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Environmental Awareness Content for Character Education in Grade 10 in Indonesian Language Student Textbooks

Laili Etika Rahmawati[a], Anggi Niasih[b], Hari Kusmanto[c], Harun Joko Prayitno[d]

Language Style and Meaning in the Lyrics of Bojo Galak by Pendhoza

Laili Etika Rahmawati[a*], Putri Haryanti[b], Hari Kusmanto[c], Tety Bekti Sulistyorini[d]

Language Errors Related to Syntax in the Writing of Explanatory Text by Eleventh Grade Students

Laili Etika Rahmawati[a*], Ninin Asnafia[b], Hari Kusmanto[c], Yakub Nasucha[d], Abdul Ngalim[e]

Determination of Qibla Directions According to Islamic Astronomic Science (Case Study of Qibla Directions in Indonesia)

Hajar[a], Johari[b], Syahpawi[c*]

The Influence of 'Think Talk Write' Model Implementation on the Learning Theme of 'Always Saving Energy'

Murtono[a*], Santoso[b], Sri Utamningsih[c], Anisa Hartani[d]

Regional People's Representative Council (DPRD): Executive or Legislative Institution

Mukarto Siswoyo[a]

Stimulating Innovative Work Behavior among Academics in Private Higher Educational Institutions

Salbeha Ibus[a*], Eta Wahab[b], Fadillah Ismail[c], Rosmaria Omar[d]

Needs Assessment of E-Learning Vocational Education

Unung Verawadina[a*], Nizwardi Jalinus[b], Krismadinata[c], Ratih Widya Nurcahyo[d], Arden Simeru[e]

Examining Career Development of Informatics Engineering Vocational Education Students in the Industrial Revolution 4.0

Yeka Hendriyani[a*], Dochi Ramadhani[b], Torkis Nasution[c], Wilda Susanti[d], Unung verawardina[e]

Implementation of Authentic Assessment on Mechanical Technology Subjects

Waskito[a*], Adila Azmi[b], Hendri Nurdin[c]

The Instructional Media Development of Mechanical Drawing Course Based on Project-Based Learning

Syahril[a], Rahmat Azis Nabawi[b*], Febri Prasetya[c]

The Combined Effects of Perception on Moving Class, Learning Motivation and School Services toward Social Studies Learning Achievement

Salamah[a*], Sriyani Indri Astuti[b]

Development of Digital Practicum Job sheet as Teaching Material in Electronic Engineering

Ilmiyati Rahmy Jasril[a*], Thamrin[b]

Development of Android Based Mobile Learning Media on Computer Assembly at a Vocational High School

Sukardi[a*], Reska Mayefis[b], Usmeldi[c]

The Implementation of Power Electronics Training to Enhance Student Learning Activities in the Power Electronics Learning Process

Oriza Candra[a], Citra Dewi[b], Doni Tri Putra Yanto[c*], Hastuti[d]

Understanding the Practice of Ethical Leadership amongst School Principals: Evidence from Malaysia

Sharmini Siva Vikaraman[a], Azlin Norhaini Mansor[b*], Mohd Izham Mohd Hamzah[c], Nitce Isa Medina[d], Vasanthan Gurusamy[e], Mohamed Yusoff Mohd Nor[f]

The Implementation of Character Education through Local Wisdom Based Learning

Sukadari[a*], Eko Wahyunanto Prihono[b], Charanjit Kaur Swaran Singh[c], Juang Kurniawan Syahruzah[d], Mingchang Wu[e]

Sustainability in Islamic Derivatives for Economic Development Vs. Conventional Derivatives

Chaibou Issoufou[a], Sheikh Muhamad Hizam Hj Sheikh Khairuddin[b], Abdul Razak Abdul Hadi[c]

Customer Expectation in Five Star Hotels in Aqaba Special Economic Zone Authority (ASEZA)

Omar A. Jawabreh[a], Ashraf Jahmani[b], Qusay Q. Khaleefah[c], Ehab Abdul Raheem Alshatnawi[d], Haitham Abdelrazaq[e]

