Development of AKM Type Questions (Asesmen Kompetensi Minimum) Containing Ethnoscience Based on CBT (Computer Based Testing) (Case Study: Creative Industry of Jepara District)

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Keywords	Abstract
AKM, Ethnoscience, CBT	The challenges of the industrial revolution 4.0 encourage curriculum development to equip students with 21st century skills, such as critical thinking skills, creativity and digital literacy. It was recorded that Indonesia's 2018 PISA ranking in terms of literacy was unsatisfactory. Therefore, the National Examination was replaced with a Minimum Competency Assessment (AKM) so that students' literacy skills are better honed. This research focuses on developing AKM type questions based on CBT (Computer Based Testing) (Case Study: Jepara Regency Creative Industries). It is hoped that from this research, students can think more critically, creatively and innovatively in solving problems. The questions consist of 40 questions with 5 types, namely multiple choice, complex multiple choice, description, short answer, and matching. Tested on 39 class XI students of Muhammadiyah 2 Mayong High School using a random sampling method. Based on the feasibility test of the question instrument, the result was 92.03 with the category very suitable for use. Meanwhile, for the validity test results, the score was 0.316 in the valid category, reliability 1 in the reliable category, difficulty level 0.24 and differential power 0.46 in the good category.

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INTRODUCTION

Education is the main foundation for building a nation because education is used as a benchmark for determining the quality of human resources. (Airlanda, 2016). Whether or not the quality and achievement of education internationally is good or bad can be measured through PISA (Program for International Student Assessment). It was noted that Indonesia's PISA ranking in 2018 in terms of literacy was ranked 72nd, science was ranked 70th, and numeracy was ranked 72nd out of 78 countries (OECD, 2019). This shows that the science, literacy and numeracy abilities of Indonesian students are still very low. In fact, science, literacy and numeracy skills are the basic provisions that students need to carry out all aspects of life (Yasukawa and Wickert, 2020). Of course, this needs to be improved by improving the quality of Indonesian education.

The quality of education can be improved by improving the curriculum system. In order to improve the quality of Indonesian education, the Indonesian Ministry of Education and Culture published the 2013 curriculum to replace the 2006 Education Unit Level Curriculum (KTSP). In the 2013 curriculum, learning is oriented towards cognitive (knowledge), psychomotor (skills) and affective (attitude) abilities. (Kurniaman and Noviana, 2013). The 2013 curriculum has a comprehensive assessment system for students (Kemdikbud, 2014).

This orientation is highly emphasized because Indonesian students can achieve 21st century skills which emphasize add values abstraction system thinking experimentation and test and collaboration (Pratiwi, 2019). If 21st century skills are mastered by students, students' science, literacy and numeracy abilities will also increase.

However, so far 21st century skills have not been achieved in Indonesia because in the learning process itself, students are only required to pay attention to results. Learning is often textual and rarely linked to everyday life (Parmin and Fibriana, 2019). Moreover, during the Covid-19 pandemic, the majority of learning was carried out online (on the network). As a result, students do not really understand the material because of the lack of interaction between students and teachers.

Efforts to increase students' understanding of subject matter can be done by integrating learning with local wisdom. Learning that uses local wisdom as a learning resource is called ethnoscience-based learning (Pertiwi, Solfarina, and Langitasari, 2021). Based on research conducted by Sumarni and Supanti (2021), ethnoscience-based learning can improve learning outcomes and students' interest in learning because students understand the material more easily if it is based on local wisdom. Learning methods that utilize local wisdom are also known as ethnoscience-based learning.

Of course, if ethnoscience-based learning is carried out, then assessments or assessments must also be adjusted to the learning. In 2021, the national exam will be replaced by the Minimum Competency Assessment (AKM). This change aims to improve the quality of Indonesian education by increasing students' literacy and numeracy skills.

Meanwhile in Indonesia itself, the Ministry of Tourism and Creative Economy (Kemenparekraf) launched a Creative Economy program. Therefore, to support this program, it would be good if the AKM questions were also linked to the creative economy so that students are more familiar with the creative economy. The creative industry in Jepara has become a characteristic inherent in Jepara Regency so that it has become a local wisdom of Jepara Regency. Of course, this potential can be developed to create ethnoscience-based AKM questions.

The development of questions is considered important because it is to keep up with current developments and to train the development of students' way of thinking (Widhiyani, et al., 2019). Likewise, the AKM issue must continue to be developed. The development of AKM type questions containing ethnoscience uses the Google Form CBT (Computer Based Testing) system because it is easy to access anywhere, is more effective in the evaluation process, especially scoring automation, and makes data analysis easier (Abiyar, Hamzah, Purwati, and Saputra, 2019; Elzainy, Shadik , and Abdulmonem, 2020).

