

Motivation and Task Difficulty: A SOLO Experience with Adult Learners

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ABSTRACT

This study was conducted with a group of 26 PKPG teachers. A series of graded tasks for EDU 480 was set for these teachers, where task difficulty was controlled using the SOLO Taxonomy. These teachers were guided through the tasks. After six weeks on-task, a comparison of pre-task (Test 1) and post-task (Test 2) scores was done descriptively. There was a marked improvement in test scores. Feedback from these teachers and their instructor seems to indicate that this improvement may be related to their increased interest in the subject. They report that these adult learners are more motivated to study a subject where the learning process has enabled them to enjoy success in completing tasks especially tasks which were previously deemed difficult.

ABSTRAK

Kajian ini telah dijalankan terhadap sekumpulan 26 orang guru PKPG. Satu siri tugas mata pelajaran EDU 480, yang telah dikawal dari segi kesukaran dengan merujuk kepada Taksonomi SOLO, telah diberikan kepada kumpulan guru itu. Bimbingan tugas dibuat secara kumpulan kecil. Selepas enam minggu membuat tugas itu secara terbimbing, perbandingan telah dilakukan secara deskriptif antara skor pra-tugasan (Ujian 1) dan pasca-tugasan (Ujian 2) guru tersebut. Suatu peningkatan dalam skor telah dicapai dan maklum balas daripada guru PKPG tersebut dan pengajar mereka menunjukkan bahawa peningkatan ini adalah disebabkan guru-guru itu sudah mula berminat dan mempunyai motivasi yang lebih tinggi terhadap pembelajaran mata pelajaran itu apabila keadaan pembelajaran diaturkan dengan cara yang membolehkan mereka berjaya melengkapkan tugas dengan baik, terutamanya tugas yang sukar.

INTRODUCTION

The Ministry of Education has directed effort at staffing all schools with graduate teachers by 2010. This effort is particularly significant in primary schools which have thus far been staffed by non-graduate teachers. A programme known locally as *Program Khas Pensiswazahan Guru (PKPG)* has been initiated in

1999 to employ in-service non-graduate teachers on undergraduate courses conducted jointly by teacher training colleges (TTCs) and universities. With this programme to train these in-service teachers, TTCs are currently involved with adult learners.

According to Knowles (1984a), an adult learner is an individual, who performs roles associated by our culture with adults such as spouse, parent, worker and responsible citizen. He is also an individual who perceives himself to be responsible for his own life. PKPG teachers are clearly adult learners by the first criteria used by Knowles, and to a large extent by the second criteria too.

There is much literature (Knowles 1984b, 1989; Lieb 1991; Thoms 2001; Wlodkowski 1993) to indicate that adults have special needs as learners. They prefer to be autonomous, goal and relevancy-oriented because they need to know that the learning will lead them to something better such as increased competence for licensing, promotion, job change or compliance with organisational directives. Their motivation seems to be clearly instrumental. However, Hall-Jardine (2001) refers to it as self-motivation which has been described as akin to intrinsic motivation.

It should be noted that adult learners, unlike children and teenagers, have many responsibilities, some of which are related to time, money and problems of childcare. These responsibilities have been reported to be barriers against participating in learning (Lieb 1991). With these learner characteristics, it has been noted that adult learners need to be taught using more andragogical approaches which recognizes maturity of the learner (Laird 1985) and which will enhance their reasons for learning and thereby decrease the said barriers. Among the many teaching tips proposed for adult learners, three principles come through clearly in efforts to motivate adult learners.

Firstly, learning should be problem or context-centred rather than content-centred. Information presented should be in “bit-size chunks” (Thoms 2001) that permit mastery. The learning tasks should be suitably challenging yet easy enough for adult learners to complete without too much frustration (Dover 2004; Lieb 1991; Thoms 2001). Thoms’ reminder is to help adult learners “pass over plateaus and obstacles” so that they are stimulated to continue and their efforts culminate in success. The literature is thus agreed that learning has to be controlled or managed such that it is made easy for these learners to experience success. Perrone (1975) in *A Letter to Adult Learners* states that learners are never unmotivated to be successful.

