



Design Thinking-Based Learning Assessment Guidelines to Improve Creative Thinking Skills

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ABSTRAK

Proses berpikir kreatif merupakan suatu proses yang dilalui siswa untuk menghasilkan ide atau gagasan (kreativitas) dalam memecahkan masalah. Kurangnya perhatian terhadap asesmen pembelajaran di sekolah dasar yang tepat dan mendukung kreativitas siswa menyebabkan rendahnya kemampuan berpikir kreatif peserta didik. Penelitian ini bertujuan untuk mengembangkan panduan asesmen pembelajaran berbasis design thinking untuk siswa kelas V sekolah dasar pada mata pelajaran IPAS dan menganalisis validitas, kepraktisan dan keefektifan panduan asesmen pembelajaran berbasis design thinking. Penelitian ini merupakan penelitian pengembangan dengan model ADDIE. Subjek pada penelitian ini diantaranya ahli asesmen pembelajaran, praktisi guru, dan siswa kelas V. Penelitian ini menggunakan teknik pengumpulan data yaitu kuesioner/angket dan tes. Teknik analisis data menggunakan analisis kualitatif, kuantitatif dan statistik inferensial (uji t). Hasil penelitian ini adalah hasil validasi oleh ahli asesmen pembelajaran memperoleh kualifikasi sangat baik, Hasil uji kepraktisan oleh guru memperoleh kualifikasi sangat baik, dan Hasil uji keefektifan panduan asesmen pembelajaran berbasis design thinking menunjukkan adanya perbedaan yang signifikan pada kemampuan berpikir kreatif siswa kelas V pada mata pelajaran IPAS sebelum dan sesudah mengikuti pembelajaran dengan menggunakan panduan asesmen pembelajaran berbasis design thinking. Hal ini menunjukkan bahwa panduan asesmen pembelajaran berbasis design thinking efektif digunakan karena panduan asesmen pembelajaran ini dapat membantu guru dalam merancang dan melaksanakan asesmen untuk menggali dan meningkatkan kemampuan berpikir kreatif siswa secara komprehensif.

ABSTRACT

The creative thinking process is a process that students go through to generate ideas or notions (creativity) in solving problems. Lack of attention to learning assessment in elementary schools that is appropriate and supports student creativity causes low creative thinking skills of students. This study aims to develop a design thinking-based learning assessment guidelines for grade V elementary school students in IPAS subjects and analyze the validity, practicality and effectiveness of the design thinking-based learning assessment guidelines. This research is development research with ADDIE model. The subjects in this study included learning assessment experts, teacher practitioners, and fifth grade students. This study used data collection techniques, namely questionnaires/surveys and tests. Data analysis techniques used qualitative, quantitative and inferential statistical analysis (t-test). The results of this study are the results of validation by learning assessment experts obtained very good qualifications, the results of practicality testing by teachers obtained very good qualifications, and the results of the effectiveness test of the design thinking-based learning assessment guidelines showed a significant difference in the creative thinking ability of grade V students in IPAS subjects before and after participating in learning by using a design thinking-based learning assessment guidelines. This indicates that the design thinking-based learning assessment guidelines are effective because these learning assessment guidelines can assist teachers in designing and implementing assessments to explore and improve students' creative thinking skills comprehensively.

1. INTRODUCTION

IPAS (Natural and Social Sciences) is a science that studies living and non-living things in the universe and their interactions, as well as studying human life as individuals and as social beings that interact with their environment. Learning IPAS is not just learning to memorize but learning to think (Syifa & Julia, 2023; Yuli Nurul Fauziah, 2020). One of the thinking skills learned in IPAS learning is creative thinking skills. Creative thinking is the ability to create something new or offer solutions as problem solving (Agustin, 2023; Widia et al., 2020). Creative thinking skills can also be defined as the ability to synthesize various ideas in problem solving to produce flexible answers to a problem (Agustiana et al., 2021; Primayonita et al., 2020). When a student can provide multiple solutions to a problem, each of which must

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be relevant, appropriate, and varied, the student's creative thinking ability will increase. Creative thinking skills are needed to educate students in overcoming problems they face in everyday life. Students who have high creative thinking skills tend to feel challenged and motivated to overcome various learning challenges (Kalosi, 2021; Sudarto et al., 2021).

