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Development of SOLO-Based HOTS Assessment in Audio-Video Learning for 3T Vocational Schools: Integrating Religious Moderation in Mentawai

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ABSTRACT

Objective: This study aims to develop a High Order Thinking Skills (HOTS) assessment instrument based on the SOLO Taxonomy integrated with religious moderation values in Audio and Video Engineering learning at SMKN 1 Mentawai Islands, the 3T region of Indonesia. This study uses a Research and Development (R&D) approach involving five main stages: preliminary study, design of question grids, content validation by experts, field trials on 30 students, and limited implementation in class. The instrument consists of 30 contextual essay questions developed based on HOTS indicators (analysis, evaluation, creation), SOLO levels (multistructural, relational, extended abstract), and moderation values such as tolerance, cross-faith collaboration, and anti-extremism. The results of content validation using Aiken's V showed a value of ≥ 0.80, while empirical validity was obtained through Pearson correlation with 24 questions in the valid category. The reliability of the instrument reached Cronbach's Alpha 0.87, indicating very high internal consistency. Limited implementation shows that students are able to respond to questions reflectively and critically, and produce works based on diversity values. This study confirms that HOTS-based assessments integrated with religious moderation values are able to form students who think critically and have social awareness. These results recommend the widespread application of similar instruments in vocational education, especially in multicultural and outermost areas, as an effort to build in-depth, contextual, and character-based education.

INTRODUCTION

Vocational education has a very strategic role in producing skilled and ready-to-use workers to answer the challenges of the increasingly complex world of industry and work (IDUKA) (Casmudi, C., Sugianto, S., & Maulida, 2022; Fakhri et al., 2023; Saifudin et al., 2021) . In the context of Indonesia, Vocational High Schools (SMK) are the main pillar in equipping the younger generation with specific expertise-based competencies (Ahyanuardi & Efronia, 2022) . However, major challenges are still faced, especially in disadvantaged, outermost, and remote areas (3T) such as the Mentawai Islands, West Sumatra (RF Putri et al., 2023; Setiawati et al., 2025) . Access to adequate educational facilities, limited professional teaching staff, and geographical isolation are major obstacles to improving the quality of learning (Leicht, A. Heiss, J. Byun, 2018)(Arnadi, 2023), including in engineering fields such as Audio and Video Engineering. Therefore, the development of an assessment system that is able to stimulate higher-order thinking skills or Higher Order Thinking Skills (HOTS) is very crucial to accelerate the quality of education in the 3T region (Ginting & Kuswandono, 2020; Masuwd, 2025; Adit et al., 2025)

Assessment is an integral part of the learning process that not only functions to determine student learning achievements (Masuwd, 2025), but also as an instrument to map students' cognitive, affective, and psychomotor abilities comprehensively (Putra &

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Abdullah, 2019) . In the 21st century learning paradigm, HOTS is one of the important indicators to measure students' readiness to face future challenges, both in the world of work and in their social lives. HOTS includes analytical, evaluation, and creative abilities, which are rooted in the revised Bloom's Taxonomy by Wilson (2016) . However, in the context of developing assessment instruments, the SOLO Taxonomy (Structure of the Observed Learning Outcome) introduced by Biggs (1982) offers a more descriptive approach to observing student learning outcomes in stages from unistructural, multistructural, relational, to extended abstract.

The integration of the SOLO Taxonomy in the development of HOTS assessment instruments allows educators to better understand how students construct and organize (Alafnan, 2025; Rahayu & Rosawati, 2023) their knowledge in the context of engineering learning. This taxonomy also helps teachers in compiling questions that not only require correct answers but also assess the thinking process and quality of argumentation used by students. Especially in the field of Audio and Video Engineering, which requires problem-solving, critical thinking, and decision-making skills, the development of SOLO-based instruments will encourage students to think deeply and reflectively (Kousloglou et al., 2023; Triana et al., 2023) in designing, modifying, or evaluating a technology product.

At the same time, the challenges in implementing engineering learning in 3T areas are not only technical but also cultural and ideological. In a multicultural society like the Mentawai Islands, where ethnic, religious, and local tradition diversity is very strong, the integration of religious moderation values in learning is a necessity. Religious moderation is an approach that prioritizes tolerance, balance, and justice in understanding and practicing religious teachings Lukman Hakim Saifuddin (2022) In the context of vocational education, religious moderation can be interpreted as an effort to shape the character of students who are inclusive, collaborative, and respect diversity in solving problems, including in project work or engineering practice activities.