The second feature of adult learning is the experiential, participatory or hands-on dimension in learning. Adult learners need to be actively engaged in learning. Indeed engagement in learning and high motivation has been consistently linked to increased levels of student success and reduced dropout rates (Blank 1997; Dev 1997; Kushman et al. 2000; Woods 1995). The additional feature in adult learning is that they prefer to work in groups (Brewster & Fager 2000; Hall-Jardine 2001; Thoms 2001).

Finally, and very importantly, adults need to be shown respect as learners because they often come to the learning environment rich in educational and work experiences (Dover 2004; Wlodkowski 1993). Instructors of adult learners would do well to establish rapport and be empathetic towards these learners. Regular support in the form of expertise (Thoms 2001) and encouragement (Hall-Jardine 2001) from instructors and a responsive classroom culture (Oldfather undated) is often appreciated by adult learners. Andragogists call for collaboration, partnership and mutual respect to motivate adult learners.

STATEMENT OF THE PROBLEM

A group of 26 PKPG teachers, subsequently referred to as adult learners, performed badly in a test (Test 1) on the Testing and Evaluation module (EDU 480). This module was taught in English and the test was held on 26th December 2003. These learners were unable to answer three questions that are deemed simple because the answers can be picked off directly or recalled from lecture notes or a textbook. The questions were:

1. Name five types of tests and state their purpose.
2. State three uses of test specifications.
3. Give an example of an objective item.

The poor performance was initially attributed to the learners' low proficiency in English. However, it was noted that many left the answer spaces blank. They seem to have no thoughts whatsoever about the topics tested or are totally disinterested in the subject.

Being in-service teachers, it is recognized that these adult learners must hold some views about the topic tested. In addition, they are very experienced practitioners in the areas tested as tests and examinations feature regularly in Malaysian classrooms. It was reasoned that the adult learners lacked interest and needed to be motivated to learn the subject.

The purpose of this study was to examine what elements were required to motivate learning among adult learners. Based on current literature on adult motivation, the idea of inducing success through hands-on tasks stands out significantly and thus became the focus of this study. The efficacy of these tasks in motivating and promoting learning among adults was analysed. In this respect, task difficulty was carefully controlled and its learning outcomes were examined. Two other sources of motivation, namely, group work and the role of the instructor in providing feedback and support in performing the tasks were raised by learners in this study and were subsequently studied as well.

METHODOLOGY

SAMPLE

For this study, a qualitative approach has been used to trace how 26 PKPG teachers who are adult learners progress through a series of practical or classroom-based tasks that progress gradually in terms of difficulty and simultaneity as they followed the course of EDU 480. These teachers form the entire group of students for EDU 480 for that semester.

INSTRUMENT

The first instrument used in this study was Test 1. The next instrument comprised of a series of four tasks. The tasks required the adult learners to: (1) design a test specification for primary pupils, (2) write or select from examination papers and workbooks items that fitted the specifications, (3) administer the test items to pupils in school and mark the answers and (4) analyse the marks and perform item analysis. As they undertook the tasks, they were asked a series of questions to help them clarify how and why they are undertaking the stated tasks.

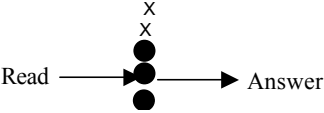
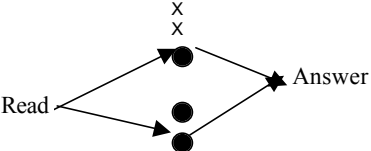
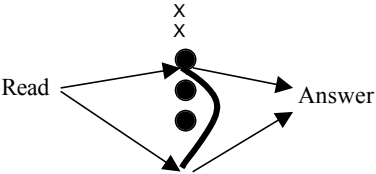
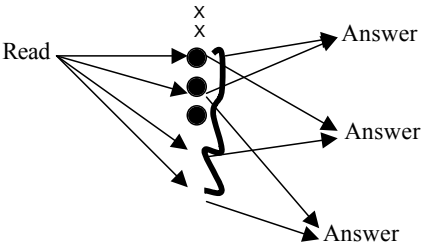
The SOLO taxonomy (Atherton 2003) was used to grade the accompanying questions. This taxonomy describes five levels of learning which progress from concrete to abstract:

1. Prestructural : Task inappropriately undertaken
2. Unistructural : One relevant aspect of task undertaken
3. Multistructural : Two or more tasks picked up, but not inter-related
4. Relational : Several aspects integrated into coherent meaning
5. Extended abstract : Coherent whole is generalised to a higher level of abstraction

Table 1 shows these levels of thinking in a diagrammatic representation of how learners use given information (●), relevant (") and irrelevant (X) schema to derive answers. Level I refers to wrong or non-processing of information and has thus been omitted from the table.

From the diagrams (modified from Brown 2003), it is evident that learners need to examine two or more information. However, at levels 4 and 5, learners are required to relate the information. At level 4, learners relate given information and at level 5, learners are required to relate given information to relevant schema they hold. This taxonomy was used to control the complexity of the questions that were asked as adult learners undertook the tasks. By progressively moving questions along levels 3 to 4 and finally to 5, the four tasks increased gradually in complexity. The questions accompanying the four tasks were:

TABLE 1. SOLO Taxonomy and examples of items from tests 1 and 2

Level of Learning	Example of Item
2 Unistructural	 <p data-bbox="635 378 942 430">Give an example of an objective item</p>
3 Multistructural	 <p data-bbox="635 612 856 664">State three uses of test specifications</p>
4 Relational	 <p data-bbox="635 760 971 994">Name five types of tests and discuss the purposes of these tests Explain why criterion-reference tests are preferred with young learners Suggest ways to score answers more objectively and comment on their practicality</p>
5 Extended abstract	 <p data-bbox="635 1142 931 1194">Discuss some issues related to school-based assessment</p>

Source: Atherton 2003

1. How are the items distributed in your test specifications; the criteria and distribution? (level 3).
2. Give reasons why test items were distributed as such in the specification (level 4).

3. Compare test items against a fixed format. Subsequently, critique test items on content and task suitability (level 4).
4. Predict item difficulty and then explain why predictions matched or did not hold up against item analysis (level 4).
5. Graph students' marks and discuss the graph in relation to student performance, quality of teaching and quality of test (level 4).
6. What are the characteristics of a good test for primary pupils? (level 5).
7. Under what test conditions will pupils perform well? (level 5)

The above questions were used to stimulate adult learners to think (at SOLO Levels 3, 4 and 5) about the tasks they undertook, particularly the reasons behind their practices. The quality of the completion of tasks and answers to the questions was examined orally during group and class discussions and in written group reports.

Finally, Test 2 was used to ascertain learning outcomes of the series of tasks and its accompanying questions. More difficult questions were posed in Test 2 as compared to Test 1. The questions in Test 2 required thinking and processing (at SOLO Levels 4 and 5) of what the learners have read and/ or done in the series of tasks. The questions were:

1. Explain why criterion-referenced assessment is preferred with young learners.
2. Suggest ways to score an essay objectively, and comment on the practicality of your suggestions.
3. Discuss some issues related to school-based assessment.

PROCEDURE

The adult learners worked on the tasks in groups of four. They were guided step-wise through the tasks in their respective groups. Feedback was private as it was written on their proposed answers. Care was taken to indicate the strengths of the answers proposed and oral discussion was limited to group members.

Class discussions were only organized when each group had received enough help from the instructor to feel confident that they had something substantial to contribute in the discussion. The first two discussions were chaired by the instructor who highlighted a willingness to accept a range of answers that was supported by good rationales. The instructor left the discussion to these adult learners when it became obvious that they were starting to share their readings, volunteer answers, and were able to engage in discussion on their own. After completing the four tasks, the adult learners submitted a group report. Individually, they sat for Test 2 on the 4th February 2004.