A Financial Analysis on Gillnet Fishery Business in Sangatta District, East Kutai Regency, East Kalimantan, Indonesia

Helminuddin[a], Said Abdusysyahid[b], Qoriah Saleha[c]

Values of the Authority of Local Art Coaches as a Source of Learning for Multicultural Education

Triyanto[a], Mujiyono[b], Eko Sugiarto[c]

Information Technology as an Influence on Motivation in order to Increase Lecturer Performance

Ulfah Mediaty Arief[a*], Haryono[b], Dwi Yuwono Puji Sugiharto[c], Achmad Rifai[d]

Moral Value of Holy Stories in the Kudus as Teaching Material in Literature Learning

Suseno[a], Zuliyanti[b]

Relevance of Local Wisdom in Rural Judiciary for Indonesian Societies

Indah Sri Utari[a*], Rodiyah[b], Diandra Preludio Ramada[c], Syukron Salam[d]

Character Value in Japanese Early Childhood Formed through Hajimete No Osaka (First Errand)

Ai Sumirah Setiawati[a]

The New Meaning of State Control of Electricity and Its Impact on the Supply of Electricity in Indonesia

Suhadi[a*], Yusriyadi[b], FX. Adji Samekto[c]

Technology Assessment as a Form of Inclusive Communication Approach to Access Information from Village Web in Central Java, Indonesia

Nuryanti[a], Subejo[b], Roso Witjaksono[c], S.Bekti Istiyanto[d], Mochamad Fathoni[e]

Learning Management based on E-Learning in STMIK Muhammadiyah Jakarta

Hamid Al-Jufri[a]

A Marketing and Financial Analysis of Milkfish (Chanos chanos) and Giant Tiger Prawn (Penaeus monodon) Farming in East Kalimantan

Helminuddin[a], Elly Purnamasari[b], Said Abdusysyahid[c]

When the Eagle Becomes the King of the Forest: An Analysis of US Intervention on Terrorism in Southeast Asian Countries

Ridwan Arifin[a*], Ali Masyhar[b], Rodiyah[c], Muhammad Azil Maskur[d], Januari Nasya Ayu Taduri[e]

Discourses of the Anti-Indonesian Communist Party and Its Reproduction in High School Textbooks during the New Order (1967-1998)

Hieronymus Purwanta[a], Victor Novianto[b]

A Comparative Study of Emotional Intelligence between Deaf and Other Students and Its Correlation to Gender Variables

Ziyad Kamel Ellala[a], Saeb Kamel Ellala[b]

The Sociology of Refugee Migration in the Arab World

Hussein Salem Al-Srehan[a]

The Resurrection of a Hindu Archipelago: Contemporary Identity Politics in Bali

I Putu Gede Suwitha[a]

Transformation of Innovation Values and Culture: Innovation Analysis of Regional Planning System in Special Region of Yogyakarta, Indonesia

Alih Aji Nugroho[a*], Neneng Sri Rahayu[b]

Looking at Aesthetic Values and Ethics in Syiir

Agus Nuryatin[a], Muhamad Burhanudin[b]

The Relationship between Muslims and Christians in Indonesia: Conflict and Tolerance

Kasno[a]

Spiritual Leadership, Job Stress, Job Satisfaction, and Work Motivation in Teaching Performance

Darmawati[a*],Sri Melfayetti[b]. Selamet Triono Ahmad[c]

