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Author(s)	Cheng Yoke Wah, Li Minyi and Poh Sui Hoi, Andrew
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Study Of Teachers' Perception In The Evaluation Process At The Upper Secondary Level Focusing On Problem-Solving Skills

Cheng Yoke Wah & Li Minyi
PGDE (Secondary) Trainee Teachers

Poh Sui Hoi, Andrew
National Institute of Education

Abstract

This study examines one critical aspect of the new learning framework: the readiness of our teachers to teach and assess these new skills such as problem-solving, critical and creative thinking, judgment and decision-making, leadership, teamwork, communication and other effective habits of mind. A sample of 24 teacher-trainees in their final semester from various disciplines in the Post-Graduate Diploma in Education (PGDE) Programme at the National Institute of Education (NIE) was involved in this preliminary study. They were required to answer a survey questionnaire, modified from a similar study undertaken in Japan (Wai & Hiraikawa, 2001), focusing on problem-solving skills: thinking, judgment and expression. It was found that while teacher-trainees generally agree that these new skills are important, many are uncertain how to teach these skills in a systematic manner. In terms of evaluation of these skills among students, teacher-trainees recognize the importance of multiple modes of assessments. Nevertheless, they foresee difficulty in assessing certain aspects of thinking and judgment skills. In conclusion, the study suggests that further teacher training in soft skills is appropriate as is adequate exposure to assessment issues surrounding alternative modes of assessment in real-world, authentic-context.

(This is the preliminary study of the above topic where trainee-teachers from an Elective class of the PGDE (Sec) Programme took part. The study would be expanded in the next stage to include the entire cohort of trainee teachers as well as experienced teachers)

Introduction

The "Thinking Schools and Learning Nation" vision was encapsulated by ex-Prime Minister Goh Chok Tong in as far back as 1997 to revamp the Singapore education system – with a shift in emphasis on the traditional mode of rote learning to one that places emphasis on nurturing thinking skills in order to solve different problems in many contexts. This vision emanated from a need to be able to deal with rapid changes in a knowledge-based economy, one that required students to be adroit in keeping up with technological innovation in an age of globalisation. The present Prime Minister Lee Hsien Loong in his first National Day Rally Speech 2004 similarly reiterated the need for a

change in the education system to include more experiential learning to engage students, calling teachers to “teach less to our students so that they will learn more”.

The corollary of such visions not only meant a shift in the methods of traditional modes of teaching, that only required information dissemination, to student-centered learning, where students took ownership of their learning; it would also change the role of the teacher from being merely an information dispenser to a facilitator, who would encourage students to question more and equip them with critical thinking skills in order for them to be independent and lifelong learners.

A series of discussions were sparked off at the Seventh Conference on Thinking held in 1997, where a panel of experts gathered to share ideas on how thinking skills could be acquired in order for a thinking society to flourish. For this ‘quantum leap’ to materialise, educators widely recognised that changes in current assessment practices had to be made (Poh, 1997).

Research has shown that in learning, students were very much guided by the ways in which they were assessed. For example, traditional paper-and-pencil tests tended to encourage memorisation of content and superficial learning. Alternative assessment modes, which might include group projects, oral presentations and various writing tasks, offered opportunities to make assessment a valuable learning experience while allowing grades to be given to show extent of achievement (Birenbaum & Dochy, 1996).

Teachers in Singapore are now treading on new ground. To realise the vision of the new thinking and independent learner, there needs to be a concurrent shift in assessment from evaluating students’ content knowledge to other skills including problem-solving, critical and creative thinking, judgment and decision-making, leadership, teamwork, communication and other effective habits of mind (Marzano, 1993).

Against this backdrop, this paper shall first examine teachers’ perception on the importance of acquiring thinking and independent-learning skills. It also attempts to obtain a preliminary gauge on the readiness and competency of our teachers to undertake these new tasks in the area of assessment. Three sets of skills deemed necessary in the workplace were examined: thinking, judgment and expression skills. The results showed that while most teachers were supportive of teaching these skills, most were uncertain how they could be taught. This was further compounded by difficulties faced in choosing and administering different assessment modes as many teachers felt that certain soft skills such as judgment and expression skills were hard to ascertain. Thus this paper hopes to address some of the implications raised in the study and offer viable suggestions to such issues.