RESULTS

In this section, the learning outcomes induced through the series of four tasks and related questions are described. These outcomes are classified as changes in learners' on-task behaviour and test performances.

CHANGES IN LEARNERS' ON-TASK BEHAVIOUR

Initially, the adult learners found the tasks unfamiliar and the questions difficult. The adult learners were reluctant to engage in discussion about the given tasks and were also most reluctant to write their answers. They seemed to be afraid to say "the wrong thing".

After two weeks into the tasks, the adult learners appeared to recognize that a variety of answers could be accepted if they could provide good rationales for these answers. For example, in the second question related to the tasks, some groups tried an almost normal distribution of (1:3:1) items of low, moderate and high difficulty because they wanted to discriminate against the pupils. There was a group who chose to set largely easy items to enable pupils to perform well and hence feel more motivated and positive about the subject. Another group set many easy items too but they wanted to use the items to identify at-risk pupils. The acceptance of these answers marked the learners' first success and they began to become more engaged in group and class discussions.

It was then observed that many adult learners tried to outdo each other during the class discussion with different answers, and were very keen and proud to defend their "novel" answers. Their initial fear of the tasks and questions seem to have been replaced by an eagerness to find unique answers and reasons to support their answers. It was evident that the adult learners had become more articulate about the subject (EDU 480) of testing in the classroom.

It took the adult learners six weeks (3 hours per week in class) to complete the four tasks and submit a group report. Group performance of the tasks and the quality of answers were good as evident in the group reports. All six group reports were graded "A" (80 marks and above) by the course instructor and the marks were endorsed by an external assessor. The written reports were both comprehensive and insightful. These reports covered a good range of issues in testing prompted by the questions tied in with the tasks. These issues were insightfully discussed and related to the practical experience during the project in particular and classroom practices in testing in general.

TEST PERFORMANCES

In terms of individual performance, the mean scores for Tests 1 and 2 were 7.9 and 9.1 respectively. The percentage of learners with scores of 8 and above rose from 46.2% (12 learners) in Test 1 to 84.6% (24 learners) in Test 2. There seems to

be an obvious gain in the learners' grasp of the subject EDU 480 particularly when it is realised that items in Test 2 were raised in difficulty.

The achievement does not lie in improved test scores alone. A significant outcome of the improved test performance was achieved when all 26 adult learners described the questions in Test 2, and subsequently the subject EDU 480, as not difficult and thus not frightening. The following are some comments about the subject. Some of the adult learners' comments were in Malay and they have been translated into English by the researcher.

1. The subject has become easier because I understand what it is I am doing in setting the test.
2. The practical work helped to explain testing principles. I am sure about why I engage in certain practices...the subject is not so hard after all.
3. Before the project, the subject seemed difficult. After going through the project tasks, the principles of the subject have become much clearer. I now find the subject easy. I did well in the second test. I am confident that I will be able to do well in the final examination.
4. My fear of the subject has gone because I know that the theories and practices in testing are not difficult.

Similarly positive comments were made by many adult learners who began to express a new keenness and interest in the subject as indicated in the following comments.

1. EDU 480 is my favourite subject now because I know I can do it, score well in the project and tests.
2. I like it (EDU 480). I can explain what I am doing in the classroom.
3. I like this module; it is easy and has become so interesting and relevant to my classroom practices.

The last comment seems to sum up many of the learners' feelings. Adult learners find project tasks and test questions easy when they are contextualised and are directly related to classroom practice. They experience success in completing such tasks and tests more readily and begin to have a more positive outlook and an increased interest in the study of the subject.

DISCUSSION

There has been a definitive gain among the adult learners after the period of six weeks. It is reasonable to suggest that the series of four tasks accompanied by related questions has induced positive learning outcomes among the adult learners. The gain is likely to be brought about by the process where adult

learners were made to think as they go through their project tasks by examining and answering questions about the tasks at a relational level, namely, to compare, predict and justify, and relate cause and effect about these tasks. This kind of thinking done regularly through tasks they undertook over the period of six weeks seemed to have helped them answer the three higher order questions under test conditions (Test 2). It was more commendable that these successes were achieved in English, a language they appeared to be grappling with at the onset.