IPAS learning that takes place in elementary schools should be able to foster a logical, critical, and creative attitude towards natural events that exist around them. To develop a critical and creative scientific mindset from an early age, IPAS learning in Primary Schools seeks to enable students to be able to analyze what they learn, be careful and thorough in making decisions, and be able to reason the relationship between one natural event/phenomenon and another. The ability to think creatively allows students to be able to create new ideas in overcoming a problem (Mursidik et al., 2015; Widia et al., 2020). This makes the ability to think creatively necessary to instill and improve IPAS learning in elementary schools. Creative thinking skills need to be developed early because it is expected to be a provision for students in dealing with problems in everyday life in the future. Creative thinking skills are high-level thinking skills that are very important for mental development and changes in the mindset of students so that it is hoped that the learning process can be successful (Mufiannoor et al., 2017; Pratiwi & Suwirta, 2022).

However, field facts show that the situation of students in schools does not fully meet the demands of the curriculum. In particular, students' creative thinking skills in IPAS subjects are still limited to remembering or memorizing theories and are still oriented towards completing the material only (Agustin, 2023; Ariani, 2023). So that when faced with actual problems, students cannot decide what to do. Students' higher order thinking skills in Indonesia, especially in Natural and Social Sciences, are still relatively low. This can be seen in the Program for International Student Assessment (PISA) initiated by the Organization for Economic Co-operation and Development (OECD) which shows that the science learning score of students in Indonesia is still at 383 (Argina et al., 2017; Palupi & Septiana, 2018). Based on this, it can be seen that the situation / facts in the field are not in accordance with expectations regarding the importance of creative thinking skills that students must have, especially in primary school science learning. This low ability to think creatively has implications for students' ability to solve problems and low student learning outcomes, because when faced with difficult and complicated problems, of course, students' creative thinking skills are needed to be able to create innovations and new and varied ideas (Sudarto et al., 2021; Zaiyar & Rusmar, 2020).

This statement is supported by the results of the initial test of creative thinking skills of fifth grade students of SD Negeri 1 Peraan Kangin in IPAS subjects. Based on the data from the initial test of creative thinking skills, only 27.6% of students were classified as complete or had good creative thinking skills, while 72.4% of students were still classified as incomplete. The low level of high-level thinking skills is caused by low and lack of attention to creativity in schools, especially in IPAS learning. The low creative thinking skills of students can also be caused by various factors, such as problems in the teaching and learning process. In addition, other factors that may cause low student thinking skills are the lack of educational resources, parent and teacher involvement, and inappropriate evaluation systems.

Furthermore, from the results of the interview with the fifth grade teacher of SDN 1 Peraan Kangin related to students' creative thinking skills, information was obtained that the teacher had not carried out the assessment of creative thinking skills, but carried it out on attitude assessment seen from the analysis of grades. The interviewee also stated that there are no learning assessment guidelines that specifically measures students' creative thinking skills. Assessment guidelines are basically needed by teachers to build a proper and organized framework for the evaluation process. So, when these guidelines do not exist, teachers often have difficulty in designing and implementing assessments to explore and improve students' creative thinking skills comprehensively.

Given the urgency and problems faced in developing creative thinking skills, improvements are needed in the field of IPAS education to improve students' thinking skills, especially creative thinking skills. One of them is by improving existing assessments in schools and developing learning assessment guidelines. Assessment is a teacher's activity during the learning span to obtain information in any form that can be used as a basis for making decisions about the achievement of learner competencies (Mujiburrahman et al., 2023; Prawesti et al., 2023). Meanwhile, the assessment guidelines is a pedagogical document that provides guidance and frameworks for teachers to assess student achievement in the learning context (Goosen & Steenkamp, 2023; Kurnia et al., 2017). A good learning assessment guidelines consists of assessment criteria that support the measurement of aspects related to creative thinking, provide guidance on how to create tasks that foster creativity, and determine how to provide feedback that can encourage the development of learners' creative thinking. The application of a more comprehensive assessment to achieve the learning objectives that have been set is highly desirable so that it makes it easier for students and teachers to achieve the intended goals (Arifah, 2020; Mujiburrahman et al., 2023). Likewise, in measuring

and improving students' creative thinking skills, it is necessary to develop appropriate and relevant assessments and assessment guidelines in order to support the evaluation of the learning carried out.