Methodology

This preliminary study was conducted through a survey method by means of a questionnaire which was modified from a similar study undertaken in Japan. The participants of this study were teacher-trainees in their final semester from various disciplines in the Post-Graduate Diploma in Education (PGDE) Programme at the National Institute of Education (NIE). The survey was administered in February 2004 to a group of

27 teacher-trainees. These teacher-trainees were from the same class which offered the elective 567, Assessment to Promote Thinking. It would be fair to say, therefore, that this group of teacher-trainees had a higher awareness of assessment issues compared to the average teacher-trainees who did not take this module. Other than this difference, these teacher-trainees were generally representative of the teacher-trainee population.

The survey forms were distributed during class and participants were given one week to complete the survey. Absentees were sent a soft copy of the questionnaire. Altogether, we received 24 responses. This converted to a high response rate of 89%. While the number of responses were not sufficient for a full-scale study, it served our purpose to have a quick dipstick survey before similar studies were engaged for the whole cohort. This preliminary study might also lead to further studies to determine the perceptions of more experienced teachers.

Results

The Importance Of Thinking Skills

The complex dynamics of today's world is increasingly characterised by the innovative integration of information and learning from diverse disciplines. This calls for a breakthrough in our teachers' mindsets and attitude to focus on enhancing thinking across multi-disciplinary perspectives.

In our study, thinking skills were broken down into component skills. Teacher trainees were asked to evaluate the importance of each component of thinking skills in their subject area and whether the skills should be acquired by students during their lessons. On the whole, a remarkable 85% responded positively that thinking skills were important (see Table 1), showing high awareness among teachers that the development of thinking skills was relevant and critical in today's world.

While there was high agreement on the importance of thinking skills, not all teachers were inclined to teach these skills in a structured manner in their lessons. On closer examination, it was revealed that teacher trainees required more guidance in the teaching of certain components of thinking skills. From the sample data, on the average, four in ten trainee teachers were not able or inclined to teach the following in their lessons (see Table 2):

- (i) metacognitive skills (as in how to think logically and rationally) in a systematic and well-planned manner; and
- (ii) interdisciplinary application of knowledge.

Table 1. Responses from students in the Elective 567 (n=24) to the importance of various components of Thinking Skills

How important are these components of thinking skills?	Important and should be acquired during my subject	Important but should be acquired in subjects other than mine	Not important for secondary school students to acquire
1. To identify problems by oneself	87.5	12.5	0.0
2. To synthesize various hypotheses or possible solutions from different perspectives	70.8	16.7	12.5
3. To collect necessary information to solve problems	87.5	12.5	0.0
4. To analyse and interpret various data and written materials	91.7	4.2	4.2
5. To think logically and rationally	91.7	8.3	0.0
6. To analyse one phenomenon/theme into various component elements	79.2	16.7	4.2
7. To take account of various phenomena and themes and interrelate them	79.2	16.7	4.2
8. To identify similarities and differences, comparing various examples and cases	87.5	12.5	0.0
9. To apply knowledge and ways of thinking to the study of different areas or fields	91.7	8.3	0.0

Note: All numbers are expressed in percentages.

Table 2. Responses from students in the Elective 567 (n=24) on how they would teach Thinking Skills

How would you teach these skills?	Teach in a systematic and well-planned manner	Not planned; addressed when opportunity arises	Not able to teach satisfactorily
1. To identify problems by oneself	62.5	33.3	4.2
2. To synthesize various hypotheses or possible solutions from different perspectives	70.8	29.2	0.0
3. To collect necessary information to solve problems	70.8	29.2	0.0
4. To analyse and interpret various data and written materials	91.7	8.3	0.0
5. To think logically and rationally	58.3	29.2	12.5
6. To analyse one phenomenon/theme into various component elements	83.3	16.7	0.0
7. To take account of various phenomena and themes and interrelate them	66.7	33.3	0.0
8. To identify similarities and differences, comparing various examples and cases	70.8	29.2	0.0
9. To apply knowledge and ways of thinking to the study of different areas or fields	58.3	33.3	8.3

Note: All numbers are expressed in percentages.