The integration of HOTS, SOLO Taxonomy, and religious moderation values is expected to produce an assessment instrument that not only measures high-level cognitive abilities, but also supports the formation of adaptive and noble student characters. In the context of Audio and Video Engineering learning, this character is very important because the audio-visual production and communication process contains messages and values that can influence the wider community. Thus, students need to be equipped not only with technical skills, but also with ethical and social sensitivity in their work.

Previous studies have revealed the importance of HOTS assessment in improving the quality of learning. A study by Rinorvian et al (2024) showed that the implementation of HOTS-based assessment significantly improved students' analytical and creative abilities in science and technology. However, research that focuses on the development of HOTS instruments based on the SOLO Taxonomy in the context of engineering learning in 3T areas is still very limited. In addition, there are almost no studies that explicitly integrate the dimension of religious moderation in the development of assessment instruments in vocational education.

Furthermore, the characteristics of vocational high school students in 3T areas such as the Mentawai Islands tend to have different learning experiences compared to students in urban areas. Limited access to information technology, teaching materials, and practical laboratories, makes learning approaches based on high-level thinking

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need to be adapted to the local context. Therefore, the development of HOTS assessment instruments that are contextual, based on the SOLO Taxonomy, and rooted in the values of religious moderation is relevant to creating an inclusive and transformative learning ecosystem.

One important aspect in the development of this instrument is the involvement of teachers as designers and users of the instrument. Teachers need to be empowered to understand and implement the principles of HOTS and SOLO in compiling test items and in assessing student work. In addition, within the framework of religious moderation, teachers also play a role as role models in sowing the values of tolerance, cross-cultural cooperation, and respect for the diversity of student beliefs. The instrument developed is also expected to be able to capture the affective dimension, for example through a rubric for assessing attitudes in multicultural audio-video engineering project teamwork.

Methodologically, the development of this instrument will go through several stages, starting from needs analysis, compilation of grids based on the SOLO Taxonomy, validation by experts, field trials, to statistical reliability and validity analysis. The quality of the resulting test items will be evaluated based on HOTS indicators and the integration of religious moderation values. The final results of this study are expected to be a model or prototype of an assessment instrument that can be replicated in other vocational schools, especially in 3T areas with similar characteristics.

With this background, this study aims to develop a HOTS assessment instrument based on SOLO Taxonomy in Audio and Video Engineering learning at SMK Kepulauan Mentawai, by integrating the principles of religious moderation. This study is expected to answer What are the characteristics of the HOTS assessment instrument based on SOLO Taxonomy that are suitable for engineering learning in the 3T area, How effective is the instrument in measuring high-level thinking skills of SMK students in the Mentawai Islands and How the integration of religious moderation values in the assessment process can encourage the formation of tolerant and collaborative student characters.

Thus, this study not only contributes to the development of assessment theory and practice in vocational education, but also has implications for national education policy in strengthening character education and strengthening religious moderation in educational units, especially in disadvantaged areas. This study is also in line with the Merdeka Belajar agenda which encourages contextual, participatory, and graduate profile achievement-based learning.

RESEARCH METHOD

This study uses a research and development approach with the main objective of developing an assessment instrument for high-level thinking skills (HOTS) integrated with the SOLO Taxonomy and religious moderation values, especially in Audio and Video Engineering learning in Vocational High Schools (SMK) located in disadvantaged, outermost, and remote (3T) areas in the Mentawai Islands. The selection of this approach is based on the need to produce a product in the form of an assessment tool that is not only valid and reliable theoretically and empirically, but also relevant to local characteristics and the need to strengthen the values of diversity and religion in vocational education practices.

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The development process is carried out through simplified stages from the Borg & Gall model (SN Putri et al., 2023) , namely starting from a preliminary study to identify the needs and context of learning in vocational schools, designing question grids based on HOTS dimensions and SOLO Taxonomy levels, content validation by experts, field trials to measure empirical validity and reliability, and limited implementation to see the practicality of the instrument in a real classroom context. In this process, question development also considers the values of religious moderation such as tolerance, anti-extremism, and cross-faith collaboration, which are integrated into affective indicators and student performance assessment rubrics.