Based on previous relevant research related to the development of creative thinking skills instruments and science learning outcomes of fifth grade elementary school students, it is known that creative thinking skills instruments are very important for students to know the technique of creating ideas widely, and this instrument is said to be effective for improving students' creative thinking skills in elementary schools (Adhitya et al., 2022; Adnin Rizki Kasdina, Fitri Siti Sundari, 2023). The importance of adjusting the assessment to the competencies to be measured has implications for the development of various learning assessments, one of which is the design thinking-based learning assessment. The design thinking-based learning assessment guidelines can be one of the problem-solving solutions in helping teachers to plan, implement, and evaluate the assessment process. Design thinking can be interpreted as a method of approaching the design process to find solutions to problems (Juniantari et al., 2023; Kasri et al., 2021). Based on this definition, it can be seen that a design thinking-based learning assessment guidelines can help improve the creative thinking skills of elementary school students by providing an open and in-depth approach to problem solving. In addition, the design thinking approach can also encourage students to think critically, creatively and collaboratively, and enrich their learning experience. This is in line with research entitled assessment guidelines in the practice of designing learning media based on design thinking which states that this assessment model is feasible and effective to be applied to improve students' creative thinking skills.

The novelty of this research is using the design thinking approach in the learning assessment guidelines that was prepared. Until now, there have not been many learning assessment guidelines developed, as well as learning assessment guidelines that use the design thinking approach. Design thinking provides a structured approach to develop critical, creative, collaborative skills effectively, and develop innovative solutions for problem solving (Muhammad Irfan Luthfi, 2023; Riti et al., 2021). By integrating design thinking-based assessments in the elementary school curriculum, students will be more engaged in learning and have the opportunity to develop their ability to solve real problems. This research aims to develop a learning assessment guidelines based on design thinking and produce learning assessment guidelines that are valid, practical, and effective to use to improve the creative thinking skills of grade V elementary school students in IPAS subjects. The developed product serves to assist teachers in improving the quality of learning in schools by creating an environment that can stimulate creativity and provide space for students to explore.

2. METHOD

This research is a development research using the ADDIE model (Analyze, Design, Development, Implementation, Evaluation) with the aim of developing a learning assessment guidelines that is effectively used in IPAS learning. The stages of developing a design thinking-based assessment guidelines are presented in Figure 1.

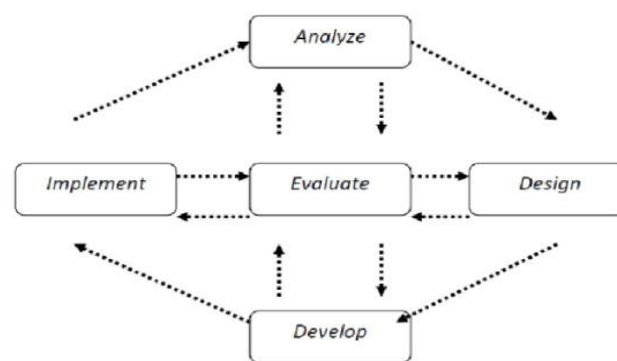


Figure 1. ADDIE Stages

The needs analysis stage is intended to obtain identification of the needs of target users. The design stage is intended to design an assessment guidelines based on design thinking. The development stage leads to the development of learning assessment guidelines products and the implementation of a series of tests. The implementation stage is a field trial to determine the effectiveness of the product. The evaluation stage

is carried out to reflect on development activities and draw conclusions about the effectiveness of the developed learning assessment guidelines.

The subjects involved in this study consisted of 4 learning assessment experts, 3 teacher practitioners, and 29 fifth grade students of State Elementary School 1 Peraan Kangin. The experts involved validated the media that had been successfully developed by providing comments, suggestions for improvement, and assessment scores based on the assessment instruments provided. While the teacher involved aims to determine the practicality of the product developed, and students are involved to collect data on students' creative thinking skills after using the learning assessment guidelines which will later be analyzed to determine the effectiveness of using a design thinking-based learning assessment guidelines in improving students' creative thinking skills in IPAS learning.

Data collection methods in this study consisted of questionnaires, and tests. Questionnaires were used to collect data on product validity and reviews from experts and teachers. While the test method is used to collect data on students' creative thinking skills which are then analyzed to determine the effectiveness of using design thinking-based learning assessment guidelines. Indicators used in questionnaires and tests are adjusted to the needs of the data to be collected. The instrument grids used in this study are presented in [Table 1](#), [Table 2](#), and [Table 3](#).

Table 1. Learning Assessment Expert Instrument Grid.

Aspects	Indicator
Integrity	1. Relevance of learning assessment guidelines. 2. Measurability of learning assessment guidelines.
Appropriateness of assessment function	3. Conformity with assessment principles. 4. Level of difficulty and complexity of evaluation questions. 5. Accuracy of the assessment with the ability being measured. 6. Appropriateness of learning stages with methods. 7. The accuracy of the assessment rubric with the evaluation questions.
Informative	8. Content accuracy. 9. Completeness of learning assessment guidelines. 10. Easy access to information.
Reflection	11. Grammar. 12. Feedback.

