EDUMASPUL
JURNAL PENDIDIKAN
Vol. 7 – No. 1, year (2023), page 1192-1200
| ISSN 2548-8201 (Print) | 2580-0469) (Online) |

Development of Higher Order Thinking Skills-Based Multiple Choice Test Items Using Quizizz Application to Measure the Cognitive Abilities of Early Childhood Students in the Early Beginning Classes

Tuti Hidayati[1], Rivo Panji Yudha[*2]
[1]*(Universitas Panca Sakti Bekasi, Indonesia)*
[2]*(Universitas Panca Sakti Bekasi, Indonesia)*

* Corresponding Author. E-mail: Rivoyudha@yahoo.co.id

Receive: 10/01/2023	Accepted: 10/02/2023	Published: 21/03/2023

Abstrak

Tujuan penelitian ini adalah untuk mengetahui pengembangan instrumen soal pilihan ganda berbasis hots melalui aplikasi quizizz untuk mengukur kognitif anak usia dini kelas awal permulaan. Metode yang digunakan dalam penelitian ini adalah metode research and development ADDIE. Adapun hasil penelitian ini adalah Instumen soal HOTS *(Higher Order Thingking Skill)* menggunakan *quizizz* yang dikembangkan memenuhi kriteria kevalidan (valid) yang berdasarkan dengan uji validitas. Hasil uji validitas isi dengan ahli materi sebesar 90% dengan kategori sangat valid dan ahli media sebesar 83% dengan kategori sangat valid dan hasil validasi dari angket praktikalitas siswa ialah sebesar 85% dengan kategori sangat valid. Hasil uji validitas konstruk menyatakan bahwa setiap butir soal memiliki r hitung lebih dari r tabel sehingga memiliki status valid dan sudah layak dipergunakan. Hasil uji reliabilitas memiliki nilai sebesar 0,799, termasuk dalam kategori reliabilitas tinggi dengan angka 0,600-0,800. Hasil uji tingkat kesuakaran dengan rata-rata 0,73 yang tergolong soal mudah yang tingkat kesukarannya memilii kualitas baik dan hasil uji daya pembeda diketahui dengan rata-rata 0,432 berkemampuan baik. Hasil uji praktikalitas siswa sebesar 89% dengan kategori sangat praktis. Berdasarkan hasil uji kemampuan siswa setelah diberikan soal dapat di simpulkan bahwa 55 siswa yang memiliki tingkat kemampuan sangat baik, 10 siswa dengan tingkat kemampuan baik, 27 siswa dengan kemampuan cukup, dan 5 siswa dengan kemampuan sangat kurang. Sehingga 97 siswa yang menjawab 20 butir soal pilihan ganda dalam bentuk HOTS *(Higher Order Thingking Skill)* memiliki nilai rata-rata 71% dengan memenuhi kategori baik.
***Kata Kunci**: Instrumen, Quizziz, Kognitif, Anak Usia Dini*

Abstract

The purpose of this research is to determine the development of Higher Order Thinking Skills (HOTS)-based multiple-choice question instruments through Quizizz application to measure the cognitive abilities of early childhood students in the early grades. The method used in this study is the research and development ADDIE method. The results of this study show that the developed HOTS instrument using Quizizz meets the validity criteria based on validity tests. The results of content validity test by subject matter experts indicate 90% validity with a highly valid category, while the media experts' validation results show 83% validity with a highly valid category. The practicality questionnaire validation results from the students indicate 85% validity with a highly valid category. The results of construct validity test state that each item has a calculated r-value higher than the table r-value, indicating its validity and suitability for use. The reliability test yields a value of 0.799, which falls under the high reliability category with a range of 0.600-0.800. The difficulty level test results, with an average of 0.73, indicate that the questions are easy, demonstrating good quality difficulty levels. The item discrimination test results show an average of 0.432, indicating good discriminatory ability. The practicality test results from the students show 89% practicality with a highly practical category. Based on the test results of the students' abilities after being given the questions, it can be concluded that out of the 97 students who answered the 20 HOTS multiple-choice questions, 55 students had an excellent level of ability, 10 students had a good level of ability, 27 students had an average level of ability, and 5 students had a very poor level of ability. Thus, the average score of the 97 students is 71%, falling under the good category.
***Keywords:** Instrument, Quizizz, Cognitive, Early Childhood*

Introduction

Cognitive development has always been a measure of intelligence. Nowadays, many educators and parents push their children to study mathematics and solve specific math problems using various approaches in order to achieve good grades and academic certificates (Haibah & Huda, 2019). Children require appropriate stimulation through play and enjoyable activities. Optimal brain development in early childhood can be achieved when supported by an environment that provides appropriate stimulation for all aspects of development (Novitasari, 2018).

