

## **Awareness of Primary School Teachers on Authentic Assessment's Tasks in Teaching Maths in the Direction of Competence Development for Primary School Students – Case Study in Binh Duong Province of Vietnam**



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**ABSTRACT:** The authentic assessment is a form of assessment researched and applied by several countries into the education reality of primary schools. However, this assessment form has not been really paid much attention to and applied into teaching subjects in primary schools in general and into teaching mathematics in particular. This article presents the researching findings of awareness reality of teachers on authentic assessment's tasks; one of factors creates the specific characteristics of authentic assessment in several primary schools in Binh Duong. Through analyzing the results of questionnaires and interviews of several primary teachers in Binh Duong Province of Vietnam, we can see that most teachers have not really understood about authentic assessment's tasks and have not designed the authentic assessment's tasks. This is one of foundations to propose several methods for applying the authentic assessment into teaching Maths in the direction of competence development for primary school students.

**KEY WORDS:** authentic assessment, task, competence, Maths.

### **1. INTRODUCTION**

One of new contents on assessment of general education is transferring from standard assessment of knowledge and skills to student competence assessment based on performances and requirements which should be met; the assessment does not only pay attention to results but also assesses the process when a student performs his academic tasks; the assessment aims at progresses of learners.

The authentic assessment is one of assessment methods paid much attention to for assessing the study process of students. The authentic assessment has been researched and used in several subjects in primary schools over the world.

Through several studies inside and outside country, we can recognize that many studies apply the authentic assessment into assessment activities of vocational training schools, colleges and universities. Besides, there are several studies reporting the results of applying and deploying the authentic assessment into teaching specific subjects in high schools of several countries. Tonya R. Moon, Catherine M. Brighton, Carolyn M. Callahan (2005) studied an authentic assessment for several middle school classrooms based on academic standards of several states of US and used to evaluate students. The research findings show that the authentic assessment can help to quantify the studying affairs of students and also present several information on efficiency of teaching process of teachers. [1].

In Pakistan, the authentic assessment has been used as studying process in schools. Thanks to data collected through observing classrooms, performing interviews, analyzing the related data and diaries of teachers, students and researchers, we can see that there are changes in awareness and also practice of teachers and students. The authentic assessment helps the students and teachers to participate more actively into teaching and learning process. The research findings also show the significant improvement of highranking skills of students. To achieve higher efficiency when deploying the authentic assessment, the researchers should prepare the self-assessment forms in identifying the authentic assessment performing route for teachers and students. [2].

Inayah, N., Komariah, E., & Nasir, A. (2019) researched the application of authentic assessment into evaluating the students' English speaking competence in junior high schools. The research findings proved the efficiency of authentic assessment in evaluating the linguistic competences of learners [3]. In addition, the study applied the authentic assessment into teaching Mathematics for junior high school students in Indonesia and it proved that the authentic assessment had effective impacts on developing the competence of solving problems of students [4].

The findings of studies stated above are to some extent the foundation proving that the authentic assessment should be used broadly by education institutions for evaluating comprehensively the students' competences. The application of authentic assessment into teaching Maths in primary schools in the current period will satisfy the innovation of evaluating primary school students according to Circular 27, issued by Ministry of Education and Training on 04 September 2010 [5]. However, the authentic

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assessment in high schools, especially in primary schools of Vietnam has not been researched and applied. The task of authentic assessment is one of factors creating the special characteristics of authentic assessment. To apply the authentic assessment into reality of teaching Maths for primary school students in Vietnam, learning about real situation of primary school teachers' awareness about authentic assessment and tasks of authentic assessment in teaching Maths in the direction of competence development in reality of valuating Maths in primary schools of Vietnam feasibly and efficiently.

## **2. CONTENT**

### **2.1. Authentic Assessment**

#### **2.1.1. Concept of Authentic Assessment**

The authentic assessment is the assessment activity where students shall apply their knowledge to solve the valuable circumstances effectively and creatively. All tasks are described from problems that people shall face in their daily life or in their professions [6].

According to Torrance, the authentic assessment is a general term, describing a series of new approaches to evaluate. The term of authentic assessment mentions the assessment tasks designed for students in reality and more challenging than traditional tests [7].

The authentic assessment is one of assessment forms that students are requested to perform the tasks associated with reality and showing the capacities of applying necessary knowledge and skills meaningfully. (John Mueller, 2005) [8].

In this article, the authentic assessment is considered as an assessment form where students are requested to apply their knowledge and skills to perform tasks associated with reality, or simulated from reality. Therefore, the assessment activity does not evaluate the students' competences but also becoming more meaningful for competence development of students.