Implementation of Authentic Assessment on Mechanical Technology Subjects

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The assessment of learning outcomes applied to the 2013 Curriculum for Vocational High Schools has various types of assessments that are matched to the learning objectives of each subject. One of the assessments recommended for implementation was authentic assessment. By applying authentic assessment, student learning outcomes will show good performance. However, based on the data obtained from in SMK Negeri 1 West Sumatra, student learning outcomes show unsatisfactory results. It is assumed that this occurred due to the application of less than optimal authentic assessment techniques . As a result, , research is conducted to find out (1) how teachers conduct authentic assessments, and (2) what obstacles are experienced by teachers in implementing authentic assessment techniques. In order to answer the research questions, a descriptive research method was used which was conducted from 27 August, 2018, to September 29, 2018. The research information was taken from the vice-principal academic affair, Mechanical Technology teachers , and students from Class X in Mechanical Engineering. The data collection uses interviews, observations and documentation techniques. The data analysis incorporates data reduction, data presentation, and conclusion drawing. The analysed data has passed the data validity test with member check and data triangulation. The results of the study show that: (1) teachers' knowledge about authentic assessment is quite developed, however there are still many teachers who have not applied the assessment technique to the subjects they teach, (2) The reason teachers do not use authentic assessment techniques is because they think they require design lesson plans and assessment techniques, and take up a lot of their time.

Key words: *Authentic assessment, Mechanical Technology, Vocational high school.*

Introduction

Teachers are professional educators whose main tasks include educating, teaching, guiding, directing, training, and evaluating students in early childhood education through formal, primary and secondary education (Undang-undang Republik Indonesia Nomor 14 Tahun 2005 pasal 1). Therefore, it is clear that the teacher's is not only to teach in front of the class but to also assess the performance of students related to the learning material provided. By conducting an assessment, the teacher can find out the extent to which students have mastered the learning material and what actions should be given to students who have not done so.

There are many assessment techniques that teachers can use in measuring student performance (Mokshein et al., 2015). The teacher can choose assessment techniques that are appropriate to the learning goals previously set, that is, assessment techniques and the use of assessment instruments must be in accordance with teaching material and learning objectives. If the two (assessment techniques and use of instruments with teaching materials and learning objectives) are not appropriate, the results will be biased (Yusuf, 2017; Gronlund, 1981; Ambiyar, 2012; Jalinus, Syahril and Nabawi, 2019).

The 2013 Curriculum is the latest Curriculum implemented by schools in Indonesia, including vocational high schools. Prior to that, competency-based Curriculum was in effect (Waskito, 2010). One of the assessment techniques suggested by the 2013 Curriculum is Authentic Assessment, which is a comprehensive assessment to evaluate learning inputs, processes and outputs (Permendikbud Number 66 of 2103). At the same time, the National Curriculum Centre states that authentic assessment is a process of collecting, reporting, and using information about student learning outcomes by applying the principles of assessment, ongoing implementation, authentic, accurate, and consistent evidence as public accountability (Pusat Kurikulum, 2009). The assessment standard in the 2013 Curriculum 2013 refers to Permendikbud Number 23 of 2016 concerning Education Assessment Standards, which includes criteria regarding the objectives, principles, scope, mechanism, benefits, procedures, and instruments of student learning outcomes assessment.

According to Sunarti and Selly Rahmawati (2014), the modern pedagogic dimension in learning in the 2013 Curriculum uses a scientific approach. An authentic assessment is conducted at the end of the implementation of this scientific approach . Kunandar (2015) maintains that authentic assessment in the 2013 Curriculum 2013 aims to assess learners who focus on what teachers should be assessed on in real terms, both in the form of processes and results with a variety of assessment instruments and techniques that are adjusted to the applicable competencies. Meanwhile, according to Permendikbud, Number 104 of the 2014 authentic assessment is an assessment technique that expects students to demonstrate attitudes,

knowledge and skills obtained from the learning process in carrying out work in actual circumstances.

Authentic assessment in the 2013 Curriculum becomes very important as in assessing learning outcomes, teachers must understand and apply authentic assessment in each learning process carried out. However, many teachers complain about applying authentic assessment. This has been noted in schools since the enactment of the 2013 Curriculum . Some teachers' complaints include: firstly , teachers' difficulty to master the understanding of Core Competency and Basic Competence. Secondly, teachers feel less trained to implement the 2013 cCurriculum 2013 in their learning activities. Thirdly, the absence of a final syllabus makes it difficult for teachers to draw up their lesson plans. Finally, teachers' complaints are related to the order of the material in the lesson. This complaint has started to be resolved by the Government, but , techniques are still unresolved properly for authentic assessment