Cognition refers to an individual's thinking process and behavior, enabling them to connect, evaluate, and consider one or more events and mental activities related to perception, thinking, memory, and information processing, allowing them to solve emerging problems. The combination of a child's maturation and environmental conditions can be referred to as cognition. Cognition is a thinking process, the ability of individuals to connect, evaluate, and relate to events or occurrences, considered as cognitive processes that characterize someone with a central focus on ideas and knowledge. According to Schraw & Robinson (2011), students' reasoning skills can be classified into two groups: (1) Lower Order Thinking Skills (LOTS), which include knowledge (C1), understanding (C2), and application (C3); (2) Higher Order Thinking Skills (HOTS), which include analysis (C4), evaluation (C5), and creation (C6) (S. M. Lestari et al., 2022).

As an educator, understanding that changes in behavior and student progress are essential aspects of the learning process, utilizing information and communication technology significantly impacts the enhancement of teaching skills. For example, if we want to assess the abilities of early childhood students to arrange patterns based on ABCD or group objects according to the sequence of activities in the program itself. Assessment of early childhood students is carried out according to a planned, guided, and sequential approach (Mundia Sari & Setiawan, 2020), which can be measured through the assessment process. One of the efforts to improve the quality of learning is through enhancing the quality of the assessment system (Murniatun, 2022). The instrument commonly used for evaluation in education is an instrument.

An instrument is a tool used to measure or assess students' abilities to comprehend the lessons given by educators. Assessment instruments based on higher-order thinking should align with the teaching provided by educators, fall within the scope of assessment, and often require tasks that challenge students to apply knowledge and skills in new situations. Thus, students are not only expected to understand but also analyze, evaluate, and create. Multiple-choice tests are commonly used to measure cognitive domains, while observation sheets are used to measure affective and psychomotor domains (Sudihartono, 2020). This measurement technique is more objective as the assessment is directly observable based on the students' completed tasks (Susilo, 2014).

In its development, assessment can be conducted not only conventionally but also by utilizing Information and Communication Technology (ICT) in line with technological advancements. Moreover, in the 21st century, students are not only required to acquire knowledge but also possess higher-order thinking skills to navigate their future lives and careers in a rapidly evolving world. Additionally, technology can be utilized as a tool for conducting online assessments, optimizing time, increasing convenience, and reducing paper usage (paperless) in the present time. Consequently, various learning applications have emerged to provide convenience, effectiveness, and efficiency, one of which is Quizizz (Setiani, 2022).

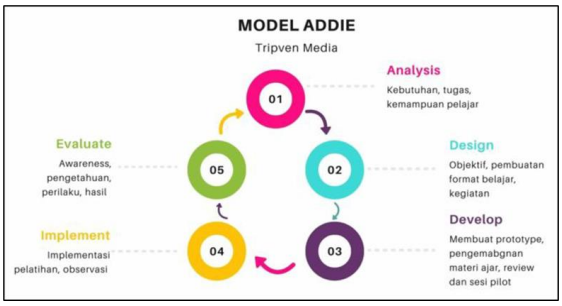
Previous research conducted by Nurhidayah & Ardi (2022) stated that

assessment instruments using the Quizizz application are suitable for use. This finding is supported by Wijayanti's study (2021), which demonstrated the effectiveness of using the Quizizz application

Method

This research uses the type of research development or Research and Development (R&D). The development model used is the ADDIE model. This type of research is carried out with the aim of producing a particular product, as well as testing the effectiveness of the product (Sugiyono, 2018).

