

# Development of Authentic Assessment in TVET

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**Abstract**—Assessment is part of the learning process. Assessment helps students to become more knowledgeable, critical, competent and responsive. Through assessment, the teacher can develop the competencies or talents possessed by each student. The competencies expected and mastered by students after the teaching and learning process are competency, attitudes, skills and knowledge. One emphasis in the 2013 curriculum is authentic assessment, where the assessment carried out is not only the end result but also the process during the learning process. Therefore the teacher must know the mechanisms, procedures and instruments for assessing student learning outcomes in accordance with the competencies to be measured. TVET (Technical and Vocational Education and Training) is education and training that provides knowledge and skills for employment. Ratings in TVET must be valid and reliable. Authentic assessment is one of the assessments that can be used in TVET. Authentic assessment can be stated directly.

**Keywords**—assessment; authentic rating; TVET

## I. INTRODUCTION

Education has a role in developing thinking skills so that it can become a quality human resource. The 21st century, increasing all lines in the education level to prepare qualified human resources [1].

Demand for quality human resources is expected to compete in the global market. Quality human resources are obtained from the educational process that produces students with critical thinking skills. Education is a human need in the 21st century. Achievements and skills are basic needs for the provision of life. One of the thinking skills that demands the 21st century is critical thinking skills. Critical thinking skills are considered the same as scientific thinking skills [2-4]. Critical thinking skills need to be taught in vocational learning as well as skills in the vocational field. Quality education is reviewed from the results or assessment during the learning process. The importance of education must be realized by parents and teachers. Summative assessment is sometimes a reference for parents and teachers to see the competencies that have been obtained by students. Repeat values and report cards become benchmarks to see student achievement. Based on the results of PISA 2009 shows that Indonesian students are only able to level 3 or C3 and are still weak in analysis of application in daily life [5]. Students in the field are in fact still having difficulties in solving the types of problems related to everyday life that require analysis, process, then evaluating the results obtained. The assessment problems faced by teachers

have been in line with several problems in the assessment of student learning outcomes in schools which are described by Kunandar namely, (1) the value given by a teacher to students cannot be compared with the values obtained from other teachers; (2) the results of evaluations carried out by teachers sometimes do not fully describe the achievement of real competencies of students so students who have been declared to master competencies, for example certain Basic Competencies (KD), actually have not mastered these basic competencies; (3) the quality of the instruments or questions produced is still not valid and reliable, because the writing is done in a hurry [6]. Various efforts have been taken by the government to improve the quality of education in Indonesia, one of which is the 2013 National Education Curriculum policy. The 2013 curriculum aims to prepare Indonesian people to have the ability to live as individuals and citizens who are faithful, productive, creative, innovative, affective and able to contribute in the life of the world, nation, state, and world civilization. This curriculum change is expected to be able to create a better education management strategy so that it can produce quality educational output both seen from academic and non-academic qualities.

The 2013 curriculum emphasizes authentic assessment. Authentic assessment is a direct and direct measure [7]. This authentic assessment emphasizes three components in the learning process. The three components are skills, knowledge, and attitude. Measurements include input (input), process and output (output) in learning [8]. Based on the guideline for evaluating the process and learning outcomes of the Directorate of Community Participation, in carrying out authentic assessments the teacher should pay attention to seven criteria, namely: (1) carried out thoroughly to assess the input, process, and output of learning; (2) integrated with learning; (3) assess the readiness, process, and learning outcomes of students as a whole; (4) includes the domain of attitudes, skills and knowledge; (5) relevant to the scientific approach to learning; and (6) not only measuring what is known, but measuring what students do.

Assessment of student learning outcomes is a very important and strategic thing in teaching and learning activities. Learning outcomes assessment can be used to find out how much the success of students is related to mastery of competencies or material taught by the teacher. Assessment can also be used as a reference to see the level of success or effectiveness of the teacher in learning. Assessment of learning outcomes must be carried out well starting from the

determination of instruments, preparation of instruments, review of instruments, implementation of assessments, analysis of assessment results, and follow-up programs on assessment results. A good learning outcome assessment will provide accurate and useful information in improving the quality of the teaching and learning process. Conversely, if there is an error in the assessment of learning outcomes, there will be misinformation about the quality of the teaching and learning process and in the end the true educational goals will not be achieved.

Bruce et al. analyzing various theories concerning authentic assessment found that there were those who stated that authentic assessment was the same as performance assessment [9]. Because, authentic assessment contains authentic tasks that are complemented by assessment rubrics. Another opinion that performance appraisal is part of authentic assessment.