Content validation was carried out by three experts consisting of an educational evaluation expert, an audio-video engineering expert, and an expert in character education and religious moderation. The assessment of the feasibility of the content of the test items was analyzed using the Aiken's V formula, to see whether or not the content of an instrument or item is valid, especially in the context of the Aiken's V test (Aryanto et al., 2019) of developing a questionnaire or test.

$$V = \frac{\sum s}{n(c-1)} \qquad (1)$$

With $s = r - lo$, namely the score given by the validator minus the lowest score of the scale r score given, lo the lowest score (1), c is the number of score categories, and n is the number of assessors. If the Aiken's V value of an item is ≥ 0.80, then the item is declared valid in terms of content.

After the expert validation process, the instrument was tested on 30 students of class XI Audio and Video Engineering from SMK who had similar characteristics to the main population at SMKN 1 Kepulauan Mentawai. The purpose of this trial was to evaluate the empirical validity and reliability of the instrument. To measure the closeness and direction of the linear relationship between two variables, it is necessary to conduct a Pearson Product Moment correlation (Nisa & Jaya, 2024) , with the formula:

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}} \qquad (2)$$

The correlation coefficient value is interpreted based on Sugiyono's (2016) guidelines as follows: 0.00–0.20 indicates very low validity, 0.21–0.40 low, 0.41–0.60 sufficient, 0.61–0.80 high, and 0.81–1.00 very high. The reliability of the instrument is measured using the Cronbach Alpha formula to determine the internal consistency between items (Taber, 2018) . The formula used is:

$$r_{11} = \frac{k}{k-1}\left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2}\right) \qquad (3)$$

The reliability of the instrument is measured using the Cronbach Alpha formula to determine the internal consistency between items. The formula used where k is the number of items, σ_i^2 is the variance of each item, and σ_i^2 is the total variance. The instrument is declared reliable if the r value $_{11} \geq 0.70$.

The developed instrument consists of three main components: contextual open essay questions, assessment rubrics based on SOLO Taxonomy and HOTS indicators,

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and attitude measurement instruments containing aspects of religious moderation. The questions are developed in the form of case studies or technical projects, so that students not only answer theoretically, but also demonstrate critical and creative thinking processes in solving technical problems. Table 1 explains the instrument grid that combines HOTS, SOLO levels, and moderation values.

Table 1. Grid of HOTS Assessment Instrument Question Items

No	HOTS Competency Indicators	SOLO Level	Audio & Video Engineering Material Aspects	Question Form	The Value of Religious Moderation	Question Number
1	Analyzing technical errors in audio design	Multistructural	Audio design for learning media	Description	Tolerance	1–3
2	Identifying elements that do not meet professional audio standards	Multistructural	Sound structure, effects and clarity	Description	Tolerance	4–6
3	Provides improvement suggestions based on error findings	Multistructural	Noise handling, stereo balance	Description	Tolerance	7–9
4	Evaluating the video editing results of two different students	Relational	Visual effects, narration, transitions	Description	Cross-Faith Collaboration	10–12
5	Explains the relationship between visual elements and the message to be conveyed.	Relational	Visual-narrative synchronization	Description	Cross-Faith Collaboration	13–15
6	Determining the most inclusive and socially ethical video output	Relational	Values in media content	Description	Cross-Faith Collaboration	16–19
7	Designing an educational video script on the theme of religious tolerance	Extended Abstract	Script structure and social content development	Description	Anti-Extremism	20–22
8	Integrating diversity values into visual narratives	Extended Abstract	Symbolism, multicultural message	Description	Anti-Extremism	23–25
9	Analyzing the social implications of the video messages created	Extended Abstract	Reflection on ethics and social impact	Description	Anti-Extremism	26–27
10	Create alternative solutions if the video message is potentially misunderstood	Extended Abstract	Anticipating media interpretation conflicts	Description	Anti-Extremism	28–30

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From the Instrument in table 1, it was then tested on class XI in two SMK Negeri 1 Mentawai Islands, involving 30 students as the main respondents. The results of the student assessment were analyzed descriptively to see the distribution of HOTS achievements and the achievement of moderation indicators in student work. The researcher also conducted observations and reflective interviews to understand how students express attitudes of tolerance and cooperation in completing engineering projects in groups.

To ensure the validity of the data, triangulation of methods and sources was carried out. Quantitative data from the results of the instrument test were validated with qualitative data from interviews and observations. In addition, researchers also conducted member checking with teachers and students to obtain confirmation of the findings and interpretations of the data carried out.

All research procedures were conducted with due regard to the principles of research ethics. The researcher first obtained written permission from the school, and asked for approval from the teachers and students involved. The identities of the students were disguised to maintain confidentiality, and the results of the study were used solely for the purpose of improving the quality of learning.