Table 2. Teacher Practitioner Instrument Grid

No.	Aspects	Indicator
1.	Learning assessment guidelines presentation	Technical quality of assessment
2.	Quality of learning assessment guidelines	Quality of material content in the assessment guidelines Quality of questions based on HOTS questions

Table 3. Lattice of Student Creative Thinking Skills Ability Test Instrument

No.	Dimensions of Creative Thinking Ability	Indicator
1.	Fluency	1.1 Analyze environmental problems that exist around. 1.2 Describe the causes of environmental problems that exist in the surrounding life.
2.	Flexibility	2.1 Examine information related to environmental problems that exist in everyday life 2.2 Predict the impact of environmental problems that occur around.
3.	Elaboration	3.1 Recommend environmental conservation efforts related to the state of the surrounding environment. 3.2 Design actions to avoid the occurrence of nearby problems.
4.	Originality	4.1 Summarize environmental problems found in the surrounding environment. 4.2 Formulate solutions related to environmental problems that exist around.

The data analysis method in this study consists of qualitative and quantitative analysis. Qualitative analysis was used to describe the results of the review in the form of comments and suggestions from the subjects involved. While quantitative analysis is used to present the assessment data that has been collected in the form of numbers and data on students' creative thinking skills. Quantitative analysis consists of descriptive and inferential statistics. Inferential statistics in the form of analysis prerequisite tests which include normality and homogeneity tests, and hypothesis testing using the T test to determine whether the design thinking-based learning assessment guidelines is effectively used in learning.

3. RESULT AND DISCUSSION

Result

The results of product development in this study are design thinking-based assessment guidelines. This research is based on the ADDIE development model which consists of the stages of analysis (analyze), design (design), development (development), implementation (implementation), and evaluation (evaluation). The first stage, namely analysis, carried out information gathering activities related to data on product development needs. The results of this stage found problems based on observations and interviews at SD Negeri 1 Peraan Kangin, namely the low creative thinking skills of students in IPAS subjects and the lack of availability of relevant learning assessment guidelines. Based on the findings at the analysis stage, it can be identified that teachers and students need learning assessment guidelines that support students' creative thinking skills, design thinking-based learning assessment guidelines products developed can help students to improve creative thinking skills, and design thinking-based learning assessment guidelines developed according to the characteristics of grade V students at SD Negeri 1 Peraan Kangin, Baturiti District, Tabanan Regency.

The second stage, namely the design stage, contains activities to design design thinking-based learning assessment guidelines in Class V IPAS subjects. After the product design is complete, guidance is given to the supervisor to get input/suggestions. The input/suggestions given by the supervisor are used in improving a guidelines design that has been made. After the design stage is complete and has been improved based on the supervisor's input, then proceed to the next stage.

The third stage, namely development, contains activities to develop learning assessment guidelines products. The learning assessment guidelines is made with the main material in the form of paper measuring 21 cm x 29.7 cm (A4). The design thinking-based learning assessment guidelines consists of a front cover page; preface; table of contents; Chapter 1 (introduction) includes explanations related to the background, target users, and how to use the learning assessment guidelines; Chapter 2 (learning and assessment principles) includes explanations related to learning principles and assessment principles along with examples; Chapter 3 (learning and assessment planning) includes the activity process of formulating learning outcomes (CP), learning objectives (TP), flow of learning objectives (ATP), and learning and assessment planning; Chapter 4 (implementation of learning and assessment) includes the learning process based on the design thinking stage along with examples of activities and examples of formative evaluation of environmental problem material; Chapter 5 (processing of assessment results) includes an assessment instrument grid, assessment rubric, and assessment criteria; back cover. The design results of the design thinking-based learning assessment guidelines are presented in Figure 2.



Figure 2. Design Thinking Based Learning Assessment Guidelines Product

After developing the design thinking-based learning assessment guidelines product, the next test was carried out by learning assessment experts and teacher practitioners to get an assessment of the learning assessment guidelines that had been developed. The results of the validity product is show in [Table 4](#).

Table 4. Validity Test Results of the Assessment Guidelines

Grain	Appraiser (Assessment Expert)				S1	S2	S3	S4	Σs	V	Description
	I	II	III	IV							
	Items 1-20	87	91	98							


Base on [Table 4](#), the results of the product validity test obtained an index of 0.92 which included a very high validity category, then the practicality of the design thinking-based learning assessment guidelines are presented in [Table 5](#).