An authentic assessment component is considered too extensive to make implementation difficult , teachers find it difficult to allocate time and energy to carry out the teaching and assessment process. The teacher is accustomed to focusing only on cognitive assessment (knowledge) obtained from midterm test results or midterm tests (UAS). Destia Rilla (2016) argues that obstacles that exist in the implementation of authentic assessment include (1) the teacher not being familiar with authentic assessment, (2) the teacher having difficulty in detailing student grades because there is too much content in one class , (3) Teachers have difficulty in writing student grades in the computer, (4) Teachers have difficulty in preparing an assessment format.

Vocational high schools (SMK) are educational institutions that aim to produce graduates who are work ready . In order for the Curriculum to provide material about knowledge, attitudes and skills with a different composition from public schools. The material content of the skills is more dominant at 70% compared to theoretical material at 30%. With such learning conditions, , assessment techniques must also be adjusted. The application of authentic assessment in vocational schools is different from public schools, both in the content and format of assessment.

Based on observations at SMK Negeri 1 West Sumatra during Semester 1 of the academic year 2017/2018, teachers have still not applied authentic assessment techniques to the assessment of learning outcomes in the subjects they care about. This study specialises in observations of Mechanical Technology subjects which is one of the subjects in the field of expertise of Machining Class X in SMK Negeri 1 West Sumatra. This subject is very important for students as it is the basis for learning other subjects. There are two types of learning in Mechanical Technology subjects include , theory and practice. Based on the syllabus of Mechanical Technology subjects, each meeting consists of 4 hours, and in one semester consists of 20

meetings. Some of the materials available in Mechanical Technology subjects include : (1) Heat Treatment, which consists of learning materials about heat treatment on metals that can affect physical characteristics and properties as well as the mechanical properties of metals, (2) Metal Testing, that is the testing of metals to find out their nature and characteristics. The material learned is in the form of understanding how to test metals by means of damage and non-damage such as tensile , hardness , arch and notch testing. Non-destructive tests include x-ray irradiation , ultrasonic and radiographic testing, (3) Material Handling, which refers to material that studies the meaning of material handling, material handling objectives, material handling methods and various types of material handling.

Methods

This research uses descriptive qualitative research methods regarding the implementation of authentic assessment of the 2013 Curriculum of Mechanical Technology subjects in class X Machining students in SMK Negeri 1 West Sumatra. The respondents consisted of one person representing the Curriculum, as many as two subjects of Mechanical Technology subjects and Grade X students of Machining Engineering. This research was conducted at the West Sumatra 1 Vocational High School at Jalan M. Yunus Lubuk Lintah Kuranji District, Padang City. It was conducted during Semester IX of lectures and coincided with the first Semester at SMK Negeri 1 West Sumatra during the 2018/2019 academic year. This research started on 27 August , 2018 until 29 September, 2018.

Data collection techniques include the observation of the learning situation and assessment techniques used by teachers in providing learning assessments, interviews with vice principals in the field of Curriculum and teachers who conduct the teaching of subjects , as well as the documentation of instruments and student learning outcomes at SMK Negeri 1 Sumatera West. The instrument was developed with reference to the following aspects and indicators:

1. Understanding Aspects of Assessment in the 2013 Curriculum 2013, with indicators (1) Definition of Authentic assessment , (2) Characteristics of the Authentic Assessment of the 2013 Curriculum , (3) Competencies of Authentic Assessment in the 2013 curriculum , (4) Barriers to Authentic Assessment of the 2013 Curriculum .
2. Elements of Attitudes, with indicators including (1) Observation, (2) Self-Assessment, (3) Interfaith Assessment.
3. Elements of Knowledge , with indicators such as (1) Written Test, (2) Oral Test, (3) Assignment Test
4. Skills, with indicators of (1) Performance, (2) Projects, (3) Portfolios

The model used is data analysis according to Miles and Huberman, data collection, reduction, data display, and conclusion drawing/verification.: (Sugiyono, 2014)