Our preliminary study showed that a number of teacher-trainees from mathematics, science and the languages shared the same concern. These teacher-trainees appeared to show apprehension in teaching inter-disciplinary subjects that were outside their own area of specialty.

There remained conflicting views even among teacher trainees of the same discipline as to how relevant was the teaching of thinking skills in their subject. For example, in a subject discipline like mathematics, where one would normally associate the teaching of logical thinking and heuristics to solve problems, differing views were expressed thus:

Quote from one mathematics teacher-trainee: "Mathematics is naturally about problem-solving skills so there is no problem incorporating it."

Quote from another mathematics teacher-trainee: "It is not easy to incorporate problem-solving skills in certain topics."

In further discussion, some mathematics trainee teachers acknowledged that very often students were exposed to modelling techniques and problem-solving using a certain number of set steps which did not require true thinking skills. Others lamented that, in mathematics, certain foundation topics needed to be mastered first before truly challenging "thinking" questions could be given and this might not happen in upper secondary school.

Teacher trainees from the sciences (biology, chemistry and physics) generally were more convergent in their views towards thinking skills that involved problem-solving. The nation-wide introduction of continual assessment of practical skills (commonly known as School-based Science Practical Assessment or SPA) in Singapore over the next two years augured well in creating an appropriate setting for students to learn and think independently. More emphasis on investigation and flow of ideas is underway to nurture the essential qualities of learning required for creative problem-solving.

Quote from one Science teacher-trainee: "In Science, students face lots of such (thinking) problems nowadays...They have to remain open in thoughts as lots of different solutions are possible."

Quote from another Science teacher-trainee: "(Thinking skills) should be an integral part of my lessons. In fact, the ministry has already acknowledged the need by including SPA."

Trainee teachers from the humanities and languages departments used various tools to assist in the teaching of thinking skills. Often cited as a good learning tool was the development of mind maps.

The Importance Of Judgment Skills

No other time in history is more controversial than the present moment where individuals, corporations and countries are faced with a myriad of choices to deal with the complexities of life.

It used to be thought that judgment skills were the domain of the humanities subject areas such as history, geography and social studies. This was no longer so. The development in the life sciences, for example, had thrown up volatile discussions over ethical, moral, social, political, legal, economical, technological and environmental issues. Value systems were constantly examined, challenged and sometimes, overturned. Training our students to develop sound judgment skills to make complex decisions was therefore timely and crucial.

In this study, judgment skills were broken down to the various components as seen in Table 3.

Table 3. Responses from students in the Elective 567 (n=24) to the importance of various components of Judgment Skills

How important are these components of judgment skills?	Important and should be acquired during my subject	Important but should be acquired in subjects other than mine	Not important for secondary school students
1. Judgment skill based on correct information and logical and rational thinking	95.8	4.2	0.0
2. Judgment skill based on social common sense or values generally accepted by society	75.0	25.0	0.0
3. Judgment skill based on moral values	62.5	33.3	4.2
4. Judgment skill based on one's own well-being	66.7	25.0	8.3
5. Judgment skill based on exchange of opinions and negotiation leading to consensus	75.0	16.7	8.3

Note: All numbers are expressed in percentages.

The majority of teacher trainees agreed that all components of judgment skills were important for upper secondary students to acquire. Almost all teacher trainees were of the view that the skill to use correct information and logical and rational thinking to arrive at sound judgment should be acquired in their subject areas.

Judgment skills based on moral values and one's own well-being were deemed by some trainee teachers to be less important for upper secondary school students. This could stem from their belief that a certain level of intellectual and emotional maturity were prerequisites to making fair value judgments.

There was low confidence among trainee teachers that they would have the opportunity to teach certain judgment skills systematically in their subject areas (see Table 4). This was not surprising in view of our content-laden syllabus where knowledge was judiciously and efficiently dispensed and rarely would there be disputes over the correctness of information. Moreover, in a teacher-centered classroom, there would not be a lot of opportunities for upper secondary students to practise their evaluation skills based on value judgments.

Instructional guidance on how to teach judgment skills based on value systems may alleviate the concerns of some teachers who felt they were unable to teach these skills satisfactorily. Value education might also be more effective through experiential learning outside the classroom.