Through this method, the resulting instrument is expected to not only be able to measure students' high-level thinking skills validly and reliably, but also to foster awareness of the importance of religious moderation values in the world of work and social life. This approach supports the creation of vocational high school graduates who are cognitively superior and character-resilient in the context of a diverse and dynamic society.

RESULTS AND DISCUSSION

Based This study aims to develop a high-level thinking skills (HOTS) assessment instrument based on the SOLO Taxonomy integrated with religious moderation values, in the context of Audio and Video Engineering learning at SMKN 1 Kepulauan Mentawai. A total of 30 questions were developed and tested on 30 grade XI students as a representation of the vocational education population in the 3T area. The research process went through five main stages: preliminary study, question grid design, content validation, field trials, and limited implementation. The following is a description of the results and discussion of each stage.

The initial stage began with a preliminary study through classroom observation, productive teacher interviews, and analysis of learning documents. The results of the observation showed that Audio and Video Engineering learning at SMKN 1 Mentawai Islands was still dominated by procedural and memorization approaches, not fully encouraging exploration of ideas, in-depth reflection, or critical evaluation of student work results. Teachers acknowledged the difficulty in compiling questions that challenged students to think at a high level due to limited references, training, and contextual examples of questions. On the other hand, the need to integrate religious character values is also a concern for the school, especially in project-based learning that involves cross-faith interactions in a diverse student environment.

From the trial results used to calculate the empirical validity and reliability of the instrument. Validity is calculated using Pearson correlation, while reliability is analyzed using Cronbach's Alpha. The results of the analysis show that most items have a significant and positive correlation to the total score described in table 2.

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Table 2. Results of the Validity Test of Question Items

No. Question	Correlation (r)	Category
1–3	0.65–0.74	Valid
4–6	0.58–0.69	Enough
7–9	0.49–0.54	Need Revision
10–12	0.71–0.76	Valid
13–15	0.62–0.68	Valid
16–18	0.55–0.60	Enough
19–21	0.79–0.83	Very Valid
22–24	0.66–0.70	Valid
25–27	0.57–0.64	Enough
28–30	0.84–0.87	Very Valid

From Table 2 above, the total of 30 questions, 24 questions are declared valid (r > 0.60), 4 questions are categorized as sufficient and can be used with editorial revision, and 2 questions need to be revised in substance because the correlation value is low (r < 0.55). The validity of the instrument shows that most of the items are able to measure students' higher thinking skills according to the indicators and development objectives.

After the trial, a limited implementation was carried out in two class meetings with a recapitulation of SOLO level achievements in table 3, where the instrument was used to assess students' work results in video editing projects and the creation of digital campaign scripts on the theme of tolerance.

Table 3. Recapitulation of SOLO Level Achievements

SOLO Level	Number of Students (Project 1)	% Project 1	Number of Students (Project 2)	% Project 2
Unistructural	2	6.7%	1	3.3%
Multistructural	11	36.7%	9	30.0%
Relational	12	40.0%	10	33.3%
Extended Abstract	5	16.6%	10	33.3%
Total	**30 students**	**100%**	**30 students**	**100%**

Students' cognitive achievements based on real projects given in class are shown in Table 3. In the first project, namely the evaluation of two video editing results, the majority of students were at the Relational level (40%), meaning that they were able to connect various technical elements (transitions, visual messages, audio synchronization) and provide meaningful assessments. Students at the Multistructural level (36.7%) were able to mention many aspects of the video but were not yet able to explain their relationships. Meanwhile, only 16.6% of students showed in-depth and reflective analysis up to the Extended Abstract level, for example by adding alternative improvements based on the principles of aesthetics and social inclusion.

In the second project, creating a digital campaign script on the theme of tolerance, an increase in achievement occurred at the Extended Abstract level (33.3%). This shows that when students are asked to create something narrative and contextual, they tend to express social values more reflectively and creatively. Several scripts combine religious messages, local Mentawai wisdom, and cross-cultural calls for peace. In contrast, students at the Multistructural level only display general slogans without explaining their social meaning.

Furthermore, the reliability of the instrument shows a Cronbach's Alpha value of 0.87 as seen in table 3, which indicates a very high level of reliability. This value confirms that the instrument has good internal consistency and is suitable for use in

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complex cognitive assessments. Alpha values above 0.80 indicate that the instrument is not only consistent but also has stable predictive power on student learning outcomes (Arikunto, 2012).