The ADDIE development model is as shown below:



Development

As for the population and sample in this study, namely at SDN Pela Mampang 11 and SDN 12 Pela Mampang, Mampang District, South Jakarta. a total of 150 students, with 97 students selected as a trial class consisting of SD Pela Mampang 11 and 12 .

In this study, the data analysis technique used was qualitative and quantitative analysis techniques. Qualitative data in this study were obtained from validator input at the validation stage, input from material experts and evaluation experts. While quantitative is data that describes the results of product development in the form of instruments. Data obtained through assessment instruments during trials are analyzed using statistics. The response questionnaire is filled in by the validator, the response questionnaire is quantitative, the data can be processed in percentage presentation using a Likert scale as a measurement scale.

In the development of assessment instruments, the level of validity and practicality can be identified through the results of the percentage of criteria. Material experts and language experts use validity analysis while grade 1 educators use the practicality level. The data obtained by processing using the validation formula as a reference from Syaifulloh (2020) in (Pooja Rekha Larasat, 2023), namely:

$$\boldsymbol{Vah} = \frac{Tse}{Tsh} \text{X100\%}$$

Information :
Vah : Expert Validation
Tse : Total score to be achieved
Tsh : Total expected score

The development of HOTS-based assessment instruments using the quizizz application can be seen in the level of validity and practicality through the results of the category percentages. Validity level categories include:

Table 1. of Validity Level Categories

Score Achievement Category (%)	Validity Level
≥ 81,5 – 100	Very Valid
≥ 62,5 – 81,5	Valid
≥ 43,5 – 62,5	Invalid
≥ 25 – 43,5	Invalid

Practicality level categories include:

Table 2. Practicality Level Category

Score Achievement Category (%)	Validity Level
86 – 100	Very practical, usable, without revision
71 – 85	Parktis, usable, no revision needed
56 -70	Practical enough, can be used with revisions
41 – 55	Less practical, should not be used
25 - 40	Impractical, should not be used

Results and Discussion

The product produced in this development research is a HOTS (Higher Order Thinking Skill) instrument using quizizz multiple choice questions about the development of cognitive learning in SD Mampang District, South Jakarta which has been tested for the validity of its content. At the end of the product from

this development research in the form of questions with the type of HOTS (Higher Order Thinking Skill) in the form of multiple choices with a total of 20 number questions which are distributed online through the quizizz application. The results of this development research are data about the needs needed in developing HOTS (Higher Order Thinking Skill) questions using Quizizz in SD Mampang District, South Jakarta. Data is valid, reliable, and to find out students' abilities on HOTS (Higher Order Thinking Skill) questions that are distributed online using Quizizz, the calculations are obtained from content validity, namely the material expert validation questionnaire and valiadi media questionnaire, conducting construct validity tests, reliability tests, test of difficulty and power of distinction, test the ability of students and test the practicality of students.

Development Procedure

This research procedure uses development research using the ADDIE model which has been adapted to research needs. In this development model has five stages, namely analysis (analyze), planning (design), development (Development), implementation (Impolementation), and Evaluation (Evaluation).

a. Analyze

At the analysis stage, it is known that in online learning activities there are still many early childhood students in the early grades who do not play an active role in participating in learning due to the teacher's lack of introduction to learning media that can be used to build student enthusiasm while carrying out learning activities. According to Mrs. Lisa Nur Rahmah, S.Pd. as a teacher at SD Pela Mampang 12 stated that the method used during learning activities only uses a meeting system once a week to provide questions to be taken home to work on at home, causing a decline in language, social, emotional, moral, and religion. So the researcher wants to develop a product in the form of a HOTS (Higher Order Thinking Skill) instrument using quizizz, determining the title and indicators adjusted from the results of the learning analysis. The selection of quiz-based learning is due to this method students who are able to learn and develop students' cognitive abilities so that they are able to compete in facing the readiness to go up to the high grade.

The HOTS (Higher Order Thinking Skill) instrument using Quizizz as one of the product developments was chosen specifically because the research site had never been held at all.

Curriculum analysis is useful for knowing what curriculum is used by schools. The curriculum used by schools is the 2013 or K13 curriculum. The core competency is KI.3, understanding knowledge based on curiosity about science, technology, art, culture related to visible phenomena and events. While KI.4 namely, skills according to what is learned in school and other sources that are the same in perspective/theory. The standard of competence to be achieved is to look at the development of the child, especially the cognitive development of early childhood in the early grades.

