

## SOME TEACHERS' TECHNICAL IN ASSESSING PUPILS' LEARNING MATHEMATICS PROCESS IN VIETNAM

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**ABSTRACT:** Assessment is an important procedure in teaching process at high schools. The assessment results may affect teaching programs and the methods. Teachers need to use assessment as a part of their teaching method. Hence, we propose a competence oriented innovation of assessing mathematics learning outcomes in Vietnam.

**KEYWORDS:** Teachers' assessment competency, classroom assessment, mathematics teaching methods.

### 1. Introduction

Assessment is one of the most powerful educational tools for promoting effective learning. But it must be used in the right way. We need to be on helping teachers use assessment as part of teaching and learning, in ways that will raise pupils' achievement. Before teaching, the teachers need to determine educational aims and appropriate teaching methods for each pupil. Therefore, teachers need to have the initial assessment of the competence of each pupil about attitudes, ability to acquire knowledge, they use knowledge in practice, circumstances,... factors that impacts pupils educating process. Therefore, in teaching mathematics, the teachers should also have diagnostic competence, assessment competence of comprehensive.

Some related researches: Black and Wiliam ([BW98]) pointed out that frequent feedback from pupils would make them aware of their role in self-assessing and teaching strategy; Guskey ([Gus03]) proposed an effective assessment method to provide guidance and overcome limitations of traditional assessment in order to improve the quality of teaching and learning; Earl, Katz et al. ([E+06]) clarified: Why do we need to innovate assessment?; What is assessment for learners' progress; How to make assessment apart of learning?; How to assess study result?; Meier and Cuong ([MC14]), discuss about modern teaching theory, in which assessment is having changed to fit in modern education by approaching learners' competency; Marzano, Pickering and McTighe ([MPM94]); Sadler, ([Sad89]) Formative Assessment and the Design of Instructional Systems". Sutton ([Sut95]), "Assess-

ment for Learning"; T.T. Hai and T.T. Tinh ([HT15]) "Forming and strengthening teaching competency in Mathematics Pedagogy students".

Currently assessment competency development of mathematics teachers is not good in Vietnam. In this paper, I suggest some measures aimed at assessment competency development for pupils' process learning.

### 2. Content

#### 2.1. The teacher's technical assessment for learning process pupils

Most of math teachers don't fully aware of assessment treated it as a mandatory requirement from Ministry of Education and Training, and only for grading and getting feedback. They do not very focus on adjusting method or program. Teachers in many high schools have similar assessment methods: giving pupils tests, and mostly at the end of program. Assessment is not considered a part of learning as it is not performed during the process. They assess mostly on their viewpoint (based on memorability, applicability ...) and lack of feedback from pupils. The application of new technologies is limited due to many reasons: lack of equipments, limited using skills, unable to design tools and standard.

How often should teachers assess the pupils about applying their knowledge, integrated skills, thinking, learning attitude, cooperative learning ...

Teacher assessment should be based on diverse information from multiple sides, teachers assess pupils, pupils self-assess, pupils assess each other, personal assess, assess by group.

Assessment methods and assessment techniques are varies. For examples: interview, closed questions, open questions, solve practical problems that involve knowledge ... We have some of the following assessment methods:

- *Take note* – A regularly assessment form by observing and taking note of pupils' learning,

attitudes and behaviors in class.

- *Honoring learning* – An event where learners have opportunities to share their knowledge with friends, teachers and parents.
- *Assessing together* – A combination between self-assessment and assessment from others (teachers, friends ...). This is a conversation between pupils and teachers, but teachers give the final assessment.
- *Checking card* – An easy activity in 5 minutes to check pupils' knowledge before, during and after class. Pupils answer three questions from teachers. Teacher could give quick answers and design lesson plan if necessary.
- *Mind map* – A graphical tool, support pupils to brainstorm and present ideals, concepts.
- *Bulletin* – to assess learning progress. Bulletin could be in open form (written by pupils) or provided by teachers: teachers hand out guidance questions, answer sheets to collect information of pupils' learning.
- *Reading profile* – Pupils store their reading profile which includes personal reviews, comments about works they read. Regular discussion about this profile helps teachers aware of pupils' progress as an individual reader. It also suggests how to encourage pupils.
- *Questions and answers*: Ask and answer, converse to assess pupils' understanding.
- *Observation*: Pupils' behavior and some concrete manifestations in learning process.
- *Check writing*: Objective test and essay test.
- *Assessing product of the pupils*: By portfolios: collection result, homework, articles, research exercises ...
- *Expert opinion*: Specialist in the assessment of intellectual functioning.
- *Guidance note of assessment by criteria*: A set of teachers' expectations to assess pupils' knowledge and enable pupils to aware of what to do to get good results.