Table 4. Results of Instrument Reliability Test

Number of Questions	Number of Respondents	Cronbach's Alpha	Interpretation
30	30	0.87	Very Reliable

Based on the results of the reliability test on the assessment instrument developed, it can be seen in table 4 that the Cronbach Alpha value was obtained as 0.87 from a total of 30 questions tested on 30 respondents of SMKN 1 Kepulauan Mentawai students. This value shows that the instrument has a very high internal consistency. According to the interpretation put forward by Wijaya et al (2022) , Alpha values above 0.80 are included in the "Very Reliable" category, which means that all questions tend to be consistent in measuring the same construct, namely high-level thinking skills (HOTS) based on the SOLO Taxonomy. These results strengthen that the instrument is suitable for use in the context of learning in the 3T area, not only in terms of content and validity, but also in terms of statistical reliability in providing stable and accurate measurement results.

This limited implementation also shows that the use of real-context-based questions triggers reflective discussions between students. In working groups, they discuss across religious and cultural backgrounds, agreeing on a video concept that does not favor one group and avoids discriminatory content. This is in line with the spirit of religious moderation referred to by the Ministry of Religion of the Republic of Indonesia (Lukman Hakim Saifuddin, 2022) , namely religious practices that emphasize the principles of justice, tolerance, and respect for diversity. When students are invited to compose educational video narratives about diversity, they not only think creatively but also learn to become inclusive human beings.

Philosophically, this process also shows the integration between epistemological (knowledge and reasoning), affective (values and attitudes), and social (interaction and collaboration) aspects. This is as stated by Landorf & Wadley (2022) , that education is not a process of transferring knowledge, but a process of building experiences that are socially and personally meaningful. By using engineering projects as a vehicle, students are not only tested from a logical aspect, but also trained in moral sensitivity and social diversity.

The findings of this study reinforce the importance of designing assessment instruments that focus not only on cognition, but also on contextual, affective, and social aspects. By combining the principles of HOTS, SOLO Taxonomy, and religious moderation values, teachers can obtain a complete picture of students' abilities as individuals who think critically, are reflective, and care about social reality. Especially in the context of 3T areas, instruments like this have a dual function: measuring and fostering students to become adaptive and inclusive individuals.

CONCLUSION

The results of this study indicate that the development of a high-level thinking skills (HOTS) assessment instrument based on the SOLO Taxonomy integrated with religious moderation values is not only theoretically feasible, but also effective in

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learning practices at SMKN 1 Kepulauan Mentawai, as a representation of vocational education in the 3T area. By involving 30 students as trial respondents, the data showed that most of the questions had high validity (r> 0.60) and the reliability of the instrument was in the very high category (α = 0.87), which means obey Govindasamy et al., (2024) indicated that the questions consistently measured the expected high-level thinking competencies.

Beyond simply generating a set of achievement scores, this study demonstrates that the developed assessment instrument serves as a catalyst for more meaningful pedagogical transformation. Students are not only challenged to analyze technical flaws in audio production or evaluate the quality of video editing, but they are also guided to design an educational video script that embodies the values of tolerance and diversity. Through this integrated task, the cognitive and affective domains naturally intersect pushing students not only to answer questions but also to cultivate a deeper sense of social awareness and responsibility. This meaningful integration suggests the need for longitudinal studies to assess the instrument's long-term impact on student character development. Furthermore, exploring its applicability in other 3T regions or across vocational disciplines, as well as investigating the type of teacher training required for effective implementation, could significantly enhance the instrument's educational value and scalability. This is in line with the idea Bello (2023) in *Pedagogy of the Oppressed* , states that liberating education is not education that transfers knowledge, but education that fosters critical awareness (*conscientização*) of social reality (Fadli, 2024; Fauzi & Usman, 2024; Mahabub Mandal, 2023).

Furthermore, the involvement of religious moderation values in the design of questions has been proven to enrich the dimensions of engineering learning which has often been narrowed down to mechanical and technical aspects alone. In the project work session, students from different religious backgrounds were able to discuss and negotiate openly in designing a video with the theme of brotherhood in diversity. They actively showed an attitude of respect for the ideas, views, and creative expressions of their friends without imposing their respective group identities. This phenomenon confirms that assessments designed with a humanistic and contextual approach can be a real vehicle for character education, as emphasized by Bekti (2005) that "religion must appear as a force that unites, not divides."(Hurley, 2024; Kelley et al., 2022).