Table 4 . Responses from students in the Elective 567 (n=24) on how they would teach Judgment Skills

How would you teach these skills?	Teach in a systematic and well-planned manner	Not planned; addressed when opportunity arises	Not able to teach satisfactorily
1. Judgment skill based on correct information and logical and rational thinking	87.5	12.5	0.0
2. Judgment skill based on social common sense or values generally accepted by society	29.2	62.5	8.3
3. Judgment skill based on moral values	20.8	62.5	16.7
4. Judgment skill based on one's own well-being	20.8	58.3	20.8
5. Judgment skill based on exchange of opinions and negotiation leading to consensus	70.8	25.0	4.2

Note: All numbers are expressed in percentages.

The Importance Of Expression Skills

Both written and oral expression skills are important for communication of ideas in a logical and persuasive manner. Many of these skills are deemed basic social competencies that should not only be acquired in schools but also at home and in the daily social interactions of upper secondary school students.

All the teacher trainees surveyed agreed that expression skills were important but they differed in whether the skills should be acquired in their subject area (see Table 5). 3 in 10 teacher trainees thought that such skills should be acquired in subject areas other than their own subject areas. These were teacher trainees who thought expression skills should best be taught by language teachers.

Table 5. Responses from students in the Elective 567 (n=24) to the importance of various components of Expression Skills

How important are these components of expression skills?	Important and should be acquired during my subject	Important but should be acquired in subjects other than mine	Not important for secondary school students
1. In logical writing	87.5	12.5	0.0
2. In data analysis	79.2	20.8	0.0
3. Through oral presentation or public speech	70.8	29.2	0.0
4. By properly insisting on one's own opinion in interaction with others' views and opinions	70.8	29.2	0.0
5. Through exchanging constructive opinions, questions and criticisms with others	70.8	29.2	0.0

Note: All numbers are expressed in percentages.

It was remarkable that trainee teachers found all the components of expression skills important, given that our current assessment mode largely only required students to be trained in logical writing and data analysis. Oral skills were only tested for proficiency in language arts. Presentation skills, persuasive skills and information exchange skills were not emphasized in our existing curriculum.

Table 6. Responses from students in the Elective 567 (n=24) on how they would teach Expression Skills

How would you teach these skills?	Teach in a systematic and well-planned manner	Not planned; addressed when opportunity arises	Not able to teach satisfactorily
1. In logical writing	87.5	8.3	4.2
2. In data analysis	87.5	0.0	12.5
3. Through oral presentation or public speech	41.7	50.0	8.3
4. By properly insisting on one's own opinion in interaction with others' views and opinions	37.5	54.2	8.3
5. Through exchanging constructive opinions, questions and criticisms with others	50.0	45.8	4.2

Note: All numbers are expressed in percentages.

The curriculum slant mandated that the teaching of each subject in logical writing and data analysis be carried out in a systematic and well-planned manner and this was shown to be so (see Table 6). Most teacher trainees were able to teach these skills satisfactorily.

Nevertheless, the number of teacher trainees who admitted to having difficulty teaching other components of expression skills (oral presentation, persuasive and information exchange skills) was high at about 50% of all teacher trainees surveyed. This could be due to lack of instructional guidance or lack of teaching time.

Results of Teachers' Perception Of The Purpose Of Evaluation

Assessment as a tool for learning is well-documented and new types of assessments are necessary when we aim for better integration between learning and assessment (Birenbaum & Dochy, 1996; Nitko, 2001). Teachers and students alike spend considerable amount of curriculum time to prepare for various tests and assessments that may be formal or informal. It is therefore important to understand what teachers hope to achieve in the evaluation process.

In the questionnaire, we asked our teacher trainees what they thought were the most important reasons for evaluating students.

Seven purposes of evaluation were presented and respondents were required to indicate the top three reasons. Refer to Table 7 below for results:

Table 7. Responses from students in the Elective 567 (n=24) to the Purposes of Evaluation.