Figure 1. Research method
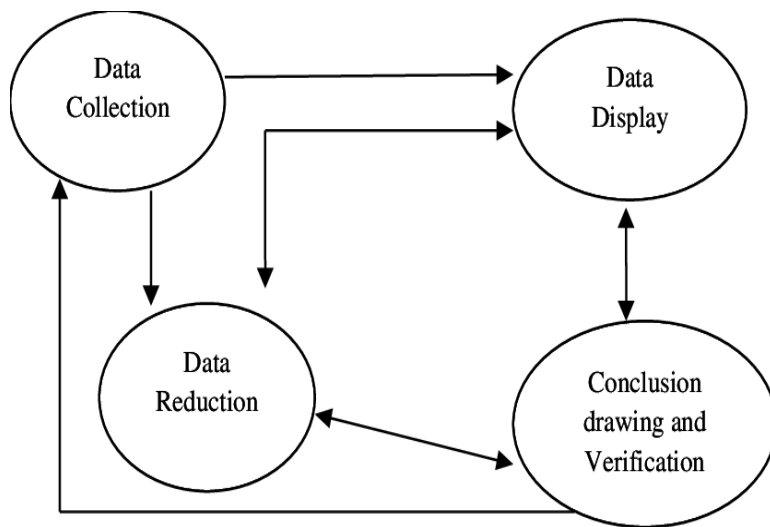
In this study, data collection techniques referred to the observation of the learning situation and assessment techniques used by teachers in providing learning assessments, interviews with vice principals, academic business and teachers who conduct the teach , as well as documentation of instrumentation and student learning outcomes .

The validity of the data is tested by means of the credibility test using the following techniques (1) Member Check, that is the process of checking the data obtained by the researcher to the respondent through the results of the interview data signed by the respondent. (2) Data Triangulation Technique, which refers to a data checking technique that uses something other than data for examination purposes or as a comparison of data. The triangulation technique used by researchers include in this study is source triangulation and triangulation techniques. (1) Triangulation of sources is a technique is a method of testing the credibility of data using respondents or various sources such as the academic business of the Vice-principal, teachers, and students. (2) Triangulation of techniques, is a way of examining data by comparing the results of data from interviews with observational data and documentation.

Result and Discussion

Authentic assessment greatly emphasises the characteristics of the 2013 Curriculum 2013 as the Curriculum aims to enable students to have the competency s of attitudes, knowledge, and skills as expected and in accordance with the level of education . Therefore, the knowledge of teachers and vice Curriculum academic business about authentic assessment is considered to be very important so that its implementation can be in accordance with its objectives. The results of measurements conducted by researchers related to the knowledge level of Vice-Principal academic business and teachers regarding authentic assessment score of 62.96% for

extensively knowing, 33.33% for knowing, 3.70% for lesser knowing and 0% for not knowing. These results indicate that teachers and the Vice-Principal are already familiar with authentic assessment.

Authentic assessment techniques contained in attitude competency refer to observation, self-assessment, and peer-to-peer assessment. The results show that the teacher had carried out observation evaluation techniques and for self-assessment and peer-to-peer assessment the teacher carried out the evaluation at the end of the Semester. In the observation assessment technique, the teacher carries out the observation assessment technique by directly observing students using the format provided while taking notes . The obstacles experienced by the teacher in implementing this observation technique are the availability of less time and the fact that teachers often forget to record the value of student attitudes. Based on the overall results of the implementation of attitude competency assessment, it appears that the teacher has not carried out the authentic assessment of attitude competency.