METHOD

The procedure for developing the AKM type questions for the ethnoscience-based CBT model in this research refers to the 4D development model by Thiagarajan (Thiagarajan, Semmel, & Semmel, 1974) and (Hasyim, 2016) which consists of 4 stages, in this research, namely: Define; Design; Develop; and Disseminate.

The instruments used in this research include:

Test

The test instrument is in the form of an ethnoscience-based AKM type CBT model question test instrument. The test consists of 40 test instruments consisting of multiple choice, complex multiple choice, matching, description and short description test instruments.

Questionnaire

The questionnaires used in this research include feasibility test questionnaire. The feasibility test questionnaire functions to determine the feasibility level of the chemical assessment test instrument AKM type, ethnoscience-based CBT model. There are 3 validators to assess this assessment who are experts in the media and material fields.

RESULT

Instrument Validation Results

Table 1. Validation result of questions AKM Test

Indicator	Score	Category
Appropriateness of content	91,39%	Very Worthy
Suitability of Presentation	93,06%	Very Worthy
Linguistic Feasibility	88,43%	Very Worthy
Graphic Eligibility	100%	Very Worthy
Score Average	92,49%	Very Worthy

In research on the development of AKM (Minimum Competency Assessment) type questions containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries), before the questions were tested on students, the question instruments were tested for feasibility first. The feasibility of the question instrument was carried out by 3 teachers from the fields of Physics, Chemistry and Mathematics who had a minimum educational background of Masters (Master's Degree). The feasibility test for the question instrument consists of 4 criteria, namely appropriateness of content, appropriateness of presentation, appropriateness of language, and appropriateness of graphics. The following is a brief example of a stimulus and an example of an AKM (Minimum Competency Assessment) type question containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries).

Based on the content feasibility test, the AKM (Minimum Competency Assessment) type question instrument containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries) is considered very feasible. These criteria are assessed from several indicators of content suitability, including suitability, accuracy, up-to-dateness, AKM question criteria, and material up-to-dateness. Development of AKM (Minimum Competency Assessment) type questions containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries), stimulus and case studies taken from the results of literature studies and direct interviews with creative industry entrepreneurs in Jepara Regency such as pottery entrepreneurs , smoked fish, carving, weaving and batik. Then, from these results a stimulus was created in the form of reading in the form of a paragraph. The stimulus is used as a reference in creating contextual questions. Based on this, it can be said that the AKM (Minimum Competency Assessment)

type questions containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries) are very feasible because the questions are contextual and can be found in everyday life, especially industries in Jepara Regency. The use of stimuli based on facts found in everyday life can trigger students to think critically, foster a spirit of learning, and better understand concepts (Romadoni and Rudhito, 2016).

Apart from that, AKM questions containing CBT-based ethnoscience are High Order Thinking Skills (HOTS), so they can trigger students to solve problems. The problem solving process is very important to apply to students because it can train students to be ready to face problems in everyday life and the future (Jayanti, et al., 2018). Moreover, the questions have 5 types so that students' thinking abilities can be better honed. This is in line with 21st century learning and assessment making which emphasizes critical thinking/problem solving, creativity/innovation, communication, collaboration and global awareness (Widhiyani, et al., 2019).

Meanwhile, in terms of feasibility of presentation which can be seen in Table 1.1, it can be concluded that the AKM (Minimum Competency Assessment) type questions based CBT (Computer Based Testing) containing ethnoscience (case study: Jepara Regency Creative Industries) are considered very feasible. This is because the presentation techniques used in creating the questions are coherent, systematic and interesting. The questions are made based on the rules for making questions so that the questions produced meet the standards (Anawati, 2010). The question paper contains a grid, questions, scoring guidelines, answer key and discussion. The set of questions was created based on Basic Competency (KD) on AKM questions and high school mathematics, physics and chemistry subjects from class X to class XI. Then the questions are tested online using Googleform media so that it is easier for students to work anywhere (Abiyar, Hamzah, Purwati, and Saputra, 2019; Elzainy, Shadik, and Abdulmonem, 2020).