Table 5. Teacher Practicality Test Result

Teacher Practitioner Test Result	Score		
	Practitioner 1	Practitioner 2	Practitioner 3
Total score	72	73	72
Ideal maximum score	75	75	75
Percentage (number/SMI x 100%)	96%	97.33%	96%
Average Percentage	96.44%		

Base on [Table 5](#), the product practicality test obtained an average percentage of 94.66% which included a very good category. After the validity test and teacher practitioner response test, the product revision was carried out. Input and suggestions by experts and teacher practitioners are used as a reference for revising design thinking-based learning assessment guidelines products. Input and suggestions for improving learning assessment guidelines products are presented in [Table 6](#).

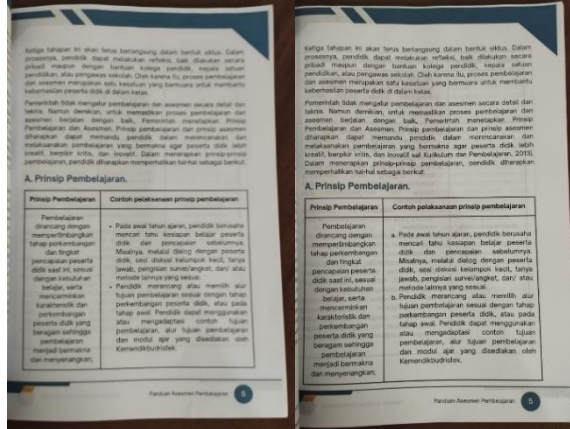
Table 6. Feedback and Suggestions for Product Improvement

No.	Feedback and Suggestions	Product Pictures
1.	In the cover layout section add the use of guidelines for an independent curriculum	

No. Feedback and Suggestions

Product Pictures

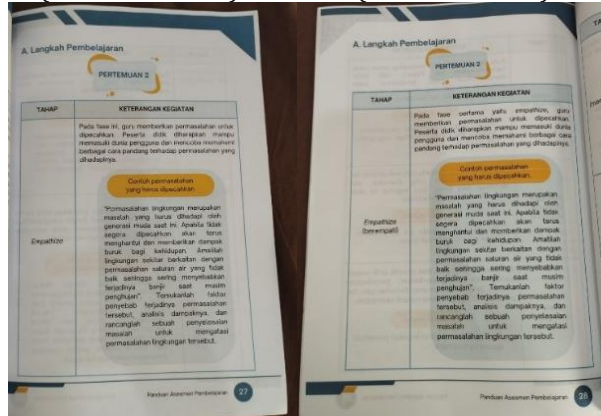
- 2. Use numbering and avoid bulleted list



(Before Revision)

(After Revisions)

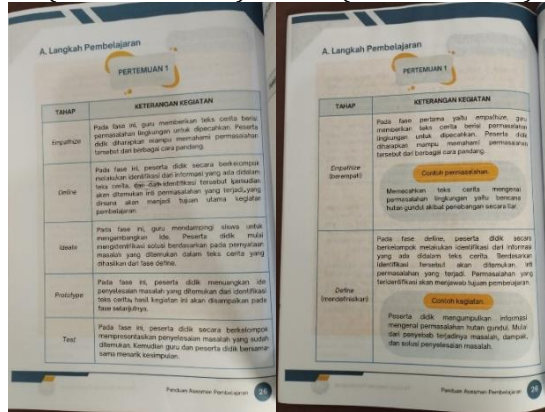
- 3. In the learning stage, complete the translation of the design thinking steps into Bahasa Indonesia



(Before Revision)

(After Revisions)

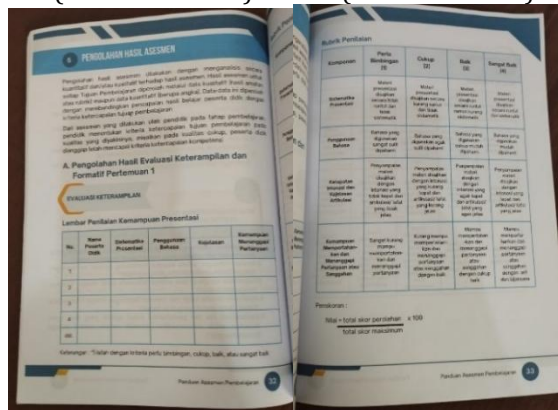
- 4. In the description of learning activities, add examples of activities from each stage.