The Authentic assessment techniques are contained in the knowledge competence in the form of oral and written tests and assignments. Based on the results of the study, teachers carried out all three knowledge competency assessment techniques, though not perfectly. In the written test assessment technique, the way the teacher carries out the assessment by displaying questions in the form of essays or objectives on the board, projector LCD or directly read by the teacher. Obstacles experienced by teachers in written tests, including supervising and controlling students responding to questions. In oral test assessment techniques, teachers carry out assessment techniques by directly asking students. Barriers experienced by teachers in oral tests include students finding it difficult to answer questions and teachers frequently forgetting to record student grades. In the assignment assessment technique, the way teachers carry out assessment techniques is by asking students to create papers or material on the Internet. The obstacle experienced by the teacher in the assignment is that students are not serious about their work and are afraid to appear in front of the class. Based on the overall implementation of the knowledge assessment it appears that teacher have conducted the assessment effectively, but have not paid attention to being guided by authentic assessment.

The authentic assessment techniques contained in skill competencies include performance , project and portfolio appraisal. The results show that it has not been possible to apply performance appraisal to Mechanical Technology subjects and project appraisal accordingly. Teachers argue that the limitations of the available tools are to carry out inadequate practice and cause inability to conduct performance and project appraisal. Finally, the teacher only carries out this assessment technique by asking students to do a demonstration, based which the teacher grades students' skills. Assessment of the teacher's portfolio has not been implemented at all and teachers maintain that portfolio assessment techniques are not yet needed.

The authentic assessment conducted by the teacher has faced obstacles in its implementation. These obstacles cause the implementation of the 2013 Curriculum to be unsuccessful so that the objectives to be achieved in the 2013 Curriculum are not as expected. The results of the study obtained information on the obstacles experienced by teachers including: (1) Not being familiar with and lack of willingness of teachers to apply and learn authentic assessment contained in the 2013 Curriculum (2) The number of assessment techniques and the time required contained in the authentic assessment which overwhelms teachers (3) The learning device that is demanded must be ready before starting beginning the teaching which forces teachers to procrastinate in making the learning device. The obstacles experienced by these teachers can be overcome by: (1) Teachers frequently attend 2013 Curriculum and training courses held by the government and schools so that teachers are accustomed to assessments that exist in authentic assessments and will increase teachers' desire to understand and apply authentic aassessments in their learning, (2) teachers divide teaching time and carry out assessments effectively so that there is no reason teachers are overwhelmed in carrying out authentic assessments (3) teachers are required to be professional in preparing all learning devices before starting the learning process, so there is no reason for procrastination when preparing learning tools that result in the teacher not optimally carrying out the authentic assessment.

Conclusion

The results of measuring the level of knowledge of the Vice-Principal academic affair and teachers on authentic assessment receive a score of 62.96% for extensively knowing, 33.33% for knowing, 3.70% for lesser knowing, and 0% for not knowing. Therefore, it can be concluded that the Vice-Principal academic business and Mechanical Technology subjects at SMK Negeri 1 West Sumatra are already know familiar with authentic assessment of Curriculum 2013.

Implementation of the authentic assessment for knowledge, attitudes and skills carried out by teachers of Mechanical technology have not been maximised in accordance with those in authentic assessment guidelines. In the new attitude assessment, the teacher only evaluates observations while self-assessment have not been implemented. In the teacher assessment, all three assessments including oral and written tests as well as assignments are carried out. For the assessment skills, the three assessment techniques namely performance, projects, and portfolios have not been implemented by the teacher (Hoe, 2013).

Barriers experienced by teachers in carrying out authentic assessment of the 2013 Curriculum include: (1) Not being accustomed to and lack of teacher interest in implementing and learning authentic assessment contained in the 2013 Curriculum (2) The number of assessment techniques and the time required contained in the assessment authentic that overwhelms

teachers , (3) The required learning device must be ready before beginning teaching, as they are accustomed to procrastinating in making learning devices.

In order to overcome these obstacles, the teacher must arrange and allocate good time management in conducting observations and teaching, focusing and dividing students who will be observed in each learning meeting, and always looking at notes or assessment sheets before concluding the teaching so as not to forget to record student grades. Teachers are expected to immediately carry out self-assessment and peer-teacher assessment, without procrastination. Schools must complete facilities and supporting tools for student practice activities so that the implementation of authentic assessment in the 2013 Curriculum, particularly relating to skill competencies can be effectively completed .

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