Rubrics are used as a great assessment tool in teaching and assessment. The project scoring sheet rubric using several indicators has a major influence on the reliability of an instrument [10]. Authentic assessment is a form of assessment by asking students to show assignments "Real world" which demonstrates meaningful applications of knowledge, skills, and attitudes [7,11], which they need to use in professional life [12-14].

The results of the study Barorah & Nasrun, show that the application of authentic assessments can improve student honesty in the learning process [15]. Furthermore, research Azim & Khan, in a study entitled "Authentic Assessment: an Instructional Tool to Enhance Student Learning", shows that the implementation of authentic assessment methods is very well appreciated by students [16]. Authentic assessment strongly emphasizes the ability of students' subconscious. Providing information that can help educators in implementing better education and in making decisions regarding the sustainability of study and evaluation of learning programs [17,18].

*This literature review* will focus on reviewing authentic assessments in TVET. The purpose of this *literature review* is to examine relevant journals in depth to learn about the development of authentic assessments in TVET.

## II. THEORETICAL FRAMEWORK

Assessment of learning outcomes must be done well in order to obtain information that is in accordance with the learning process. Inappropriate learning outcomes assessment results in the information obtained is not appropriate so that the actual educational goals are not achieved. Assessment acts as a process, learning progress, and student learning outcomes [19].

Authentic assessment measures, monitors and evaluates all aspects of learning outcomes (which includes cognitive, affective, and psychomotor aspects), both in terms of outcomes and learning processes, can be changes and developments in learning activities, and learning outcomes in the classroom and outside the classroom [7]. Johnson et al. state that, a performance assessment is a system composed of (1) a purpose for the assessment, (2) task (or prompts) that elicit the performance, (3) a response demand that focuses on the

examinee's performance, (4) a systematic method for performance ratings [18]. Performance appraisal is a scoring system consisting of assessment objectives, assignments that are equipped with work instructions, response requests that focus on student performance, and systematic methods that aim to assess the performance of learners.

According to Muslich, "assessments are defined as the process of collecting, reporting, using information about student learning outcomes obtained through measurements to analyze or explain the performance / performance or achievement of students in working on related tasks" [20]. The assessment of learning outcomes carried out by the teacher still uses the assessment method with test techniques only. The method of evaluating learning outcomes with the test technique is not able to measure all aspects of learning because the test can only reveal knowledge competencies [21].

Reynold et al. also suggest that authentic assessment or complex performance appraisal is usually in the form of performance appraisal [17]. In line with what was stated by Wright, that when performance tasks are based on real life, they can exceed the basic minimum school standards [22]. According to Nitko & Brookhart, assessment is a broad term defined as the process of obtaining information used to make decisions about students, curriculum, programs and schools, and educational policies [23].

Assessment is an important thing in the learning proposed by Hyde, which is an assessment that is needed as a whole together with curriculum and learning [24]. Burton, argues that authentic assessment is a set of assessments that connect knowledge with direct practice [25]. Authentic assessment includes a number of assessment techniques that can be done including, skills assessment, product assessment, project assessment, portfolio assessment, self-assessment, peer assessment, written examination, and observation. Each competency needs to be monitored for its development through guiding instructions from an assessment process. Palm, states the assessment process must include all three competencies in knowledge, attitudes and skills [11]. One assessment instrument that emphasizes these three competencies is authentic assessment instruments.

Bruce, et al. state that authentic assessment is used to measure abilities in tasks that represent real-world problems. Understanding of authentic words is indeed very complex and sometimes even leads to several different opinions. Authentic is often used as a reflection of the reality of knowledge students have [26]. One type of assessment used in the 2013 curriculum is authentic assessment. Some authors use the term authentic assessment which is also called alternative assessment [9,17,23,27].

Jabbari, argues that education is not only the provision of information from trainers to students, but the point is that this person needs practical education for some of his tasks [28]. The task considers the industrialization of the manufacturing process, economic development cannot occur without considering technical and vocational education and training (TVET).