(Before Revision)

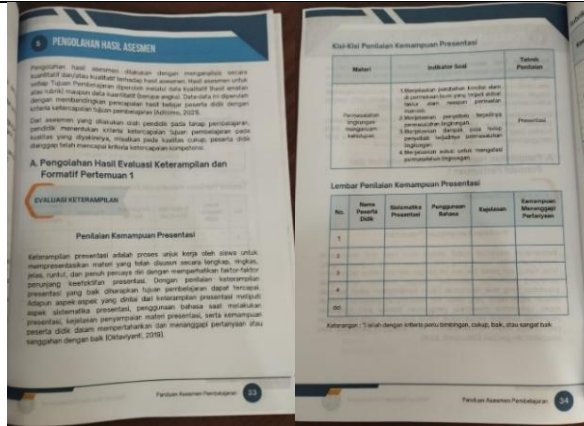
(After Revisions)

- 5. In the evaluation section, complete with grids, instruments, assessment rubrics and scoring guidelines to make it a cohesive unit.

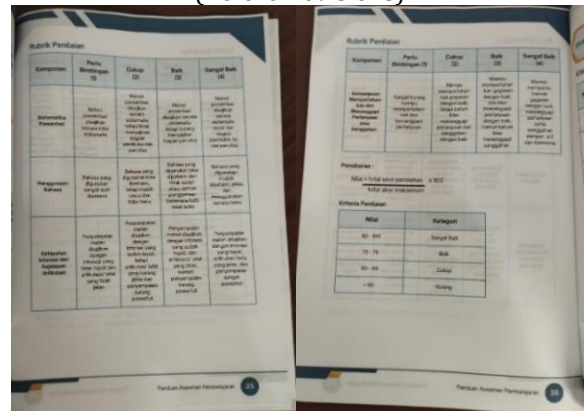


No. Feedback and Suggestions

Product Pictures

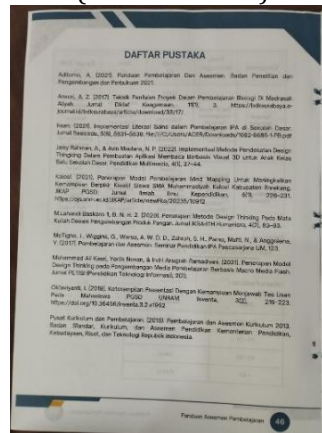


(Before Revisions)



(After Revisions)

- 6. Add the reference list of the learning assessment guidelines product development.



(After Revisions)

- 7. On the back cover add the identity of the supervisor.



(Before Revision)

(After Revisions)

The fourth stage, namely the implementation stage. After the design thinking-based learning assessment guidelines has been declared feasible and practical for use in the learning process, a field trial is conducted which is then used as a basis for determining the effectiveness of the design thinking-based learning assessment guidelines product on the creative thinking skills of grade V elementary school students in IPAS subjects. The fifth stage, namely evaluation as the last stage, is carried out to obtain feedback or reflection on the development activities that have been carried out by drawing conclusions about the effectiveness of the developed learning assessment guidelines. Related to the results of normality is show in [Table 7](#), homogeneity and hypothesis tests are presented in [Table 7](#), [Table 8](#), and [Table 9](#).

Table 7. Normality Test

Variable	Class	Shapiro-Wilk		
		Statistic	df	Sig.
Creative Thinking Ability Test	PreTest	0.936	29	0.080
Results	PostTest	0.966	29	0.446

Base on [Table 7](#), the results of the normality test using the Shapiro-Wilk test showed that the data from the creative thinking ability test in the PreTest group had a statistical value of 0.936 with a significance value (Sig.) of 0.080. This indicates that the data distribution is not significantly different from the normal distribution, because the p-value (0.080) is greater than 0.05. Likewise, for the PostTest group, the statistical value of 0.966 with a significance value of 0.446 also indicates that the data is normally distributed, because this p-value is also far above 0.05. Thus, it can be concluded that both the PreTest and PostTest data show a normal distribution, which means that the normality assumption is met for further analysis. Then the result of homogeneity test is show in [Table 8](#).

Table 8. Variance Homogeneity Test

Levene Statistic	df1	df2	Sig.
1.435	1	56	0.236

Base on [Table 8](#) show the results of the homogeneity of variance test using Levene's statistics show a Levene's statistical value of 1.435 with degrees of freedom (df) of 1 for the numerator and 56 for the denominator. The significance value (Sig.) obtained is 0.236. Because the p-value is greater than the commonly used significance level (eg 0.05), we fail to reject the null hypothesis. This indicates that there is insufficient evidence to state that there is a difference in variance between groups, so it can be concluded that the variance of the tested variable is homogeneous or uniform. Then the hypothesis testing result is show in [Table 9](#).