	The most important	The second most important	The third most important	Overall
1. To make a record in the report book	0.0	0.0	0.0	0.0
2. To assess students' actual achievement and use it as a reference for the guidance of their future career	0.0	0.0	5.6	5.6
3. <i>To help students recognize their actual achievement and help them improve on their learning methods</i>	42.9	23.8	16.7	83.3
4. <i>To monitor students' academic progress and encourage them to work more willingly</i>	23.8	14.3	16.7	54.8
5. To appreciate students' effort and to encourage them to value hard work and earnest learning	4.8	14.3	16.7	35.7
6. <i>To improve teaching methods and materials based on students' achievements and/or diagnosis of their failure in learning</i>	14.3	38.1	27.8	80.2
7. To assess students' interest and attitude towards learning and develop more interesting lessons	14.3	9.5	16.7	40.5

Note: All numbers are expressed in percentages.

From the results, the importance of formative purposes of evaluation seemed to overshadow summative ones. It appeared that high importance was placed for students to use evaluation as a tool to improve their own learning and to motivate themselves (see purposes 3 and 4 above). This was a positive sign as students were encouraged to take on their own responsibility for learning, a key prerequisite in nurturing lifelong learning habits.

Student evaluation was also seen as an important feedback tool so that teachers could improve their own teaching methods and materials (purpose 6 above). Over 80% of teacher trainees indicated it as one of the top three reasons for student evaluation. In a similar study done with teachers in Japan, purpose #6 was ranked fifth with only 40% choosing it as a top three reason. It was clear that teacher accountability was well-entrenched in the Singapore educational context. Student failure in learning was deemed to be a direct result of inadequate teaching methods. This resulted in the high emphasis placed on evaluation as a feedback on teaching methods (purpose 6). This was both a desirable and undesirable phenomenon. While teachers' willingness and desire to improve themselves were to be applauded, this could result in excessive pressure on teachers to ensure that students perform. This pressure for students to perform in assessments could thwart long term goals of developing creative and critical thinkers, unless suitable assessment methods are designed. Otherwise, teachers could end up cramming knowledge on students to ensure that national examinations were passed with distinctions.

It was interesting to note that Humanities and Chinese teachers were more concerned about developing interesting lessons and assessing students' interest than teachers from other subjects (purpose #7). Almost all who selected this as one of the top three reasons were from these subject areas.

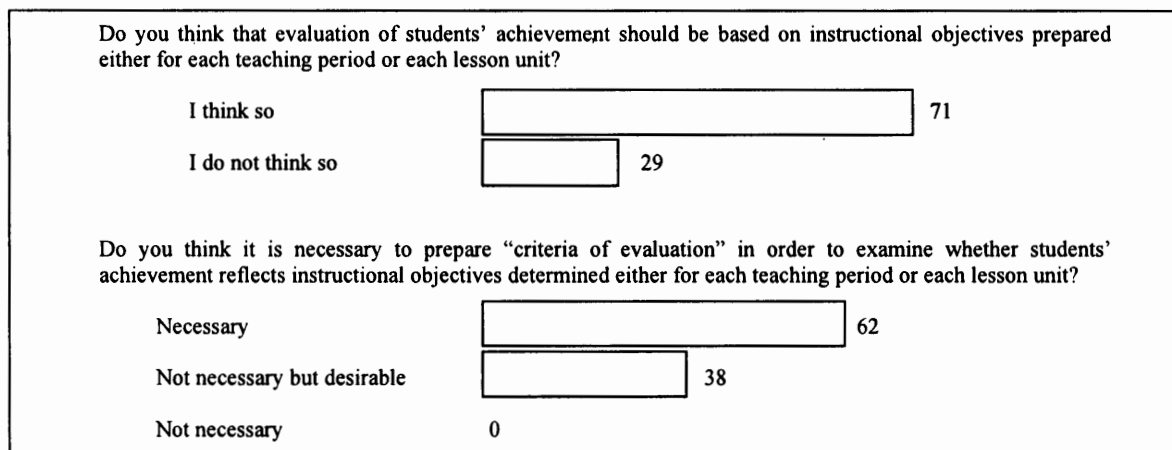
It was also noteworthy that hardly any teacher trainee saw student evaluation as an important tool for career guidance (purpose #2). At the upper secondary school level, it was felt that subject mastery appears to pose a weak link to possible career paths.