On the other hand, the SOLO Taxonomy structure used in the instrument design also provides a clear, step-by-step framework for assessing students' depth of thinking. The questions are arranged in a sequence from *multistructural* (analysis of elements), *relational* (understanding the relationship between ideas), to *extended abstract* (generalization and new creation). This approach allows teachers to assess not only students' final results, but also their thinking processes. Thus, this instrument bridges two important needs in vocational education: objective assessment of technical competence, and instilling moral values and diversity in students' work practices.

The results of the limited implementation also show that students are able to respond to questions meaningfully, not only from a technical but also a social perspective. They consciously reject the idea of making a video that has discriminatory nuances and choose a narrative approach that reflects the spirit of mutual cooperation, tolerance, and social harmony. This attitude is a real manifestation of religious moderation in practice, not in the form of lectures or moral advice, but through contextual and creative learning activities. In this case, the value of moderation is no

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longer a normative abstraction, but is transformed into a reflective experience that is internalized in the learning process.

This finding becomes significant when placed in the context of education in the 3T area. The multicultural and geographically isolated social environment of the Mentawai Islands demands an inclusive and humanistic approach to education. The instrument developed in this study provides an answer to this challenge: that assessment in vocational education is not enough to only measure technical skills, but must also educate students to become human beings who are able to live in diversity with full responsibility. As stated by Ki Hajar Dewantara, "education must liberate humans physically and mentally."(Burhanuddin et al., 2021; SaThierbach et al., 2015; Widiyarto & Purnomo, 2023). Therefore, freedom of thought that is fostered through HOTS, and freedom of attitude that is formed through the values of moderation, are two sides of education that liberates and empowers.

Moreover, the integrative approach between HOTS, SOLO Taxonomy, and religious moderation in this study contains a comprehensive learning philosophy. The idea reminds us that meaningful learning does not lie in the content delivered, but in the experience created. When students are given the opportunity to think critically, create, and collaborate in socially and culturally relevant contexts, the learning process will become deeper, more reflective, and more transformational.

Thus, this study provides an important contribution to the development of assessment instruments in vocational education, especially in the 3T areas, through a design that is not only valid and reliable, but also contextual, humanistic, and rooted in national values. This instrument is not just a measuring tool, but becomes part of the educational process itself—which forms students' knowledge, skills, and human values as a whole.

The contents of the conclusion are written in Constantia 12. The conclusion should answer the objectives of the research and research discoveries. The concluding remark should not contain only the repetition of the results and discussions or abstract. You should also suggest future research and point out those that are underway.

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p-ISSN : 2721-852X ; e-ISSN : 2721-7965
IJORER, Vol. 6, No. 4, July 2025
Page 1081-1094

REFERENCES

Adit, F., Aryanto, J., Fitra Andikos, A., & Andre, L. (2025). Practicality of Developing the Work Based Learning Higher Order Thinking Skills Employability (Wbl-Hotse) Model to Improve Critical Thinking Ability in 3T Regional Vocational High Schools. Data and Metadata, 4. https://doi.org/10.56294/dm2025654

Ahyanuardi, & Efronia, Y. (2022). Pedagogical Competence of Teachers in Planning Vocational High School Learning. Journal of Education Research and Evaluation, 6(3), 468–474. https://doi.org/10.23887/jere.v6i3.41556

Alafnan, M. A. (2025). Enhancing educational outcomes using AlAfnan taxonomy: integrating cognitive, affective, and psychomotor domains. International Journal of Evaluation and Research in Education, 14(3), 2419–2437. https://doi.org/10.11591/ijere.v14i3.33147

Arnadi. (2023). Hotel Pantura Sambas Challenges and Educational Efforts In Reaching Kalimantan Become The Capital City Of The Country Of Indonesia Arnadi 1 Institut Agama. 23–31.

Aryanto, B., Hariono, A., & Pahalawidi, C. (2019). Construct Validity For Talent Identification Test Athletic With Aiken's V. January 2018. https://doi.org/10.2991/yishpess-cois-18.2018.167

Bello, M. B. (2023). An Understanding of Paulo Freire's "Pedagogy of the Oppressed." 15(1), 225–231.

Biggs, H. B. (1982). Evaluating The Quality of learning the SOLO Taxonomy.