Today, education aims to pupils' competency, hence, many teaching and learning methods are applied. So a question emerged: how to evaluate learning process accurately? To cope with this task, teachers need to combine multiple methods and techniques to assess learning process. (Table 1 proposed by Earl, Katz et al. [E+06]).

## 2.2. Measures to help teachers assessment learning process of pupils

### 2.2.1. Planning for assessment

Earl, Katz et al. ([Eka06]) state that, careful planning is required to ensure that there are logical connections among the purpose, methods, and use of

the results. Classroom assessment is planned in relation to purpose and in alignment with curriculum and instruction. Curriculum, assessment, instruction, and learning are interconnected and interact in an iterative and sometimes (but not always) cyclical process. All four need to be aligned and coherent for the learning to be effective and meaningful. The process of planning is what provides a blueprint that centre on the purpose, makes the connections explicit, and creates a coherent organizational structure. Against this blueprint teachers can constantly question their strategies: Are my strategies still appropriate and aligned? Do I need to make adjustments or perhaps even shift direction? Although teachers do not need to adhere strictly to their plans, without proper planning it is difficult to ensure balance and coherence.

Section next outlines a set of planning considerations for designing and using assessment for learning, assessment as learning, and assessment of learning.

### 2.2.2. Using assessment techniques in teaching

Alternative assessment techniques have been part of the educational landscape for several decades, and, although many of them seem to have been adopted, significant changes in process learning. Some of the technical used in process learning assessment ([CWS10, Gro98, HRN98, LG00, Mar07, MPM94, Sti01, GCD00, EKa06, \*\*\*12, \*\*\*14]):

The *Background Knowledge Probe* is a short, simple questionnaire given to pupils at the start of a course, or before the introduction of a new math unit, lesson or topic. It is designed to uncover pupils' pre-conceptions.

The *Minute Paper* tests how pupils are gaining knowledge, or not. The instructor ends class by asking pupils to write a brief response to the following questions: "What was the most important thing you learned during this class?" and "What important question remains unanswered?" Review responses and note any useful comments. During the next class periods emphasize the issues illuminated by your students' comments.

*Fuzzy point*. This technique helps teachers to determine the lesson's important points which pupils have missed by making them write down difficulties they encountered. Apply this technique as follow:

- Handout answer sheets, pupils have three minutes to complete. Depend on use purposes, pupils could answer as anonymous or not.
- This technique should not be used after every lesson, or it may become monotonic and return useless information.

*Quick survey questions table*. This technique is very useful because encourages pupils to be more active.

Quick answer sheets could be used after a lesson or at the start of a new lesson. Pupils answers if the purposes of the lesson have been archived or not and which part needed to be reviewed.

*Lists table.* Use this technique to assessing pupils'

memorization; Use right after the lesson or after review; Need to limit some answer chooses and/or time; Review answer sheet, compare pupils' answers with teachers' expectations. Based on the results, teachers could help improve pupils.