Based on the results of the linguistic feasibility test calculations which can be seen in table 1.1, it was found that the AKM (Minimum Competency Assessment) type questions containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries) were considered very feasible. This is because the language used in the questions is in accordance with good and correct Indonesian language rules and is guided by PUEBI (General Guidelines for Indonesian Spelling) published by the Language Development and Development Agency of the Ministry of Education and Culture (Indonesian Language Development Team, 2016). Writing questions according to PUEBI is considered very important so that there are no spelling errors or misconceptions in the questions (Fauzi, et al., 2019).

The final analysis is graphic feasibility. Based on the graphic feasibility analysis which can be seen in table 1, it was concluded that the AKM (Minimum Competency Assessment) type questions containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries) were considered very feasible. This is because the question screen display on Google Form is comfortable and interesting to look at so that students are more interested and find it easier to work on the questions. The type of font used on the screen display is basic. The influence of visual displays on CBT media, namely using attractive Google forms, can motivate students to enjoy learning and working on questions (Hamzah, et al., 2012).

Based on this analysis, it can be concluded that overall the AKM (Minimum Competency Assessment) type questions containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries) are considered very suitable for use as an assessment tool for Muhammadiyah 2 Mayong High School students with a score 92.03%.

Validity Test Results

Based on the results of trials of AKM questions containing ethnoscience based on CBT (Computer Based Testing) (Case Study: Jepara Regency Creative Industries) on 39 students of SMA Muhammadiyah 2 Mayong and the calculation of the question validity test stated that the AKM questions based on ethnoscience were valid with a score of 0.316. Apart from that, the ethnoscience-based AKM questions are reliable with a score of 1 and difficulty level of test result is 0,24 with category difficult.

Effectiveness of Developing AKM Type Questions Containing Ethnoscience Based on CBT (Computer Based Testing) (Case Study: Jepara Regency Creative Industries)

Based on the research results, it was found that the effectiveness of developing AKM (Minimum Competency Assessment) type questions containing ethnoscience based on CBT (Computer Based Testing) (Case Study: Jepara Regency Creative Industries) was considered effective in being implemented at SMA Muhammadiyah 2 Mayong. This is because the questions are made based on the reference for the development of AKM questions published by the Pusmenjar (Assessment and Learning Center) of the Ministry of Education and Culture. Apart from that, the questions are contextual, HOTS, and based on facts in the creative industry environment of Jepara district. Making contextual questions is considered to be able to develop students' way of thinking to be more creative, effective and innovative (Tilaar, 2012).

Apart from that, based on trials conducted on 39 students of Muhammadiyah 2 Mayong High School, the results showed that the questions were difficult. This means that AKM (Minimum Competency Assessment) Type Questions Containing Ethnoscience Based on CBT (Computer Based Testing) (Case Study: Jepara Regency Creative Industries) can be said to be HOTS type questions that require complex and creative solutions based on students' thinking. Based on this, the questions can be used as a benchmark to measure students' abilities in problem solving (Widhiyani, et al., 2019).

CONCLUSION

Development of AKM (Minimum Competency Assessment) type questions containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries) which are very suitable for use as an assessment tool for Muhammadiyah 2 Mayong High School students with a score of 92.03%. Beside that, development of AKM (*Asesmen Kompetensi Minimum*) type questions containing ethnoscience based on CBT (Computer Based Testing) (case study: Jepara Regency Creative Industries) which can be effectively used as an assessment tool for Muhammadiyah 2 Mayong High School students.

REFERENCES

Agustin, N., Sudarmin, Sumarti S.S, dan Addiani A.K. (2018). Desain Instrumen Tes Bermuatan Etnosains untuk Mengukur Kemampuan Berpikir Kritis Siswa SMA. *Jurnal Inovasi Pendidikan Kimia,* 12(2): 2159-2169

Airlanda, G.S. (2016). "Analisis Kualitas Pendidikan Ditinjau dari Penerapan Kebijakan Sekolah Gratis di SMA Negeri 1 Weru Kabupaten Sukoharjo". *Jurnal Pendidikan Sais,* 4(1): 43-50.

Ambiyar, Hamzah, M.L., Purwati, A.A., dan Saputra E. (2019). Computer Based Test Using Tcexam As An Instrument Learning Evaluation. *International Journal of Scientific & Technology Research,* 8(9): 1066-1069.

Arifin, Z. (2013). *Evaluasi Pembelajaran*. Jakarta: Remaja Rosda Karya.

Arikunto, S. (2013). *Dasar-dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara Atmojo. (2012). Profil Keterampilan Proses Sains dan Apresiasi Peserta didik Terhadap Profesi Pengrajin Tempe Dalam Pembelajaran IPA Berpendekatan Etnosains. *Jurnal Pendidikan IPA Indonesia*, 1(2): 115-122.