Table 9. Hypothesis Testing Results

Paired Groups	Paired Differences						t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Pair 1 Pre Test - Post Test	-18.62069	2.51302	0.46666	-19.57659	-17.66479	-39.902	28	0.000	

Base on [Table 9](#), show the results of the hypothesis test using the Paired Samples Test showed that there was a significant difference between the pre-test and post-test scores. The mean difference between the two groups was -18.62069, with a standard deviation of 2.51302. The p-value (Sig. 2-tailed) obtained was 0.000, which is much smaller than the significance level of 0.05. This indicates that the measured difference is statistically significant. The 95% confidence interval for this difference ranges from -19.57659 to -17.66479, which also indicates that the difference does not include zero. Thus, it can be concluded that there is a significant effect of the treatment given, which causes a decrease in the average score of 18.62 from the pre-test to the post-test.

Discussion

This development research produces a development product in the form of a design thinking-based learning assessment guidelines that can be used by teachers as a reference in designing appropriate learning and assessment to measure and improve students' creative thinking skills. This learning assessment guidelines raises material on the IPAS content, namely environmental problems threatening life, which is in class V Chapter 8 (*Bumiku Sayang, Bumiku Malang*), teaching topic C. The results of this development research show that: (1) the design thinking-based learning assessment guidelines obtained the validity of learning assessment experts with an average of 0.92 so that it was declared to have very high validity; (2) obtained the results of the teacher practitioner response assessment of 96.44% so that it was categorized as very good; (3) obtained the results of significance (2-tailed) obtained the results of $0.000 < 0.005$, thus showing that, there is a significant difference in the creative thinking ability of grade V students in IPAS subjects before and after participating in learning by using design thinking-based assessment guidelines. Thus, the use of design thinking-based assessment guidelines is effective in improving students' creative thinking skills.

First, the design thinking-based learning assessment guidelines was developed to assist teachers by providing a framework or guidelines for educators in planning, implementing, and evaluating the assessment process to measure student learning progress and achievement (Kurnia et al., 2017; Tejedor et al., 2019). With this design thinking-based learning assessment guidelines, teachers can create an environment that stimulates creativity, provides space for students to explore, and encourages them to think out-of-the-box. The guidelines can also help in providing directions for integrating aspects of creativity into the curriculum and daily learning, thus providing the necessary impetus to improve students' creative thinking skills. This learning assessment guidelines contains learning steps based on the design thinking approach which consists of the Empathize phase, which is the problem recognition phase, the define phase, which is the data collection phase, the ideate phase, which is the process of generating solutions, the prototype phase, which is the stage of making product designs, and the test phase, which is the testing phase of the proposed solution to determine the accuracy of the proposed solution with the needs of the students (Kasri et al., 2021; Noveandini & Wulandari, 2022).

The learning steps that have been adapted to the design thinking approach are one of the efforts to support learning that encourages students to improve their creative problem solving skills (Arifah, 2020; Muhammad Irfan Luthfi, 2023). The product development stage of the learning assessment guidelines begins with the analysis and design stage. At this stage, the process of analyzing the needs of teachers and students, as well as the characteristics of students so as to find the learning assessment guidelines products needed and expected by educators. Based on the results of the analysis that has been carried out, it is used as a basis in the learning assessment guidelines product design process which is then continued with the expert test process to get suggestions and input. So that later the input received can be used in improving the design of the guidelines that has been made.

Second, from the results of the content validity of the assessment guidelines contained in the development stage, it obtained very good qualifications based on the results of the learning assessment expert validity test. Based on the learning assessment theory, the learning assessment guidelines based on design thinking is very well qualified and feasible to be implemented in the learning process. This learning assessment guidelines is prepared based on the principles of learning assessment, including containing integration which means that the assessment prepared is an integral part of the learning process, then the assessment is planned and carried out in accordance with its function, has assessment accuracy, and the learning assessment guidelines developed is informative.

Third, the practicality of the design thinking-based learning assessment guidelines contained in the development stage is very well qualified and feasible to be implemented in the learning process. Delivered by the teacher, the use of this design thinking-based learning assessment guidelines can increase the activeness of students in participating in learning, and support students in channeling their creativity in solving problems in learning activities. The learning that students participate in is more meaningful because students are supported to channel their ideas, and students are trained to be able to solve problems from various points of view (Syifa & Julia, 2023; Yuli Nurul Fauziah, 2020). In addition, the use of design thinking-based learning assessment guidelines will reduce the burden on teachers in preparing learning designs and assessments that are suitable for supporting and training students' creative thinking skills. With the availability of adequate learning assessment guidelines, it is hoped that learning can run efficiently and effectively and ultimately be able to improve students' creative thinking skills. The use of learning assessment guidelines based on design thinking can effectively improve the creative thinking skills of grade V elementary school students in IPAS subjects. Using a design thinking-based approach provides opportunities for students to learn actively and creatively in solving problems in IPAS lessons.