#### **2.1.2. Characteristics of Authentic Assessment**

Through learning about several studies of authors Wiggan (2006, tr.51), Green (1998), Dez, Moon & Meyer (1992); Wilson (1993), (McMann & McMann, 1992), (Dez, Moon & Meyer, 1992); Bruce B. Frey, Vicki L. Schmitt, Justin P. Allen (2012); Sabri, M., & Retnawati, H. (2019), most of authors mention the tasks of authentic assessment, context, roles of students, criteria creating the specific characteristics of authentic assessment. By summarizing the studies of authors stated above, we recognize that the authentic assessment has several characteristics, as follows:

- Tasks of authentic assessment shall associate with reality and require students to create products or performance through combining knowledge, high-ranking thinking skills for solving problems.
- Context in authentic assessment is frequently the real context or real simulation.
- Students are the subject of task performing process. It should have the combination and interaction between students and students, students and teachers. The students will evaluate and supervise by themselves their progresses or academic progresses of individuals.
- It should use the assessment criteria with index in authentic assessment to give feedbacks for learners.

The authentic assessment's criteria shall be clear and based on criteria of authentic assessment close to reality. The criteria of authentic assessment should be propagated in advance or students will build by themselves the assessment criteria when they start performing the tasks of authentic assessment.

### **2.2. Tasks of Authentic Assessment**

#### **2.2.1. Characteristics of Authentic Assessment's Tasks**

Through analyzing several studies of Wiggins (1993), Chun, M. (2010), Frey, Schmitt, Allen (2012), Jon Muller (2015), the article on characteristics of authentic assessment's tasks of author Nguyen Thi Thu Trang and Vu Dinh Phuong (2021) presents that: the contents of tasks should associate with reality; the students shall use the high-level thoughts when solving the problems in task; the authentic assessment shall present the creativeness, the products created from authentic assessment's tasks are not the results of exercise but they are real products or performance with high quality, suitable to requirements of tasks; the authentic assessment's tasks will orient the criteria for evaluating the task performing results, thus teachers and students can use it to assess and self-assess.

#### **2.2.2. Authentic Assessment's Task Designing Procedure**

The author Nguyen Thi Thu Trang (2018) has proposed the authentic assessment's task designing procedure for teaching Maths in the direction of competence development for primary school students, as follows:

Step 1: Identifying the assessment purposes and objects.

Step 2: Identifying the assessment time.

Step 3: Identifying the standards which should be assessed.

Step 4: Designing the authentic assessment's tasks

Step 5: Building the assessment criteria Step 6: Designing rubric.

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The procedure stated above guarantees that the authentic assessment's tasks built will satisfy the Maths competence assessment requirements in Maths program (2018) based on performances of students, simultaneously proposing the assessment criteria for teachers and students to use for assessing and self-assessing.

## 2.2. Research Methods, Time and Means

### 2.2.1. Research Methods and Means

#### 2.2.1.1. Surveying Method by Questionnaire

To answer the research questions, the questionnaires have been used to collect data. The questions concentrate into studying about awareness of teachers on authentic assessment in teaching Maths in the direction of competence development for primary school students.

#### 2.2.1.2. Method of Reckoning and Processing Survey Data

- The collected data will be processed and analyzed to give necessary information in order to serve the assessment purposes, and then giving the judgment on awareness degree of teachers on authentic assessment's tasks in teaching Maths in the direction of competence development for primary school students.
- The tool used for supporting is Excel software.

### 2.2.2. Research Period

Surveying time: from September 2021 to May 2022.

## 2.2. Research contents

- The objects that we select to survey include: Teachers are teaching in public primary schools in Binh Duong, Vietnam, in which 91.01% objects are female.
- To guarantee that the surveyed objects have enough reliability for identifying the real situation of assessment and authentic assessment in teaching Maths in the direction of competence development, we select teachers representing the districts, towns, cities under the provincial government, with different professional skills and seniority. The detailed information is as follows:
  - + 481 surveyed teachers have the education levels, as follows:
  - + Seniority: The surveyed objects have seniority of teaching Maths in primary schools for at least 01 year, and maximally 36 years.
  - + Surveying area: The survey is conducted for (objects are primary school teachers, 4-class and 5-class students) representing 9 districts, cities belonging to Binh Duong Province. These areas are arranged and divided into 03 regions by us.
  - + Region 1 (Phu Giao, Bau Bang, Dau Tieng, Bac Tan Uyen District);
  - + Region 2 (Ben Cat, Tan Uyen Town);
  - + Region 3 (Thu Dau Mot, Di An, Thuan An City)

The teachers conduct the questionnaires with detailed contents as follows:

- Learning about the information sources of teachers on authentic assessment.
- Learning about understanding abilities of teachers on authentic assessment's tasks.
- Learning about knowledge of teachers on authentic assessment's tasks designing procedure.