The Roles of "Instructional Objectives" and "Criteria Of Evaluation" In Evaluating Students' Achievement

We also asked teacher trainees for their views on the importance of instructional objectives and whether it was necessary to prepare the evaluation criteria and evaluate students' achievements based on how much they have acquired at the end of each lesson (see Table 8):

The majority of trainee teachers agreed that evaluation of students' achievement should be based on expressed instructional objectives (71%). Nevertheless, 38% think it was not necessary to prepare "criteria of evaluation" in assessments. This indicated that a substantial proportion of teacher trainees were still not familiar with the rigours of assessments, especially in non pencil-and-paper tests. Some teacher trainees failed to see that criteria of evaluation that were clearly articulated were more likely to enhance objectivity and reliability in assessments.

Table 8 . Responses from students in the Elective 567 (n=24) to the importance of Instructional Objectives and Evaluation Criteria



Note: All numbers are expressed in percentages.

Difficulty in Evaluating Seven Evaluation Aspects

We next asked trainee teachers the extent to which they thought they would have difficulty in assessing and evaluating 7 aspects of evaluation as detailed in Table 9.

Similar to the finding from the group of Japanese teachers, the two most difficult aspects for teacher to evaluate were **thinking skills** and **judgment skills**. Evaluation of concern, will and attitude to learning was also considered difficult by many teachers but the same number of teachers found it relatively easy.

The easiest aspect of evaluation appeared to be evaluating skills in using written material and data. Not one of the trainee teachers found this difficult. Evaluating knowledge, understanding as well as expression skills were also assumed to be relatively easier tasks compared to evaluating thinking and judgment skills.

One common thread of thought was on the inter-dependency of some of these evaluation aspects. For example, a student with good thinking skills might not be able to express himself clearly due to poor expression skills and hence, would be perceived as having inadequate thinking skills. A student with good thinking and judgment skills might also be overlooked if the student had poor will or keenness to classroom learning. Objectivity and reliability would then become key issues in the evaluation.

Table 9. Responses from students in the Elective 567 (n=24) on assessment difficulty

To what extent do you think you will have difficulty in assessing and evaluating these aspects of evaluation?	Relatively difficult	Neither difficult nor easy	Relatively easy
1. Concern, will and attitude towards learning	37.5	25.0	37.5
2. <i>Thinking skills</i>	<i>54.2</i>	<i>37.5</i>	8.3
3. <i>Judgment skills</i>	<i>37.5</i>	<i>54.2</i>	8.3
4. Use of written materials and data	<i>0.0</i>	33.3	66.7
5. Expression skills	12.5	41.7	45.8
6. Knowledge	8.3	45.8	45.8
7. Understanding	25.0	33.3	41.7

Note: All numbers are expressed in percentages.

Types Of Assessment To Meet The Seven Evaluation Aspects

Educational reforms had lauded the adoption of authentic assessments as the main evaluation platform. Authentic assessments differed markedly in that they were designed to require students to apply knowledge in a real-world context. It fell under the broad term of performance assessment where students might demonstrate their understanding and applied knowledge, skills and habits of mind in a variety of ways (Linn & Gronlund, 1995).

From the results of the survey (see Table 10), it was found that the most difficult aspect of evaluation appeared to be evaluation of judgment skills as all the common mode of assessments fell short of expectation.

On the whole, it was unanimously agreed that no single assessment mode could satisfactorily evaluate all the critical evaluation aspects. It was thus implied that teacher trainees noted the importance of **multiple modes of assessments** for a complete and accurate measurement of a student's ability.

Table 10. Responses from students in the Elective 567 (n=24) on types of assessments that could be designed to meet evaluation aspects

	Concern, will and attitude towards learning	Thinking skills	Judgment skills	Use of written materials and data	Expression skills	Knowledge	Understanding
Teacher-made tests	33.3	79.2	37.5	91.7	50.0	91.7	95.8
Ready-made tests	8.3	54.2	25.0	79.2	41.7	83.3	75.0
Teacher's observation in the classroom	87.5	37.5	62.5	20.8	83.3	54.2	54.2
Class work, reports and presentations	70.8	66.7	45.8	87.5	83.3	83.3	75.0
Checking of journals	83.3	37.5	33.3	41.7	70.8	50.0	41.7
Students' self-evaluation	83.3	29.2	54.2	8.3	62.5	29.2	41.7
Peer evaluation	58.3	20.8	70.8	16.7	62.5	25.0	50.0

Note: All numbers are expressed in percentages.