Burhanuddin, A., Huda, N., Khoeroni, F., Miftah, M., Musawamah, M., Farmawati, C., Falah, A., Taubah, M., In, M., & Choir ad, A. (2021). Ki Hadjar Dewantara's Thought About Holistic Education. Turkish Journal of Computer and Mathematics Education, 12(10), 589–611.

Casmudi, C., Sugianto, S., & Maulida, D. T. (2022). Implementation of Teaching Factory Vocational School of Center Of Excellence (PK) (Case Study of Learning Aspects of the Culinary and Clothing Expertise Program at SMK Negeri 4 Balikpapan). Budapest International Research and Critics Institute-Journal (BIRCI-Journal), 5(2), 11033–11045. https://bircu-journal.com/index.php/birci/article/view/4921

Fadli, M. R. (2024). Digital Pedagogy Philosophy: Building Critical Awareness of The Role of Technology in Education. Jurnal Filsafat, 34(2), 307. https://doi.org/10.22146/jf.93321

Fakhri, A. A., Sudira, P., & Nicosia, N. (2023). Study of Work-Based Learning Competencies. 13(3), 204–214.

Fauzi, M. R., & Usman, U. (2024). Freire's Praxis, Democracy and Critical Consciousness in Islamic Education. Jurnal Filsafat, 34(2), 278. https://doi.org/10.22146/jf.93952

Ginting, A. A., & Kuswandono, P. (2020). Challenges Faced by English Teachers: Implementation of Higher Order Thinking Skills (HOTS) in Designing Assignments in East Indonesia. Pedagogy : Journal of English Language Teaching, 8(1), 13. https://doi.org/10.32332/pedagogy.v8i1.1688

Govindasamy, P., Cumming, T. M., & Abdullah, N. (2024). Validity and reliability of a needs analysis questionnaire for the development of a creativity module. Journal of Research in Special Educational Needs , 24(3), 637–652. https://doi.org/10.1111/1471-3802.12659

Hurley, D. J. (2024). Guide to Religion and Belief in the Australian Defence Force. https://www.adfcareers.gov.au/

IJORER : International Journal of Recent Educational Research
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p-ISSN : 2721-852X ; e-ISSN : 2721-7965
IJORER, Vol. 6, No. 4, July 2025
Page 1081-1094

Kelley, H. H., Marks, L. D., & Dollahite, D. C. (2022). Uniting and Dividing Influences of Religion on Parent–Child Relationships in Highly Religious Families. Psychology of Religion and Spirituality, 14(1), 128–139. https://doi.org/10.1037/rel0000321

Kousloglou, M., Petridou, E., Molohidis, A., & Hatzikraniotis, E. (2023). Promoting Students' Critical Thinking & Problem Solving Skills Via Mobile-Supported Labs. Proceedings of the International Conferences on E-Society 2023, ES 2023 and Mobile Learning 2023, ML 2023, 367–374. https://doi.org/10.33965/es_ml2023_2023021045

Landorf, H., & Wadley, C. (2022). The importance of John Dewey's philosophy for global learning theory and practice. Social Studies Research and Practice, 17(1), 6–18. https://doi.org/10.1108/ssrp-09-2021-0027

Leicht, A. Heiss, J. Byun, W. J. (2018). Issues and trends in Education for Sustainable Development. In UNESCO Publishing. https://bangkok.unesco.org/content/unesco-publication-issues-and-trends-education-sustainable-development

Lukman Hakim Saifuddin. (2022). Moderasi Beragama. In Jalsah : The Journal of Al-quran and As-sunnah Studies (Vol. 2, Issue 2). https://doi.org/10.37252/jqs.v2i2.342

Mahabub Mandal, M. (2023). Paulo Freire's Pedagogy of Liberation: A Critical Analysis and Contemporary Perspectives. International Journal of Research Publication and Reviews Journal Homepage: Www.Ijrpr.Com, 4(7), 2328–2337. www.ijrpr.com

Masuwd, M. (2025). Classical Cooperative Learning Model for Reading Classic Literature : Enhancing Student Independence through Self-Regulation Classical Cooperative Learning Model for Reading Classic Literature : Enhancing Student Independence through Self-Regulation تحبلا. Izdihar : Journal of Arabic Language Teaching, Linguistics, and Literature, 8(April), 105–120. https://doi.org/10.22219/jiz.v8i1.36829

Nisa, D. K., & Jaya, C. A. (2024). The role of creative learning resource design in enhancing literacy and numeracy skills : A study of the Kampus Mengajar program. 12(2), 123–135.