Azimi, Rusilowati, A. dan Sulhadi. (2017). Pengembangan Modul IPA Berbasis Literasi Sains untuk Siswa Sekolah Dasar. *Pancasakti Science Education Journal,* 2(2): 145-158.

Bahriah, dan Sapinatul, E. (2015) 'Peningkatan Literasi Sains Calon Guru Kimia Pada Aspek Konteks Aplikasi Dan Proses Sains', *Edusains*, 7 (1).

Battiste, M. (2005). *Indegenous Knowledge: Foundation for First Nations*. Canada: University of Saskatc hewan. Email: mare.batiste@usask.ca.

Batubara, H.H.(2016). Penggunaan Google Form Sebagai Alat Penilaian Kinerja Dosen di Prodi PGMI UNISKA Muhammad Arsyad Al Banjari. *Jurnal Al- Bidayah (UNISKA).*8 (1).

Bray, M et al. (2019). The Challenges of Measuring Outside-School-Time *Educational Activities:Experiences and Lessons from the Programme for International StudentAssessment (PISA).* Source:http://www.oecd.org/pisa/data/CY6_QST_MS_ECQ_Final.p df (diunduh pada 5 April 2021).

Caro, D dan Kyriakides, L. (2019). Assesment Design and Quality of Inferences in PISA: Limitation and Recomendtion for Improvement. *International Journal of Assesment in Education: {rinciple Policy and Practise,* 26(4): 363-368.

El Islami, R. Ahmad Z., Nahadi, dan Anna P. (2018). 'Hubungan Literasi Sains dan Kepercayaan Diri Siswa Pada Konsep Asam Basa', *Jurnal Penelitian Dan Pembelajaran IPA*, 1 (1).

Elzainy A., Sadik, A.L., dan Abdulmonem, W.A.(2020). Experience of E- Learning And Online Assessment During The COVID-19 Pandemic At The College of Medicine, Qassim University. *Journal of Taibah University Medical Science,* 15(6): 456-462.

Fauzi, N.B., Maulfi S.R., dan Muhammad F.R. (2019). Analisis Kesalahan Ejaan dan Kalimat Dalam Skripsi Mahasiswa Universitas Brawijaya Sebagai Dasar Penentuan Strategi, Tujuan, dan Bahan Ajar Mata Kuliah Bahasa Indonesia Di Universitas Brawijaya. *Jurnal Pendidikan Bahasa dan Sastra Indonesia,* 4(1): 36-41.

Hake, R.R. (1999). *Analyzing Change/Gain Scores*. Woodland Hills: Dept of Physics, Indiana University.

Hamzah, A.A., Achmad S., dan Ifa S.M. (2012). Pengaruh Tampilan Visual Terhadap Motivasi Belajar Berdasarkan Kategori Website E- Learning. *Seminar Nasional Aplikasi Teknologi Informasi*. Yogyakarta.

Imansari, M., Sudarmin, dan Sumarni W. (2018). Analisis Literasi Kimia Peserta Didik Melalui Pembelajaran Inkuiri Terbimbing Bermuatan Etnosains. *Jurnal Inovasi Pendidikan Kimia,* 12(2): 2201-2211.

Ismawati, R. (2017). Strategi REACT dalam pembelajaran Kimia SMA. *Indonesian Journal of Science and Education,* 1(1): 1-7.

Jayanti, M.D., Edy B.I., dan Santi I.R. 2018. Kemampuan Pemecahan Masalah Kontekstual Siswa SMA pada Materi Barisan dan Deret, 3(5): 671-678.

Kelana, J.B., Wardhani, D.S. dan Wulandari M.A.(2021). Etnosains sebagai Sumber Belajar di Sekolah Dasar. *Jurnal Ilmiah Ilmu Kependidikan,* 5(1): 74-79.

Kementrian Pendidikan dan Kebudayaan (Kemdikbud). (2014). *Konsep dan Implementasi Kurikulum 2013.* Jakarta: Kementrian pendidikan dan Kebudayaan. Kementrian Pendidikan dan Kebudayaan (Kemdikbud). (2020). http://ditpsd.kemdikbud.go.id/artikel/detail/persiapkan-asesmenkompetensiminimumakmmenujusekolahberkualitas#:~:text =Tujuan%20utamanya%20mendorong%20perbaikan%20mutu,harus%20dipersiapkan%2C%E2%80%9D%20jelas%20Dra. (Diakses pada 4 April 2021)

Kemenparekraf. 2021. https://kemenparekraf.go.id/layanan/Subsektor- Ekonomi-Kreatif. Diakses pada 18 Agustus 2021.