The application of these learning activities has a positive impact because it is not only the teacher who is active but students are also required to be active in carrying out the tasks assigned.

b. Design

After the analysis phase is completed, the next is the design stage, where this stage has the goal of designing a product that is as attractive as possible. This design stage aims to design a product in the form of a HOTS (Higher Order Thinking Skill) instrument that is used in learning, especially for the cognitive development of early childhood students in the early grades. Several

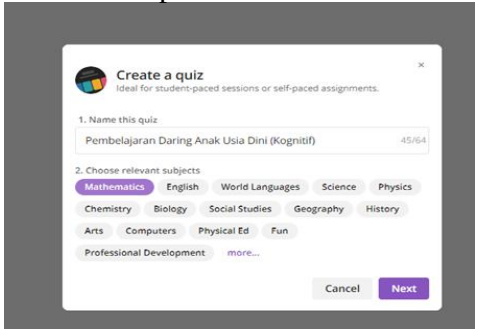
things must be considered in designing the product such as:

1) Perancangan produk instrumen penilaian kognitif berbasis quizizz.
2) Perancangan unsur-unsur yang dibutuhkan dalam produk, membuat kerangka produk, dan mengumpulkan berbagai jenis referensi pendukung baik *online* maupun *offline* dalam materi pengembangan produk tersebut.
3) Menyusun instrumen yang digunakan untuk menilai produk dengan memperhatikan beberapa aspek penilaian, yaitu: kelayakan materi, kelayakan isi, pendukung materi pembelajaran, kemutakhiran materi, komponen produk, keakuratan, kejelasan petunjuk penggunaan, kelayakan bahasa, kejelasan teks, kualitas layout, anatomi produk, dan kualitas gambar. Instrumen tersebut disusun berupa angket respon dalam lembar penilaian produk. kemudian instrumen tersebut akan divalidasi untuk mendapatkan instrumen penilaian yang valid.
4) Menentukan waktu disetiap soal yang akan disebar.

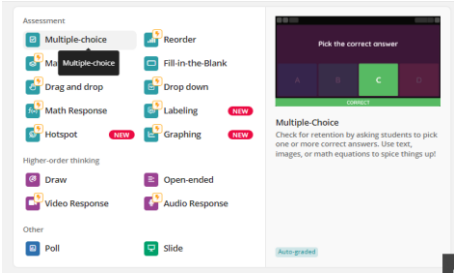
c. Development

The next stage is the development stage, which is the stage where the researcher makes the HOTS (Higher Order Thinking Skill) question instrument into the quizizz application based on the results of the previous design as a unified whole. Here are the steps for making questions through the quizizz application:

1. Determine the appropriate question name in the previous draft



2. Determine the type of questions that are made



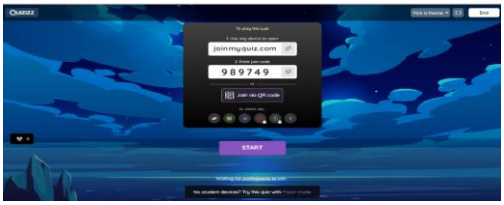
3. Create questions and set the time in the application

After making HOTS (Higher Order Thinking Skill) questions using Quizizz, then conducting a validity test to obtain input, criticism, and suggestions as material for improvement in improving the product being developed. Input from material and media expert validators is also used as a reference for revision and provides a validation questionnaire to determine whether or not the feasibility of the HOTS (Higher Order Thinking Skill) question instrument is valid. Assessment of the development of the HOTS (Higher Order Thinking Skill) instrument presented in the quizizz application uses content validity, construct validity and reliability testing.

d. Implementation

After the HOTS (Higher Order Thinking Skill) instrument was made through the quizizz application that was developed and declared valid to be applied, the next step carried out by the

researcher was to conduct a trial by distributing the questions via a link or code already available in the application. This trial was carried out by researchers by dividing questions in the form of HOTS (Higher Order Thinking Skills) to find out how students' abilities were during online learning activities. The following is the display when distributing questions via the link and the scores of each student:



After the questions tested on students have been completed, the next step is to test the level of difficulty and discriminating power and to do practicality tests by distributing questionnaires to find out student responses to the questions that have been given.