Technical education is held in high schools focused on engineering so that graduates can work in vocational high schools. According to Behbahani, Technical education is divided into four fields: general mechanics, marine industry, wood and electricity industry and each accepts trainees in various fields [29]. The field of general mechanics consists of the design and die of buildings, machine tools, the metal industry, heat installation, cooling and cooling, metallurgy, metalworking and mining machinery. The field of marine industry consists of six majors and in 1988, two fields, electronics and marine communications and mechanical motors worked. The fields of installation, ventilation, body repair, electronics, maritime affairs, fisheries and marine trade still do not recognize trainees. The wood industry works in modeling, carpentry and internal decoration. The electricity field consists of telecommunications, electronics and electrical engineering.

Employment-oriented training that is dominant in the vocational education system has been praised by policy makers as an efficient way of reducing unemployment in the productive age [30]. Recent research shows that graduate skills produced vary widely [31]. Skills are very important in finding a job. Hanushek, et al. argue that if calculated new graduates from high school can be a loss in the overall labor market until retirement age [31]. Older age workers with a high level of vocational education are employed compared to workers with strata education level.

TVET has its own features in terms of objectives, structure, nature, and method of implementation. They are separated from general and academic education. "The purpose of the education is to increase knowledge, skills and perceptions and to carry out more quality tasks in the field of work" [32].

Education has various models and one of them is TVET. TVET provides related technology and science for various economic, social and cultural sectors. Education is a mechanism that is presented in order to build the skills needed to obtain special jobs and professions. The following items are features that UNESCO considers for TVET; (a) an integral part of general education; (b) the means of preparing for the field of work and for effective participation in the world of work; (c) aspects of lifelong learning and preparation for responsible citizenship; (d) tools to promote the environment sound sustainable development; (e) methods for facilitating poverty alleviation [33].

TVET when compared to theoretical education is very useful. TVET must be proportional to market needs [34]. TVET is important from various points of view. 1) Studies show that education is very significant throughout the world. Research reports from various countries such as Canada, Saudi Arabia, Kenya, Germany, and Qana are important examples such as Molgat et al. & Baqadir et al. [35,36]

The research findings by Baqadir, et al. show the aspects needed for adjusting such education by working on the following requirements [36]: (a) authentic, practical knowledge of technological developments and trends in manufacturing industries obtained through attendance at workshops and seminars organized by the manufacturing industry; (b) internship: for example the importance of increasing learning through 'entering fields', 'participant observation' and 'portfolio

records of practical aspects of research related to manufacturing'; (c) interpersonal communication skills and critical thinking skills; Azreen and Mohamad also discussed that in TVET, we must consider the work team's skills, critical thinking, problem solving and professional ethics. Practically speaking, assessment of educational needs is a series of procedures and methods applied to determine education priorities [37].

According to Hosnan, authentic assessment is a significant measurement of student learning outcomes for the domain of attitudes, skills, and knowledge [38]. Assessments are carried out from the beginning, the process, until the end of the teaching and learning process in real accordance with the situation being experienced.

Authentic assessment is a form of assessment by asking students to show "real world" assignments that demonstrate meaningful applications of knowledge, skills, and attitude which they need to use in professional life [7,11,14].

### III. METHOD

Three methods of literature search are carried out: searches in four main databases, citation searches, and manual searches in the most relevant international journals. The starting point for literature search is set in 2018. Literature search is conducted from September 2018 to December 2018, using the Scopus database, Sagepub, Google scholar, Eric and Web of Science directives. The quality of articles is ensured by this review, only peer-reviewed documents are included. The keywords used for search are a combination of "authentic assessment", "TVET", "vocational education". The author searches for 100 journals to be reviewed.

Journal Search to add to the author's knowledge of authentic assessments, the search for citations in articles is done, i.e. researchers search the article reference list and look for more relevant articles. Quotation searches that the author did were obtained as many as 30 journals that would be the author of a review of all 100 journals that the author had read. The journal that the author has searched for is read in its entirety until the author finds the most relevant journal to review in this review.

The selected journals are then separated by the following categories: author / date / year, questions / research objectives, methods, material / evidence, arguments / findings, and summary of this journal. The author categorizes this journal to make it easier to systematically review articles. The arguments and findings in the journal are as follows: (1) how authentic assessment in TVET; (2) how the development of authentic assessment of learning. The results will be presented in accordance with these two categories. Each literature category that has been reviewed will be discussed again.