**Table 1. Assessment Tool Kit**

Method	Description
<b>Gathering Information</b>	
<i>Questioning</i>	Asking focused questions in class to elicit understanding
<i>Observation</i>	Systematic observations of pupils as they process ideas
<i>Homework</i>	Assignments to elicit understanding
<i>Learning conversations or interviews</i>	Investigative discussions with pupils about their understanding and confusions
<i>Demonstrations, presentations</i>	Opportunities for pupils to show their learning in oral and media performances, exhibitions
<i>Quizzes, tests, examinations</i>	Opportunities for pupils to show their learning through written response
<i>Rich assessment tasks</i>	Complex tasks that encourage pupils to show connections that they are making among concepts they are learning
<i>Computer-based assessment</i>	Systematic and adaptive software applications connected to curriculum outcomes
<i>Simulations, docudramas</i>	Simulated or role-playing tasks that encourage pupils to show connections that they are making among concepts they are learning
<i>Learning logs</i>	Descriptions pupils maintain of the process they go through in their learning
<i>Projects and investigations</i>	Opportunities for pupils to show connections in their learning through investigation and production of reports or artifacts
<b>Interpreting Information</b>	
<i>Developmental continua</i>	Profiles describing pupil learning to determine extent of learning, next steps, and to report progress and achievement
<i>Checklists</i>	Descriptions of criteria to consider in understanding pupils' learning
<i>Rubrics</i>	Descriptions of criteria with gradations of performance described and defined
<i>Reflective journals</i>	Reflections and conjecture pupils maintain about how their learning is going and what they need to do next
<i>Self-assessment</i>	Process in which pupils reflect on their own performance and use defined criteria for determining the status of their learning
<i>Peer assessment</i>	Process in which pupils reflect on the performance of their peers and use defined criteria for determining the status of their peers' learning
<b>Record - Keeping</b>	
<i>Anecdotal records</i>	Focused, descriptive records of observations of pupil learning over time
<i>Pupil profiles</i>	Information about the quality of pupils' work in relation to curriculum outcomes or a pupil's individual learning plan
<i>Video or audio tapes, photos</i>	Visual or auditory images that provide artifacts of pupil learning
<i>Portfolios</i>	Systematic collection of their work that demonstrates accomplishments, growth, and reflection about their learning
<b>Communicating</b>	
<i>Demonstrations, presentations</i>	Formal pupil presentations to show their learning to parents, judging panels, or others
<i>Parent-pupil-teacher conferences</i>	Opportunities for teachers, parents, and pupils to examine and discuss the pupil's learning and plan next steps
<i>Records of achievement</i>	Detailed records of pupils' accomplishment in relation to the curriculum outcomes
<i>Report cards</i>	Periodic symbolic representations and brief summaries of pupil learning for parents
<i>Learning and assessment newsletters</i>	Routine summaries for parents, highlighting curriculum outcomes, pupil activities, and examples of their learning

Note: This technique only helps discover pupils' memorization. It doesn't show how much they understand.

*Apply table.* This technique shows weather pupils understand the contents or not; Use after the lesson. Teachers handout answer sheets, pupils are given 10 minutes to answer; The result shows how well pupils memorize and apply the lesson; If there are any

arguments, teachers could discuss with class.

*Matrix memo.* Teachers could use a matrix with any rows and columns, fill in the titles and let pupils fill the appropriate contents. This technique's purpose is to assess pupils' memorizing and information classification abilities. This technique could be used right after the lesson or after review as a pre-assessment. Set time limit (10 minutes for example)

guild pupils to answer. While reviewing answer sheets, teachers should take note pupils' advantages and disadvantages. Diary writing class and forum share and experiences forum In order to reduce difficulties, writing diary is a good method for teachers to self-adjust. This method is recommended to use with some another popular methods in teaching process.

*Summary assessment.* Summary technique shows pupils' learning and helps development of communicating skills; This technique is most effectively used in class, it could also be used as homework; Pupils need to practice this technique under the help of teachers before they could use them effectively; Pupils could keep a copy of answer sheets for further study.

### 2.2.3. *Changing learning activities of pupils through assessment tests*

Results from assessment techniques can guide teachers in fine-tuning their teaching strategies to better meet pupil needs. A good strategy for using assessment techniques is the following:

Mark the mistakes → Take note in diary and point out the reason of the mistakes → Explain → Correct some typical mistakes in class → Correct.

## CONCLUSION

To innovate teaching methods in Mathematics, it is important to innovate assessment. The present research has also confirmed that mathematics teachers should have skills in teaching content knowledge in a pedagogically engaging learning. It is clear that teachers do not only need to know what to teach but also how to teach. Mathematics teachers in their efforts to help their pupils' success, strive to find the best ways to teach, so that the pupils are engaged in the learning process. In the Vietnam context, mathematics teachers should be able to manage their big classes, provide varied teaching techniques to cater different types of pupils learning styles, to motivate, and to involve the pupils. There are methodological aspects specifically designed to teach mathematics. For high school teachers of mathematics in Vietnam, these methodological aspects should consider characteristics of the context in Vietnam.

### *Recommendations*

Assessment is an important procedure of teaching and learning. Teachers and managers could based on assessment results to make decisions which help pupils more effectively.

Using an assessment technique affects teachers' teaching and pupils' learning. Thus, using assessment technique is necessary for teachers. The

level of assessment depends on classes and pupils.

Assessment is an motivation for innovating teaching quality step by step. Teachers need to improve their assessment skill to assess pupils correctly.

Create environment for teachers to share and learn experience: choose appropriate

Teaching methods; explain the tests result; make decisions based on assessment results; send assessment results to pupils, their parents, educators.

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