The product produced in this development research is a HOTS (Higher Order Thinking Skill) instrument using quizizz for Early Beginning class students in Mampang District, South Jakarta. This development research aims to find out how the validity, reliability, and ability of students from instrument development. The HOTS (Higher Order Thinking Skill) instrument using quizizz was developed as a student learning resource to determine student abilities during learning. This development research uses the ADDIE model which has five stages, namely the Analyze, Design, Development, Implementation, and Evaluation stages.

The first stage is needs analysis and curriculum analysis. Needs analysis shows that during learning many students are less active, so that the final results obtained by students decrease. The curriculum analysis refers to knowing what curriculum is used by the school. The curriculum used by SD Pela Mampang 12, SD Pela Mampang 11, and Pela Mampang 13 is an independent curriculum. The second stage of design (Design), where this stage begins to design products starting from determining core competencies and basic competencies, determining material that is in accordance with the objectives of core competencies and basic competencies, choosing the type of questions and planning the number of questions to be divided, compiling the grid and answer keys, design questions and determine the time limit to be used in the quizizz application.

The third stage is Development, at this stage the researcher creates a HOTS (Higher Order Thinking Skill) instrument through the quzizizz application which is adjusted from the results of the previous design. After the questions were compiled, they then carried out a content validity test which was filled in by the validator, namely Mrs. Hj, Salmilah., S.Kom., M.Pd as a media expert, Mrs. Dra. Ilun Muallifah, M.Pd and Mrs. Salma Rahim., S.Pd as material experts, and the student practicality test questionnaire was validated by 3 validators namely Mrs. Hj, Salmilah., S.Kom., M.Pd as media expert, Mrs. Dra . Ilun Muallifah, M.Pd and Mrs. Salma Rahim., S.Pd. Then carry out a construct validity test to determine the feasibility of the items used and perform a reliability test to determine the accuracy and reliability of the developed test instrument. Based on the results of the content validity analyzed by the three validators that have been described previously, the validation of the HOTS item instrument material was obtained by 90% in the very valid category, the media validation results of the HOTS item instrument using quizizz were 83% in the very valid category, the results of the validation questionnaire for student practicality tests by 85% with a very valid category.

The results of the construct validity test using the help of Microsoft Excel with the product moment correlation formula stated that each item has r count more than r table so it has a valid status and is

suitable for use, and the reliability test results are 0.799, included in the high reliability category with numbers 0.600-0.800 . So it can be concluded that the instrument questions used in this study are valid, reliable, so they are feasible to use. Implementation Stage, at this stage the researcher tested the HOTS (Higher Order Thinking Skill) instrument using Quizizz by distributing links and codes to students. After the questions that have been distributed have been answered by students, then they carry out tests of difficulty level and discriminating power and distribute practical questionnaires to find out students' responses to the instruments that have been developed.

The results of the difficulty level test show that of the 20 questions answered by 97 students, there are 14 questions in the easy category and 6 questions in the medium category with an average of 0.73 which are classified as medium questions with a good level of difficulty, the results of the differentiating power test are known. that of the 97 subjects with 20 instruments that were developed there were 14 questions of good criteria and 6 questions of sufficient criteria with an average student ability of 0.432 with good ability. Based on the instrument interpretation criteria, the item is declared not good if it has a difficulty level that is too easy or too difficult. Instruments with easy-to-do categories to measure students' abilities both for students with high, medium, and low thinking abilities. Instruments with moderate category questions can be tried out with students with high, medium, and low thinking abilities. While the questions in the difficult category indicate that the instrument requires a deep understanding. As well as the results of the student practicality test amounted to 89% with a very practical category to use.

Conclusion

The HOTS (Higher Order Thinking Skill) instrument uses quizizz which was developed to meet the validity criteria (valid) based on the validity test. The results of the content validity test with material experts were 90% in the very valid category and media experts were 83% in the very valid category and the validation results from the student practicality questionnaire were 85% in the very valid category. The results of the construct validity test state that each item has r count more than r table so that it has a valid status and is suitable for use. The reliability test results have a value of 0.799, included in the high reliability category with numbers 0.600-0.800. The results of the difficulty level test with an average of 0.73 are classified as easy questions whose difficulty level has good quality and the results of the discrimination test show that the average of 0.432 is good. The results of the student practicality test were 89% in the very practical category.