### IV. RESULT

#### A. Authentic Evaluation

Evaluation of the quality of teaching in higher vocational schools is evaluated in class teaching, teaching evaluation and evaluation of professional teaching. One of the most commonly

used, evaluation of teaching and learning activities includes the quality of teachers who teach, the quality of students taught and so on. Teaching evaluation focuses on the teacher. Vocational education aims to develop highly skilled talent to meet market demand, release and practice are key points of fostering students' practical skills in the classroom. Wu, et al. argue that evaluation of vocational school teaching processes places a lot of emphasis on class teaching and theory studies, but practice is a weak part of the evaluation process especially in providing internships for students in factories outside or applying knowledge to practice, people cannot know whether students have acquired skills through actual practices [39]. Teaching activities, to evaluate the quality of teaching and regulate the evaluation of teaching quality as the main part.

Performance-based assessments will be menus and guidelines for orientation learning. While assessments that use rubrics and problem solving models can be a reference in making judgments. Assessment of TVET students is more about performance appraisal which is included in authentic assessment. The framework in the practice of TVET students will be a measuring tool to hone their skills. Mukhtar & Ahmad, revealed that assessments usually have more than one goal and many stakeholders [40]. Assessment provides information that can help improve student learning and assist teachers in teaching. Hill, defines the role of assessment in the same way, but with an emphasis on students achieving their potential [41]: 'The role of classroom assessment is to improve student learning and teacher teaching in order to ensure that students reach their individual potential ...' (p. 136). The teacher must understand that assessment is the most important part of the teaching and learning process.

Vocational education and training have undergone changes in the emphasis of curriculum content with results or competencies. General agreement that at a minimum, competency assessment must clearly determine the purpose of the assessment; use the right method to gather evidence of competence; interpret evidence of competency standards; make an assessment to deduce competency; and record and report the results of assessments to key stakeholders [42]. According to Behbahani, ignored vocation school curriculum planning can result in no match between curriculum content and community needs, student skills, the relationship between skills taught and people who must be taught later and there is no match between skills and theoretical knowledge [29].

Vocational Education Practice (VET) Program, supports the agenda of economic transformation in developing skilled and trained workforce. Actions must be taken to provide new assessments that emphasize mastery of knowledge, build intellectual capital, maintain a culture of progressive attitudes, and encourage the practice of high virtue, ethics, and moral values [40].

Authentic assessment in general is direct assessment. Based on the explanation previously delivered. A journal discusses assessment for learning: TVET practice [40]. The following are the results of the journal. The total number of respondents (Teachers) is 554. 334 male respondents (60.3%) and 220 of them are women (39.7%). The number of Malay vocational teachers is 523 (94.4%), China 11 (2%), India 2 (0.4%), and

others 18 (3.2%). Respondents were between 26 and 55 years old. Focus group participants involved 20 students from vocational schools. The teacher also allows competent students in the module to do the next assignment, and for incompetent students, they repeat the activity until they reach competence (mean = 4:20). The teacher also continues to provide feedback on student achievement during the learning process (mean = 4:31). This good practice needs to be highlighted by the teacher in the assessment process because it can improve the quality of student learning during the learning process.

The results of the study showed that teachers practiced AFL effectively with interpretations of high mean (mean = 3.7-4.31) during CBA implementation in vocational high schools. Teachers and administrators claim that Assessment Competencies between vocational teachers have been effectively implemented, as required by the curriculum. The results of interviews with teachers and administrators found that the assessment had been done very well by students and they were able to assess the level of competency of students, especially students who participated in the implementation of practical work during teaching and process learning.

### *B. Discussion*

Education is a human need in modern times. Achievements and skills are an absolute necessity for the provision of life. Indonesia has implemented a 9-year compulsory education and will develop into a 12-year compulsory education as stated in the 2013 Curriculum Development by Kemdikbud [43]. Parents of students and teachers realize the importance of education. Summative assessment is sometimes a reference for parents and teachers to see the competencies that have been obtained by students. The demand for quality human resources is expected to be able to compete in the global market. Quality human resources are the result of a quality education process. Quality education equips students with the ability to think.

TVET (Technical and Vocational Education and Training) is education and training that provides knowledge and skills for employment. Ratings in TVET must be valid and reliable. Authentic assessment is one of the assessments that can be used in TVET. Authentic assessment can be stated directly.

TVET has played a key role in national education and development which has attracted different names such as Technical Education (TE), Vocational Training (VT), Vocational Education and Training (VTE), Technical and Vocational Education and Training, Educational Work (OE), Internship Training (AT), and CTE Career and Technical Education [44,45].

The Ministry of Education has consistently articulated its commitment to TVET in the National Education Policy (NPE) because of the prospect of poverty eradication, job creation, sustainable development and actualization of the Transformation Agenda [45,46].