Assessment Issues

The survey results suggested that teachers were still most comfortable with traditional written tests as the main mode of assessing thinking skills (See Table 10 on Thinking Skills). It was not surprising that such a finding emerged from the study as the Singapore system of schooling is one that has always placed high value on examinations. By opting teacher-made tests and ready made tests as the most suitable mode of assessment of thinking skills, this could dampen the growth of thinking skills as such cognitive skills need time to be nurtured over time. It would also be unfair to students as tests and examinations were not adequate to reflect their thinking abilities in other areas.

However, there is a place for the traditional pen-and-pencil mode of assessment that asked students to recall facts and state definitions. Stone (2001) argued that in order for students to be good thinkers, they must have those building blocks that come from the teaching and assessment of the lower levels of Bloom's taxonomy. The issue now is how to prepare students to move on to higher levels of thinking through assessing them adequately and fairly.

Fisher (2001) argued that there were two essential elements of assessment – teachers' expertise in the discipline as well as in what would count as "good thinking" as the guarantee of their good judgment. Most teachers would not have problems with assessing

the content knowledge of their discipline but they would most likely feel uncertain in assessing students' thinking as most teachers received very little explicit training in the teaching of thinking skills (Fisher, 2001).

One possible way to assist teachers in assessing thinking skills would be to follow the triangulation model of Costa and Kallick (2001). The triangulation model (See Figure 1) depicted that thinking skills could be assessed using teacher-made tests to first evaluate how much students have acquired the basic skills. From there, students proceeded to the next stage - habits of mind, where thinking was viewed as a developmental process and students were best assessed based on their journals over time to check their reflections and how well they were able to take charge of their own learning through self-check. After this process, students were then assessed based on their performance tasks such as writing samples, performances and so on.

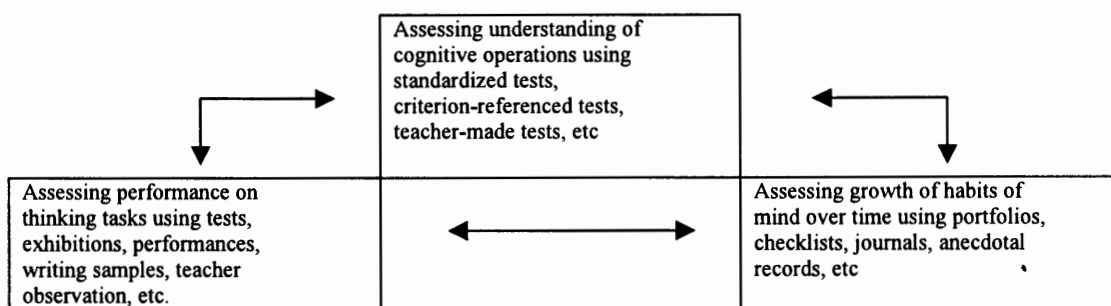


Figure 1. Triangulation: Assessing Three Components of Thinking (Costa and Kallick, 2001)

Conclusion

It is heartening to note that beginning teachers shared the objectives of new educational reforms taking place at present now. However, the study suggested that with the shift in the learning paradigm, the teacher training programme needed a comprehensive review. New teachers should be better trained in facilitation and assessment skills while a systematic skill upgrading programme for existing teachers might be considered. Two issues central to the discussion would be 1) how teachers should be trained to teach *and* assess thinking, judgment and expression skills in order to meet the objectives set out by the Ministry of Education and 2) how to empower teachers to select the right assessment modes to tie in with instructional objectives and yet maintain the validity and reliability of assessments.

The two issues of concern raised here suggested that there was still a considerable gap to be bridged between the desired objectives in recent educational reforms and the current state of the education system. A coherent strategy involving different stakeholders (students, teachers, assessors, parents, academics, policy-makers) would be critical to develop the thinking mindset among students so that they became engaged and lifelong learners.

Acknowledgement

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