Based on the results of the student ability test after being given questions, it can be concluded that 55 students have very good ability levels, 10 students have good ability levels, 27 students have sufficient abilities, and 5 students have very poor abilities. So that 97 students who answered 20 multiple choice items in the HOTS (Higher Order Thinking Skill) form had an average score of 71% by fulfilling the good category.

Reference

Aini, V. N. (2021). Pengaruh Quizziz dalam Meningkatkan Hasil Belajar Siswa Pada Mata Pelajaran Sains Kelas VIII di MTsN 1 Kota Surabaya. *Jurnal Pendidikan Indonesia: Teori, Penelitian, Dan Inovasi*, *1*(3), 1–8.

Ainiyah, I., Fitriyah, L. A., & Kuswanti, N. (2022). Pengembangan Alat Evaluasi Bentuk Pilihan Ganda Menggunakan Aplikasi Quizizz Materi Cahaya dan Alat Optik Kelas VIII SMP. *Discovery*, *7*(1), 1–6.

Amini, M. (2014). Hakikat Anak Usia Dini. *Perkembangan Dan Konsep*

Dasar Pengembangan Anak Usia Dini, 65. repository.ut.ac.id/4697/1/PAUD4107-M1.pdf

Ardania, R., Fitriyah, L. A., & Kuswanti, N. (2022). Pengembangan Instrumen Soal Pilihan Ganda Berbantu Aplikasi Quizizz Materi Sistem Pernapasan pada Manusia untuk Peserta Didik Kelas VIII SMP. *Discovery*, *7*(1), 12–18.

Bagi, R., Dasar, G. S., & Pasassung, N. (2021). *Pelatihan Pengembangan Instrumen Tes Baku Menggunakan Model RASCH BAGI GURU-GURU SEKOLAH DASAR*. *1*(2).

Citra, C. A., & Rosy, B. (2020). Keefektifan Penggunaan Media Pembelajaran Berbasis Game Edukasi Quizizz Terhadap Hasil Belajar Teknologi Perkantoran Siswa Kelas X SMK Ketintang Surabaya. *Jurnal Pendidikan Administrasi Perkantoran (JPAP)*, *8*(2), 261–272. https://doi.org/10.26740/jpap.v8n2.p261-272

Fitri, L., Mahzum, E., Hamid, A., Fisika, P., Kuala, U. S., Teuku, J., Arief, N., Darussalam, K., Kuala, K. S., & Aceh, K. B. (2022). *Jurnal Pendidikan Fisika EFFECTIVENESS OF USING THE QUIZZZ APPLICATION IN THE EVALUATION OF LEARNING PHYSICS ON STUDENTS ’*. *11*, 111–115.

Haibah, A. B., & Huda, A. (2019). Development Learning Sequence dalam Kemampuan Berhitung Operasi Bilangan Bulat Anak Diskalkulia. *Jurnal ORTOPEDAGOGIA*, *5*(1), 50–56. https://doi.org/10.17977/um031v4i12018p050

Hatip, A., & Setiawan, W. (2021). Teori Kognitif Bruner Dalam Pembelajaran Matematika. *PHI: Jurnal Pendidikan Matematika*, *5*(2), 87. https://doi.org/10.33087/phi.v5i2.141

Hidayat, F., & Nizar, M. (2021). Model Addie (Analysis, Design, Development, Implementation and Evaluation) Dalam Pembelajaran Pendidikan Agama Islam. *Jurnal Inovasi Pendidikan Agama Islam (JIPAI)*, *1*(1), 28–38. https://doi.org/10.15575/jipai.v1i1.11042

Hidayati, T., & Budiarti, E. (2022). Pengaruh Penggunaan Aplikasi Quizizz Sebagai Game Edukasi Untuk Meningkatkan Kemampuan Kognitif Anak Usia Dini Di Tk Anak Bangsa. *Al-Abyadh*, *5*(1), 42–50. https://doi.org/10.46781/al-abyadh.v5i1.502