TVET is a special education designed to empower students through the development of their technical skills, human abilities, cognitive understanding, work attitudes and habits in order to prepare students adequately for the world of work or their practical position for independent work after graduation

[47]. Aworanti, stated that to improve the quality of TVET, there must be adequate and functional facilities [48]; good student relationship teacher; conducive teaching / learning environment; and is sufficiently centered on environmental students. UNESCO-UNEVOC identified three main types of TVET programs namely formal, non-formal and informal TVET [33].

According to the organization, TVET officially refers to organized vocational education programs provided in approved and structured public education or training institutions (in terms of curriculum, learning objectives and learning time) such that it is a continuous "ladder" where one level leads forward and finally leading to certification. Non formal TVET types of vocational education and training that take place outside the formal school system either regularly or intermittently. This has the advantage of a shorter duration, is specific work and the main emphasis is on acquiring practical skills for direct work. In addition, trade in the informal sector. This is more often referred to as vocational training or learning-based experience and is usually carried out in the form of an apprenticeship system.

Vocational education and training have undergone changes in the emphasis of curriculum content with results or competencies. There is general agreement that at a minimum, competency assessment must clearly determine the purpose of the assessment; use the right method to gather evidence of competence; interpret evidence of competency standards; make an assessment to deduce competency; and record and report the results of assessments to key stakeholders [42].

Factors affecting the Practice of Assessment for Learning (AFL) in a journal discussing assessment for learning: TVET practice [40]. The results showed that the influence of attitudes, infrastructure, and teacher knowledge had been predictors of significant variance for AFL. This illustrates that the most significant factor was the attitude of teachers who were influenced by AFL.

AFL can be broadly defined as a practice that emphasizes more formative dimensions of assessment, tight connections between learning outcomes and teaching activities, greater student involvement in self-assessment, increasing student independence and enhanced teacher responsibility to ensure all students learn. In addition, AFL also involves the process of searching for and interpreting evidence to be used by students and their teachers to decide which students are in their learning, where they should go and the best way to get there [49].

The results showed that the influence of attitudes, infrastructure, and teacher knowledge had been predictors of significant variance for AFL. This illustrates that the most significant factor was the attitude of teachers who were influenced by AFL. Therefore, the results of this study indicate that in general, teacher attitudes influence the practice of AFL. This finding is consistent with Jaba, et al. as Pearson Correlation showing that there is a relationship between interest and attitudes towards mathematics teaching experience for Year One [50]. This research was conducted to identify that the teacher aspects of readiness, interests, attitudes, and mastery of knowledge and skills in implementing the Standard Curriculum Primary School (KSSR).

Journal findings that discuss authentic assessment applied in TVET. The journal shows that there are changes to the competencies needed by students. Authentic assessment also allows students to continue to grow so that they can meet the proportion of the global market. Journals that discuss authentic assessment are very numerous, but here the author gives one example that is examined so as to provide a comprehensive conclusion. Authentic assessment is very suitable to be applied in TVET, so that the assessment conducted directly can produce graduates who meet the proportion of the global market.

## V. CONCLUSION

Curriculum 2013 was developed with a philosophical foundation that provides the basis for the development of all potential students to become quality Indonesian people. Assessments in the 2013 curriculum refer to Permendikbud Number 66 of 2013 concerning Educational Assessment Standards. The assessment standard aims to guarantee: 1) planning student evaluations in accordance with the competencies to be achieved and based on the principles of assessment, 2) implementing student assessment in a professional, open, educative, effective, efficient and in accordance with the socio-cultural context, and 3) reporting student assessment results are objective, accountable and informative. Assessment must be carried out in a planned and good manner starting from the determination of instruments, preparation of instruments, review of instruments, implementation of assessments, analysis of assessment results and follow-up program of assessment results. Teachers can improve the quality of student learning outcomes in attaining competency attitudes, skills and knowledge to the maximum after students have finished following the teaching and learning process.

Authentic assessment is one of the assessments that can be used on TVET. Authentic assessment becomes the teacher's reference to find out how far the success of graduates is to meet the proportion of the global market.

## ACKNOWLEDGMENT

The researcher recommends the principal to align curriculum development programs in the assessment process, so that graduates can compete in the global market. Where, with a good learning process will produce a quality product / graduate.

The role of parents, the environment and the school greatly supports the ability of graduates in global market competition. Graduates must be able to explain learning in schools with the environment. Thus, graduates can compete with global markets in the 21st century.

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