## 2.3. Analyzing Results

**Table 1. Data that teachers know and do not know about authentic assessment**

Selected methods	Know about authentic assessment through sources			Teachers know about authentic assessment	Teachers do not know about authentic assessment
	Through training programs	Through selfstudying documents, mass media	Through exchanging with colleagues		
Quantity (teachers)	249	86	39	374	107
Ratio (%)	51,8	17,9	8,1	77,8	22,2

The data stated above show that most of teachers surveyed know about authentic assessment (374 teachers, occupying 77.8%), only 107 teachers (occupying 22.2%) do not know about authentic assessment. The information sources of teachers on authentic assessment are mainly several training programs (249 teachers, occupying 51.8%), next the teachers self-researching documents, mass media are 86 teachers (occupying 17.9%), the lowest ratio is 8.1% through exchanging between colleagues (39 teachers).

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**Table 2. Awareness of teachers on concept of authentic assessment**

Concept of authentic assessment	Quantity	Ratio (%)
A. Authentic assessment is the activity assessing that students solve exercises with requirements of applying knowledge and skills.	34	7.1
B. Authentic assessment is the assessment form that students are requested to present their capacities of solving problems and creatively in circumstance exercises correctly.	80	16.6
C. Authentic assessment is a form of assessment that students are requested to perform the tasks associated with reality and performing abilities of applying the necessary knowledge and skills meaningfully.	221	45.9
D. Authentic assessment is a form of assessment that students are requested to perform exercise containing new circumstances and showing the abilities of applying the necessary knowledge and skills correctly.	146	30.4
<b>Total</b>	<b>481</b>	<b>100</b>

The alternative C shown in the table above is the alternative presenting the most correct about the concept of authentic assessment. The surveying results on concept of authentic assessment present that the quantity of teachers who select suitably under the average level, in proportion to 45.9%. Most of teachers think that the authentic assessment should assess through exercises, which show that most teachers do not know clearly one of characteristics of authentic assessment, it is the authentic assessment's tasks are associated with real context or real emulation, requiring students to apply knowledge, skills to solve the real circumstances, and the learners shall create products or performance on behalf of exercises with fixed keys.

**Table 3. Awareness of primary student teachers on characteristics of authentic assessment's tasks**

Characteristics of authentic assessment's tasks	Quantity	Ratio (%)
A. Authentic assessment's tasks in Maths require students to perform selfconsciously and self-reliantly the Maths exercises containing new circumstances associated with reality.	83	17,3
B. Authentic assessment's tasks in Maths shall be designed from context associated with reality and require students to use Maths knowledge and skills to solve circumstances effectively.	174	36,2
C. Authentic assessment's tasks in Maths shall evaluate the self-controlling and self-studying capacities and usage of knowledge and skills of students in solving Maths exercises correctly.	168	34,9
D. Authentic assessment's tasks in Maths shall evaluate all components of Maths capacities that students reach.	25	5,2
E. Authentic assessment's tasks in Maths require students to use Maths knowledge and skills to solve new circumstance exercises.	31	6,4
<b>Total</b>	<b>481</b>	<b>100</b>

The characteristics of authentic assessment's tasks are shown in answer B. The surveying results stated above show only 36.2% total teachers surveyed (quantity of 174 teachers) identifying correctly the characteristics of authentic assessment's tasks, 58.6% left teachers (correlatively to 282 teachers) think that the authentic assessment's tasks are associated with requirement that students use their knowledge and skills to solve exercises and 5.2% teachers (correlatively to 25 teachers) selecting the authentic assessment's tasks shall evaluate all components of Maths competence that students reach. Therefore, almost teacher understands clearly the characteristics of authentic assessment's tasks, this is one of difficulties when perform this assessment in the reality.

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**Table 4. Skills of selecting, identifying correctly the authentic assessment's tasks**

<i>Name of task</i>	<b>Quantity</b>	<b>Ratio (%)</b>
A. Task 1.	26	5.4
B. Task 2.	42	8.7
C. Task 3.	25	5.2
D. Task 1 and task 2.	41	8.5
E. Task 1 and task 3.	62	12.9
F. Task 2 and task 3.	104	21.6
G. Task 1, task 2 and task 3.	181	37.7
<b>Total</b>	<b>481</b>	<b>100</b>

Among 3 tasks shown in questionnaire, the task 2 and task 3 are the tasks of authentic assessment. The teachers who recognize exactly the task 2 and task 3 occupy ratio 21.6%, the ratio of teachers who recognize exactly the task 2 is 8.7%, the ratio of teachers who recognize exactly the task 3 is 5.2%. The teachers who recognize incorrectly the tasks including task 1 occupy 86.1%. Therefore, the authentic assessment's tasks recognizing ability is still limited. The results stated above show that the teachers mistake the assessment exercises and authentic assessment's tasks.

For survey questions, the teachers are requested to write a task of authentic assessment that they have used. In which, 377 teachers have the answer "No", occupying the ratio of 99.2% and only 4 teachers (ratio 0.8%) have proposed several tasks of authentic assessment. The detailed information is shown in Table 5.

