkers that could be emulated by students. It is obvious that in the school system, the models ought to be teachers. Unfortunately, most of these teachers themselves have not seen such models and the training being provided, either during pre-service or

during in-service does not seem to be effective or adequate. Hence, research to find something that is relevant, appropriate and effective for the Malaysian context must be continued and the Ministry should generously sponsor and provide school space for research of this nature.

ENDNOTES

[1] All translations of verses of the Qur'an are taken from Abdullah Y. Ali, *The Holy Qur'an: Text, Translation and Commentary* (Maryland: Amana Corp., 1983), 96:1

[2] Al-Qur'an 7:179

[3] See Rosnani Hashim, *Educational Dualism in Malaysia: Implications for Theory and Practice* (Kuala Lumpur: Oxford University Press, 1996), p. 79.

[4] Al-Qur'an 3:190, 10:24.

[5] See Rosnani, *Educational Dualism*, 1996, p. 124.

[6] See Kementerian Pendidikan Malaysia, *Pukal Latihan Kurikulum Bersepadu Sekolah Menengah: Falsafah Pendidikan Negara* [Manual for the Integrated Curriculum for Secondary School: the National Education Philosophy], Kuala Lumpur: Dewan Bahasa dan Pustaka, 1990.

[7] Mahathir Mohamad, *Malaysia: The way forward (Vision 2020)* (Kuala Lumpur: National Printing Department, 1991), p.23.

[8] Elliot W. Eisner, "Can educational research inform educational practice?", *Phi Delta Kappan*, (March 1984): 447-452.

[9] Lee G. Jiuh, Kemahiran Berfikir dalam Kurikulum Bersepadu Sekolah Menengah (KBSM) [Thinking skills in the Integrated Curriculum for Secondary Schools] in *Kecemerlangan Berfikir* [Excellence in Thinking], ed. Zalizan M. Jelas et al. (Kuala Lumpur: Fakulti Pendidikan, UKM, 1995), p. 178-86.

[10] John A. Phillips, "Enhancing the Thinking and Learning Skills of Students: the P. A. D. I. Program" in *Kecemerlangan Berfikir* [Excellence in Thinking], ed. Zalizan M. Jelas et al. (Kuala Lumpur: Fakulti Pendidikan UKM, 1995), p. 163-71.

[11] W.M. Zahid Noordin, *Wawasan Pendidikan Agenda Pengisian* (Kuala Lumpur: Nurin Enterprise, 1993), p.115.

[12] Pusat Perkembangan Kurikulum, *Kemahiran berfikir: Konsep, model dan strategi pengajaran-pembelajaran* [Thinking skills: concept, model and teaching-learning strategies] (Kuala Lumpur: Kementerian Pendidikan Malaysia, 1993).

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ULASAN BUKU

Judul:	*Pembangunan di Malaysia: Ke Arah Satu Kefahaman Baru Yang Lebih Sempurna*
Pengarang:	Prof. Wan Mohd. Nor Wan Daud, Ph.D
Penerbit:	Institut Antarabangsa Pemikiran Dan Tamadun Islam (ISTAC), Kuala Lumpur
Tahun Terbit:	2001
Halaman:	172

Buku karya Prof. Wan Mohd. Nor ini terbit tepat pada masanya kerana ianya merupakan hasil pemikiran beliau untuk menyelesaikan masalah semasa yang berkaitan dengan isu pembangunan, iaitu isu yang semakin segar di negara kita. Penulis membincangkan 16 perkara yang berkaitan dengan pembangunan, daripada persoalan asasi (hal. 1), sukan dan hiburan (hal. 125) sehinggalah kepada Dasar Kebudayaan Kebangsaan (hal. 137). Justeru, kandungan buku ini boleh dikatakan komprehensif walaupun hanya setebal 172 halaman.

Pandangan beliau yang berteraskan kepada fahaman kefalsafahan Prof. Syed Muhammad Naquib-alAttas amat menarik sekali kerana hujah-hujah yang diketengahkan oleh penulis adalah bersifat perbandingan dengan merujuk pula kepada penulis kontemporari di Barat yang klasik seperti penulisan Robert Merton (hal. 72-72) dan diadun lagi dengan pandangan tradisional yang masih lagi relevan di sana, misalnya seperti pendapat paderi John Henry Newman (hal. 16). Prof. Wan Mohd Nor berpendapat bahawa intisari pembangunan semestinya berteraskan kepada Islam jika yang dimahukan itu adalah pembangunan yang menyeluruh, iaitu yang merangkumi semua aspek kemanusiaan. Pembangunan di negara-negara seperti Amerika Syarikat hanya mengutamakan pembangunan zahir akibat daripada penafian mereka kepada kerelevanan agama (Kristian) dalam menangani masalah kemajuan.

Yang menariknya, kemajuan pembangunan yang bersepadu ini boleh diukur dengan lebih sempurna dengan mengambil kira statistik lain seperti kadar jenayah, penagihan dan penceraian (hal. 25-28). Jika tidak, pembangunan hanyalah merangkumi kadar kehidupan, kepanjangan umur dan pencapaian pendidikan, yang sudah pastinya tidak memberikan gambaran sebenar 'kesihatan' sesebuah negara