Kompasiana.2019.https://www.kompasiana.com/arwork/5db14afc097f366 ebc62dff2/7-industri- kreatif-yang-ada-di- jepara?page=3&page_images=1. Diakses pada 18 Agustus 2021.

Khoshsima, H dan Toroujeni, S.M.H. (2017). Computer Based Testing: Score Equivalence and Testing Administration Mode Preferencein Comparative Evaluation Study. *Ijet*, 12(10): 35-55.

Kurniawan O. Dan Noviana, E. (2013) "Penerapan Kurikulum 2013 dalam Meningkatkan Keterampilan, Sikap, Dan Pengetahuan". *Jurnal Primary Program Studi Pendidikan Guru Sekolah Dasar*, 6(2): 389-396.

Lutviana, E et.al. (2019). The computer-assisted testlet assessment instrument to measure students' learning difficulties in chemical bonding. *Journal of Physics* : Universitas Sebelas Maret

Mahendrani, K, & Sudarmin. 2015. Pengembangan Booklet Etnosains Fotografi Tema Ekosistem untuk Meningkatkan Hasil Belajar pada Peserta didik SMP. *Unnes Science Education Journal*, 4(2): 866-872.

Mansyur. (2011). Pengembangan Model Assessment For Learning pada Pembelajaran Matematika di SMP. *Jurnal Penelitian Dan Evaluasi Pendidikan,* 1(1):71-89.

Mardhiyyah, L.A. (2016). Pengembangan Instrumen Asesmen Literasi Sains Tema Energi. *Journal of Primary Education* : UNNES

Ngafifah, S. (2020). Penggunaan Google Form dalam Meningkatkan Efektivitas Evaluasi Pembelajaran Daring Siswa Pada Masa Covid19 Di SD IT Baitul Muslim Way Jepara. A*asssalam 1,* 9(2): 123-144.

Nisa, A, Sudarmin, & Samini. 2015. Efektivitas Penggunaan Modul Terintegrasi Etnosains dalam Pembelajaran Berbasis Masalah untuk Meningkatkan Literasi Sains Peserta didik. *Unnes Science Education Journal*, 4(3): 1049- 1056.

Novili, W. I, Utari, S., Saepuzaman, D dan Karim, S. (2017). 'Penerapan Scientific Approach dalam Upaya Melatihkan Literasi Saintifik dalam Domain Kompetensi dan Domain Pengetahuan Siswa SMP Pada Topik Kalor', *Jurnal Penelitian Pembelajaran Fisika*, 8 (1).

OECD. (2019). *Programe of nternational Student Assesment (PISA) Result from PISA 2018.*

Parmin dan Fibriana, F. 2019. Prospective Teachers' Scientific Literacy through Ethnoscience Learning Integrated with the Indigenous Knowledge of People in the Frontier, Outermost, and Least Developed Regions. *Jurnal Penelitian dan Pembelajaran IPA*, 5(2): 142-154.

Pratiwi, I. (2019). Efek Program Pisa Terhadap Kurikulum Di Indonesia. *Jurnal Pendidikan dan Kebudayaan*, 4(1): 51-71.

Pusat Asesmen dan Pembelajaran (Pusmenjar). (2020). *Kebijakan Penilaian Pendidikan dalam Rangka Merdeka Belajar.* Kementrian Pendidikan dan Kebudayaan.

Pusat Asesmen dan Pembelajaran (Pusmenjar). (2020). *Asesmen Kompetensi Minimum dan Implikasinya terhadap Pembelajaran.* Kementrian Pendidikan dan Kebudayaan.

Pusat Asesmen dan Pembelajaran (Pusmenjar). (2020). *Bimtek Guru Belajar Seri Asesmen Kompetensi Minimum untuk Tingkat SMA.* Kementrian Pendidikan dan Kebudayaan.

Romadoni A.N dan Rudhito M.A. 2016. Strategi Siswa dalam Mengerjakan Soal Kontekstual dengan Pendekatan Matematika Realistik Topik Persamaan Linear Satu Variabel. *Kreano Jurnal Matematika Kreatif-Inovatif*, 7(1): 82-90.

Rosidah, Fitri E., dan Titin S. (2017), 'Pengembangan Tes Literasi Sains Pada Materi Kalor Di SMA Negeri 5 Surabaya', *Jurnal Inovasi Pendidikan Fisika*,6(1).