This section will discuss the positive learning outcomes described above by identifying the source(s) that brought about the difference in the learner (higher motivation and interest in the subject) and learning (higher test scores). Both the instructor and learners' perspectives will be examined.

The instructor is of the view that appropriate task difficulty is an important factor in motivating learning of EDU 480 as suggested by many researches (Dover 2004; Lieb 1991; Thoms 2001). With tasks progressing from easy to difficult in a controlled manner, adult learners were successful in undertaking the tasks and questions posed to them. It is this sense of being able to overcome the more difficult tasks and questions that motivated learning and brought about the difference in classroom behaviour and test performance.

The SOLO taxonomy has helped the instructor become very mindful of information processing when structuring tasks and questions for learners. It is this graded structure, which has also been suggested by Thoms (2001), that seems to have helped put forward tasks and questions that are well within the learners' ability to conduct and answer successfully. The repeated successes with tasks and test questions seem to be translated into motivation, which in this case is best described as a removal of fear for a subject once described as difficult and its replacement with an enthusiasm and interest for the subject. This study serves to illustrate how reducing task and test difficulty with the help of the SOLO taxonomy can be motivating for learners and learning.

The instructor also observed that the task difficulty was reduced when both the tasks and questions were well contextualised to the adult learners' working experience. This observation relates to current literature (Dover 2004; Thoms 2001) and is also well supported by feedback from the learners themselves when they indicate a need for relevance in what they are learning. Learners recognize their new motivation for learning the subject is related to the reduced subject difficulty. However, they also tend to attribute some of this motivation to other factors such as continual support from peers and instructor.

The adult learners felt more motivated to work in groups of four. They felt the shared work was less burdensome. They also did not feel alone when unable to perform a task. The chance to share and check work with peers in the group helped them make progress or "move on the right track." Being together on a project made the learner feel safer and the learning less tedious.

In their respective groups, adult learners felt they could make mistakes in front of a smaller audience. The others were making mistakes too. More

experimentation with ideas and discussion were generated amidst mutual support to find answers together. Adult learners also appreciated close supervision from the instructor. They needed to confirm that they were doing work correctly. It was observed that they were quite reluctant to carry on without assurance that they were right. They admitted that they did not want to waste their time and energies working and re-working answers.

The learners also disclosed that the following aspects of the instructor's support, namely, private feedback and encouragement, motivated them. They were pleased that feedback was private and their work was corrected on personal answer sheets. Not too many others needed to know about their mistakes. The learners acknowledged that they responded better to encouragement and praise as was also reported by Hall-Jardine (2001). Corrections were appreciated but were best received between words of positive feedback.

Underlying the learners' views seems to be a need to undertake tasks and answer questions readily or easily. Two elements seem important in ascertaining ease of tasks; performing the task quickly and getting it correctly performed. It was also observed that these adult learners enjoyed establishing collegiality with the instructor. They liked the reference to problems that were identified as common to our teaching practices. It became easier for the learners to seek help from an instructor who is seen as a collaborator.

CONCLUSION

This episode of success with 26 in-service teachers suggests that adult learners can be motivated to enjoy learning and being a learner in a fairly short period of time. The strategy was to consciously support and enable the learners to achieve success in their efforts to undertake tasks and answer related questions.

The instructor's and learners' perspectives of the motivating forces in this study agree with the reviewed literature on adult motivation. Both agree that reduced task difficulty was a strong motivating force in learning. Learners have also identified two other sources of motivation, namely, peer and instructor's support. However, it is recognized that there is a thread of commonality between these sources of motivation, and that is, adult learners are more motivated to learn when conditions are arranged to enable them to perform tasks and answer questions quickly and correctly. Motivating adult learners seems to be about making learning easy both in terms of task difficulty and reduced time on task. The SOLO taxonomy is thus proposed as a useful tool to guide instructors in grading tasks to appropriate levels of difficulty that will both motivate and facilitate learning.

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