Lestari, N. (2018). Prosedural Mengadopsi Model 4D dari Thiagarajan Suatu Studi Pengembangan LKM Bioteknologi menggunakan Model PBL bagi Mahasiswa. *Jurnal Ilmiah Teknologi FST Undana*, *12*(2), 56–65. https://ejurnal.undana.ac.id/

Lestari, S. M., Sjaifuddin, S., & Resti, V. D. A. (2022). Pengembangan Instrumen Soal Lomba Cerdas Cermat IPA SMP Berbasis ICT (Information and Communication Technology) dengan Aplikasi Quizizz. *PENDIPA Journal of Science Education*, *6*(2), 531–540. https://doi.org/10.33369/pendipa.6.2.531-540

Maftuhah, A., & Ariyati, T. (2022). Meningkatkan Kemampuan Bahasa Lisan Pada Anak Usia Dini Melalui Metode Show and Tell Di Tk Pertiwi 01 Cingebul. *Khazanah Pendidikan*, *16*(1), 164–172.

Mujahidah. (2015). Implementasi Teori Ekologi Bronfenbrenner Dalam Membangun Pendidikan Karakter yang Berkualitas. *Lentera*, *IXX*(2), 171–185.

Mulatsih, B. (2020). Penerapan Aplikasi Google Classroom, Google Form, dan Quizizz dalam Pembelajaran Kimia di Masa Pandemi Covid-19.

Ideguru: Jurnal Karya Ilmiah Guru, *5*(1), 16–26.

Mundia Sari, K., & Setiawan, H. (2020). Kompetensi Pedagogik Guru dalam Melaksanakan Penilaian Pembelajaran Anak Usia Dini. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *4*(2), 900. https://doi.org/10.31004/obsesi.v4i2.478

MURNIATUN, M. (2022). Penggunaan Quizizz Dalam Penilaian Harian Untuk Meningkatkan Hasil Belajar Ips. *SOCIAL : Jurnal Inovasi Pendidikan IPS*, *2*(1), 37–43. https://doi.org/10.51878/social.v2i1.1087

Nani Hanifah. (2014). Perbandingan Tingkat Kesukaran, Daya Pembeda Butir Soal Dan Reliabilitas Tes Bentuk Pilihan Ganda Biasa Dan Pilihan Ganda Asosiasi Mata Pelajaran Ekonomi. *SOSIO E-KONS*, *6*(1), 46.

Narassati, N. A., Saleh, R., & Arthur, R. (2021). Pengembangan Alat Evaluasi Berbasis Hots Menggunakan Aplikasi Quizizz Pada Mata Pelajaran Mekanika Teknik Dalam Pembelajaran Jarak Jauh. *Jurnal Pendidikan Teknik Sipil*, *3*(2), 169–180. https://doi.org/10.21831/jpts.v3i2.43919

Novitasari, Y. (2018). Analisis Permasalahan "Perkembangan Kognitif Anak Usia Dini". *PAUD Lectura: Jurnal Pendidikan Anak Usia Dini*, *2*(01), 82–90. https://doi.org/10.31849/paudlectura.v2i01.2007

Nurhidayah, I., & Ardi. (2022). Instrumen E-Assessment Berbasis Quizizz tentang Materi Sistem Koordinasi untuk Kelas XI SMA/MA. *Jurnal Ilmiah Pendidikan Profesi Guru*, *5*(1), 67–76. https://doi.org/10.23887/jippg.v5i1.44006

Panji Yudha, R. (2019). Pengembangan Instrumen Asesmen Otentik Tes Keterampilan Berpikir Kritis Pada Pembelajaran Matematika. *M A T H L I N E : Jurnal Matematika Dan Pendidikan Matematika*, *4*(1), 9–20. https://doi.org/10.31943/mathline.v4i1.101

POOJA REKHA LARASAT. (2023). "PENGEMBANGAN INSTRUMEN PENILAIAN PEMBELAJARAN MATEMATIKA BERBASIS HIGH ORDER THINKING SKILLS (HOTS) PADA TEMA 1 MENGGUNAKAN QUIZIZZ DI KELAS 1 SEKOLAH DASAR." *วารสารวิชาการมหาวิทยาลัยอีสเทิร์นเอเชีย*, *4*(1), 88–100.