Putra, T. K., & Abdullah, D. F. (2019). Higher-Order Thinking Skill (Hots) Questions in English National Examination in Indonesia. Jurnal Bahasa Lingua Scientia, 11(1), 178–185. https://doi.org/10.21274/ls.2019.11.1.145-160

Putri, R. F., Sarajwati, M. K. A., Aini, F. A. N., Setiacahyandari, H. K., Dairina, I., & Dewi, A. K. (2023). Formal-Informal Employment and Poverty Dynamics: A Case Study of Mentawai Islands Regency, 2019-2021. IOP Conference Series: Earth and Environmental Science, 1233(1), 2019–2021. https://doi.org/10.1088/1755-1315/1233/1/012034

Putri, S. N., Anak Agung Gede Agung, & I Kadek Suartama. (2023). E-module with the Borg and Gall Model with a Contextual Approach to Thematic Learning. Journal for Lesson and Learning Studies, 6(1), 27–34. https://doi.org/10.23887/jlls.v6i1.57482

Rahayu, S., & Rosawati, E. E. (2023). The development of higher-order thinking skills (HOTS) assessment instrument in chemistry using socioscientific issues context: A preliminary trial. AIP Conference Proceedings, 2572(March). https://doi.org/10.1063/5.0118624

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p-ISSN : 2721-852X ; e-ISSN : 2721-7965
IJORER, Vol. 6, No. 4, July 2025
Page 1081-1094

Rinorvian, R., Siringo, R., Firmansyah, J., & Alexander, O. (2024). Implementation of Higher-Order Thinking Skills (HOTS) -Based Curriculum in Elementary Education : Enhancing Educational Quality and Student Outcomes. L'Geneus: The Journal Language Generations of Intellectual Society, 13(2), 46–55.

Saifudin, A., Widjanarko, D., & Sudana, I. M. (2021). Journal of Vocational Career Education The Production Unit of the State Vocational High School 1 Warungasem the Department of Motorcycle Engineering and Business. Journal of Vocational Career Education, 6(4), 181–188.

SaThierbach, K., Petrovic, S., Schilbach, S., Mayo, D. J., Perriches, T., Rundlet, E. J. E. J. E. J., Jeon, Y. E., Collins, L. N. L. N., Huber, F. M. F. M., Lin, D. D. H. D. H., Paduch, M., Koide, A., Lu, V. T., Fischer, J., Hurt, E., Koide, S., Kossiakoff, A. A., Hoelz, A., Hawryluk-gara, L. A., … Hoelz, A. (2015). The Relevance of Ki Hajar Dewantara's Philosophy of Education in Modern Education. Proceedings of the National Academy of Sciences, 3(1), 1–15. http://dx.doi.org/10.1016/j.str.2013.02.005%0

Setiawati, S., Yonariza, Y., Pal, I., Priyono, E., Agustinus, A., & Tasirikeru, A. (2025). Shock and adaption: the economic impact of COVID-19 in the Mentawai Islands, West Sumatra, Indonesia. E3S Web of Conferences, 604. https://doi.org/10.1051/e3sconf/202560402005

Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. Research in Science Education, 48(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

Triana, H., Abustang, P. B., Utomo, E., Rakhman, G. G. F., & Fahrurrozi, F. (2023). Assessment Evaluation Using Solo Taxonomy for Measuring Levels of Critical Thinking Skills: PYP International Baccalaureate Case Study. Prisma Sains : Jurnal Pengkajian Ilmu Dan Pembelajaran Matematika Dan IPA IKIP Mataram, 11(2), 581. https://doi.org/10.33394/j-ps.v11i2.7894

Widiyarto, S., & Purnomo, B. (2023). Freedom to Learn in Ki Hajar Dewantara's Perspective: Historical Studies and Their Relevance to Character Education. International Journal of Business, Law, and Education, 4(2), 837–844. https://doi.org/10.56442/ijble.v4i2.185

Wijaya, B. P. A., Dewantara, R., & Ruslijanto, P. A. (2022). Legal Aspects of Artificial Intelligence based on Legislation Regulations in Indonesia. International Journal of Multicultural and Multireligious Understanding, 9(10), 372–380. http://ijmmu.comhttp//dx.doi.org/10.18415/ijmmu.v9i10.4198

Wilson, L. O. (2016). Blooms Taxonomy Revised - Understanding the New Version of Bloom's Taxonomy. A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives, 1(1), 1–8.

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