Tim Pengembangan dan Pembinaan Bahasa Indonesia. 2016. *Pedoman Umum Ejaan Bahasa Indonesia Edisi keempat*. Jakarta: Badan Pengembangan dan Pembinaan Bahasa Indonesia Kementrian Pendidikan dan Kebudayaan.

Sudjana. (2005). *Metode Statistika (edisi 6).* Bandung: Tarsito

Sugiyono. (2012). *Statistika untuk Penelitian*. Bandung: Alfabeta.

Sumarni, W. Dan Supanti. (2021). Pengembangan Buku Ajar Kimia Bahan Pangan Terintegrasi Etnosains Sebagai Sumber Belajar Mahasiswa Calon Guru. *Jurnal Inovasi Pendidikan Kimia,* 15(1): 2695-2705.

Shute V.J dan Rahimi, S. (2017). Review of Computer-Based Assessment for Learning In Elementary And Secondary Education. *Journal of Computer Assisted Learning,* 33(1): 1-19.

Sudarmin, & R. Asyhar. 2012. Transformasi Pengetahuan Sains Tradisional menjadi Sains Ilmiah dalam Proses Produksi Jamu Tradisional. *EduSains: Jurnal Matematika dan Ilmu Pengetahuan Alam*, 1(1): 1-7.

Sudarmin. 2014. *Pendidikan Karakter, Etnosains, dan Kearifan Lokal: Konsep dan Penerapan dalam Penelitian, dan Pembelajaran Sains*. Semarang: CV. Swadaya Manunggal.

Sudarmin dan Sumarni W. (2018). Increasing Character Value and Conservation Behavior Through Integrated Ethnoscience Chemistry in Chemistry Learning: A Case Study in Departement of Science Universitas Negeri Semarang. *IOP Conference Series: Materials Science Enginering*, 349(1): 1-8.

Sudiyanto, et.al. (2015). Pengembangan Model Assessment as Learning Pembelajaran Akuntansi di SMK. *Jurnal Penelitian dan Evaluasi* Pendidikan : Universitas Sebelas Maret

Sugiyanto, Kartowagiran, B., dan Muhyadi. (2015). Pengembangan Model Assesment as Learning Pembelajaran Akuntansi di SMK. *Jurnal Penelitian dan Evaluasi Pendidika,* 19(2): 189-201.

Tezcan, G dan Meric, G. (2013). Developing a Science Process Skills Test Regarding the 6th Graders. *International Journal of Assesment and Evaluation,* 19(1): 1-7.

Thiagarajan, S., Semmel, D., dan Semmel, M. (1974). *Instructional Development for Training Teachers of Exception Children.* Indiana: Indiana University.

Pertiwi, W.J., Solfarina, dan Langitasari, I. (2021). Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbasis Etnosains Pada Konsep Larutan Elektrolit dan Nonelektrolit.

Tilaar, A.L.F. (2012). Effektivitas Pembelajaran Kontekstual dalam Mengajarkan Matematika. *Jurnal Formatif*, 1(3): 186-191.

Widhiyani I.A.N.T., Sukajaya I.N., dan Suweken G. 2019. Pengembangan Soal Higher Order Thinking Skills untuk Pengkategorian Kemampuan Pemecahan Masalah Geometri Siswa SMP. *Jurnal Pendidikan dan Pembelajaran Matematika Indonesia*, 8(2): 161-170.

Wulandari, N dan Hayat S. (2016) 'Analisis Kemampuan Literasi Sains pada Aspek Pengetahuan Dan Kompetensi Sains Siswa SMP Pada Materi Kalor'. *Edusains*, 8 (1).

Wulandari, P, Maswani, dan Khotimah H. (2019). Google Form Sebagai Alternatif Evaluasi Pembelajaran di SMAN 2 Kota Tangerang. *Prosiding Seminar Nasional pendidikan FKIP,* 2(1): 421-425.

Yasukawa K. & Wickert. R. (2020). Literacy and Numeracy Studies. *International Journal in the Education and Training of Adults,* 28(1): 1-5.

Yustiqvar, M. (2019). Green Chemistry Based Interactive Multimedia on Acid Base Concept. *Journal of Physics,* 11(7): 664-674.

Zahid, M.Z. (2020). *Telaah Kerangka Kerja Pisa 2021: Era Integrasi Computational Thinking Dalam Bidang Matematika.* Jurusan Matematika FMIPA: Universitas Negeri Semarang.