Rajagukguk, K. P., Lubis, R. R., Kirana, J., & Rahayu, N. S. (2021). Pelatihan Pengembangan Media Pembelajaran Model 4D Pada Guru Sekolah Dasar. *Jurnal Pengabdian Kepada Masyarakat*, *2*(1), 14–22. http://jurnal.stkipalmaksum.ac.id/index.php/jpkm/article/view/144

Setiani, A. E. (2022). Pengembangan Instrumen Penilaian "Hots" Dari Buku Tematik Dengan Menggunakan Quizizz Di Sekolah Dasar. *El-Ibtidaiy:Journal of Primary Education*, *5*(1), 90. https://doi.org/10.24014/ejpe.v5i1.14324

Sudihartono, Y. (2020). Penerapan Quizizz Dalam Pelaksanaan Penilaian Pengetahuan Peserta Diklat Di Badan Pengembangan Sumber Daya Manusia Daerah Provinsi Sumatera Selatan. *Jurnal Lentera Pendidikan Pusat Penelitian*, *5*(1), 1–15. http://ojs.ummetro.ac.id/index.php/lentera/article/view/1249

Sugian Noor. (2020). Penggunaan Quizizz Dalam Penilaian Pembelajaran Pada Materi Ruang Lingkup Biologi Untuk Meningkatkan Hasil Belajar Siswa Kelas X.6 SMA 7

Banjarmasin. *Jurnal Pendidikan Hayati*, *6*(1), 1–7.

Sugiyono, P. D. (2018). Pendekatan Kuantitatif, Kualitatif, Kombinasi, dan R&D. *Penerbit CV. Alf. Bandung*.

Sukma, N., Lestari, P. I., & Nur, R. A. (2021). Pengaruh Media "Quizizz" Dalam Pembelajaran Daring Terhadap Hasil Belajar Biologi Siswa. *Binomial*, *4*(2), 154–166. https://doi.org/10.46918/bn.v4i2.1042

Supriadi, N.-, Tazkiyah, D., & Isro, Z. (2021). Penerapan Aplikasi Quizizz Dalam Pembelajaran Daring Di Era Covid-19. *Jurnal Cakrawala Mandarin*, *5*(1), 42. https://doi.org/10.36279/apsmi.v5i1.101

Susilo, J. (2014). Teknik penyusunan soal pilihan ganda untuk meningkatkan kualitas mata uji kediklatan dan mata uji kompetensi. *Swara Patra*, *4*(4), 1–9. http://ejurnal.ppsdmmigas.esdm.go.id/sp/index.php/swarapatra/article/view/97

Suyadi, S. (2017). Perencanaan dan Asesmen Perkembangan Pada Anak Usia Dini. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, *1*(1), 65–74. https://doi.org/10.14421/jga.2016.11-06

Syam, A. J., Niampe, L., & Sahidin, L. O. (2022). *JOTE Volume 4 Nomor 2 Tahun 2022 Halaman 705-713 JOURNAL ON TEACHER EDUCATION Research & Learning in Faculty of Education Majas Perbandingan dalam Puisi Surat Cinta Karya WS Rendra*. *4*, 705–713.

Syukron Al Mubarok, A. A., & Amini, A. (2019). Kemampuan Kognitif dalam Mengurutkan Angka melalui Metode Bermain Puzzle Angka. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *4*(1), 77. https://doi.org/10.31004/obsesi.v4i1.221

Widiyawati, Y., Nurwahidah, I., & Sari, D. S. (2019). Pengembangan Instrumen Integrated Science Test Tipe Pilihan Ganda Beralasan Untuk Mengukur HOTS Peserta Didik. *Saintifika*, *21*(2), 1–14. issn: 1411 – 5433

Zahir, A., Nasser, R., Supriadi, S., & Jusrianto, J. (2022). Implementasi kurikulum merdeka jenjang SD kabupaten luwu timur. *Jurnal Ilmu Pengetahuan Dan Teknologi Bagi Masyarakat*, *2*(2), 1–8.