**Table 5. Authentic assessment's tasks of several teachers have been used in the reality**

<b>Name of teacher (Working place)</b>	<b>Authentic assessment's tasks of teachers have been used in reality</b>
Teacher 1: Tran Thi Thuy Huong (Hoa Loc Primary School)	Students prepare by themselves the green and red labels showing their names. Please stick the green labels on rectangular parallelepiped articles, stick the red labels on cube articles in classrooms (Class 5students).
Teacher 2: Dang Thi Huong (Phu Hoa 2 Primary School)	Students are requested to practice measuring their academic tools and selecting the academic tools into positions with corresponding dimensions (Class 3-students).
Teacher 3: Ho Thanh Thuy (Phu Hoa 2 Primary School)	Giving a Maths content on calculating the amount which should be paid when buying goods at the supermarket.
Teacher 10: Dang Thi Nhan (Phu Hoa 1 Primary School)	Using a ruler or footstep to measure the length, width of blackboard, classroom, school yard (Class 3-students) and then comparing and giving remarks on correctness of measurements.

Therefore, most teachers have not really designed the authentic assessment's tasks to conduct the authentic assessment form in reality. The authentic assessment's tasks built by 4 teachers only satisfy several characteristics of authentic assessment's tasks, this is: the task has introduced the requirement that students give the feedbacks by creating the authentic products or meaningful performance in specific circumstance. However, the tasks stated above have not orient the assessment criteria of performance results so that teachers can assess students, or students can self-assess – assess coequally. In addition, the context of each task is unclear, has not created any performance purposes and motives.

For survey questions, the teacher are requested to write the authentic assessment's tasks designing procedure that the teacher has used, consequently 326 teachers replied "No", occupying the ratio of 67.8% and 155 teachers (ratio: 32.3%) introduced the authentic assessment's tasks designing procedure. Several procedures that teachers have replied are stated hereinafter:

### **Procedure 1:**

- Step 1: Identifying targets, objects and time.
- Step 2: Designing contents
- Step 3: Performing
- Step 4: Reckoning, withdrawing experiences.

### **Procedure 2:**

- Step 1: Identifying targets
- Step 2: Preparing plan

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- Step 3: Selecting suitable methods
- Step 4: Assessing and collecting evidences.
- Step 5: Giving judgments
- Step 6: Giving feedbacks to learners.

### Procedure 3:

- Step 1: Identifying the assessment purposes and objects.
  - Step 2: Identifying the assessment time
  - Step 3: Identifying the assessment standards
  - Step 4: Designing the authentic assessment's tasks
  - Step 5: Building the assessment criteria
  - Step 6: Designing rubric table
- Procedure 4:*
- Step 1: Preparing plan and targets
  - Step 2: Teaching tools
  - Step 3: Activities in classroom
  - Step 4: Assessing
- Procedure 5:*
- Step 1: Preparing plan and targets
  - Step 2: Identifying lesson's targets
  - Step 3: Summarizing
- Procedure 6:*
- Step 1: Identifying purposes and objects.
  - Step 2: Identifying means
  - Step 3: Building the assessment contents and assessment tools

Among six procedures introduced by teachers above, the procedure 3 is considered as authentic assessment's tasks designing procedure. The number of students introducing procedure 3 is only 6 teachers, in proportion to ratio of 1.28%. Several teachers introduce the general assessment performing procedure (procedure 2) and several teachers introduce the teaching procedure, including assessment step. Therefore, among 155 teachers introducing the authentic assessment's tasks designing procedure, only 6 teachers give exact procedures, the left teachers mistake between authentic assessment's tasks designing procedure and assessment activity and teaching activity performing procedure in general.

The survey results stated above show that most teachers have known about authentic assessment, but teachers have not really understood clearly about concept of authentic assessment, characteristics of authentic assessment. In addition, teachers have not known about authentic assessment's tasks designing procedure and they have not known any method to design the authentic assessment's tasks for using in reality. Therefore, to conduct this assessment form in reality, teachers should improve their knowledge about concept, characteristics of authentic assessment and authentic assessment's tasks and they also should be guided to design the authentic assessment's tasks according to reasonable procedure.

### 3. CONCLUSION

The innovations of general education's program in general and Maths in particular are extremely necessary. In which, the innovation of assessment activities have significant impact on teaching activities to help education reach the competence development targets for students. The authentic assessment is one of assessment forms satisfying the innovation requirements of general education program and learner competence assessment activity. However, the teachers surveying results on authentic assessment show that the primary school teachers in several primary schools in Binh Duong Province of Vietnam should be equipped more knowledge about authentic assessment and it is also the foundation to propose the authentic assessment performing methods in mathematics teaching reality in the direction of competence development for primary school students.

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