Fourth, the results of the effectiveness test are at the implementation stage. Based on the Paired Sample T-Test analysis, it can be concluded that there is a significant difference in the creative thinking ability of grade V students in IPAS subjects before and after participating in learning by using a design thinking-based assessment guidelines. Thus, the use of design thinking-based assessment guidelines is effective in improving students' creative thinking skills. These results are in line with research related to STEM Learning Based on Design Thinking (Sudarto et al., 2021; Zulyusri et al., 2023). This study states that the design thinking approach is able to encourage students' creative thinking, critical thinking, and problem solving skills. The design thinking approach is effective in improving students' thinking skills in science learning. It is also in line with research related to Resource Based Learning Design Thinking (RBLDT) which uses a design thinking approach in its learning (Dominggus et al., 2021). This research shows that learning the RBLDT learning model can improve creative thinking skills. With the application of the design thinking approach, students have the opportunity to practice and improve their creative thinking skills during the learning process.

The results of the research on learning assessment guidelines in improving students' creative thinking skills are also supported by several relevant studies. One of them is research conducted by study entitled Development of Creative Thinking Skills Assessment of State Junior High School Students 5 Madiun on Light Material and Optical Devices (Kristiani et al., 2017). This study states that assessment is an important component in organizing education. Efforts to improve the quality of education can be achieved through improving the quality of learning and the quality of assessment. Based on the calculation of CVR and CVI, the CVR result is 1 and CVI is 1, thus the results of the validity of the question of students' creative thinking skills are declared valid and very suitable to be used as an assessment of creative thinking skills. In addition, this research is also in line with the results of a study entitled Assessment model in design thinking-based learning media design practice (Arifah, 2020). This study examines the assessment model applied in PAI media and learning resources lectures which in its implementation adopts the design thinking method. Based on the results of this study, it was stated that 83.39% of students passed with a minimum grade of B, which means that this assessment model supports the achievement of the learning carried out.

Based on the results of validity, practicality, and effectiveness as well as relevant research, the design thinking-based learning assessment guidelines can be said to be one of the learning innovations that can be developed to improve students' creative thinking skills. The advantage of the design thinking-based learning assessment guidelines compared to similar products that have been developed previously is that this guidelines is combined with the design thinking approach, this approach is a design process approach to finding solutions to solve problems (Juniantari et al., 2023). By using this approach, students are supported to convey ideas that can be used to solve problems from various points of view. The limitation in this study lies in the scope of material, level and learning content that is raised in the learning assessment guidelines. This learning assessment guidelines is only limited to the material on the IPAS content, namely environmental problems threatening life, which is in class V Chapter 8 (Bumiku sayang, bumiku malang), teaching topic C. And for the number of subjects involved in testing the effectiveness of only 1 class of 29 people using the One Group Pre-Test-Post-Test research design.

The implementation of this development research can have implications for improving the quality of learning which also refers to students' creative thinking skills. The development of this design thinking-based learning assessment guidelines can add to the variety of learning guidelines and learning assessments, so that later teachers have a reference in designing learning and assessment that is carried out so that it can create better learning. This design thinking-based learning assessment guidelines not only facilitates knowledge acquisition, but also develops creative skills, problem solving, and collaboration in the classroom. This will certainly help teachers to increase student motivation and engagement, and create a meaningful learning environment. It is hoped that teachers can develop similar learning assessment guidelines. For students, this design thinking-based learning assessment guidelines can provide real experience in the surrounding environment, so as to increase enthusiasm for learning, and provide a new atmosphere in learning so that students can understand the learning material being taught. This learning assessment guidelines product can be utilized by teachers and students in the learning process, so that it is effective for improving students' creative thinking skills. And the development of learning assessment guidelines based on design thinking can be used as a reference in developing similar products as an effort to improve the quality of learning.

4. CONCLUSION

The design thinking-based learning assessment guidelines for grade V elementary school students in IPAS subjects is valid and practical to use and effective to improve students' creative thinking skills. The

implications of this research are that the learning assessment guidelines products developed can help teachers to hone and improve students' creative thinking skills because they contain a design thinking approach that provides opportunities for students to explore. Then, this learning assessment guidelines can be used as a reference in learning activities that can facilitate students' creative thinking skills, and can inspire teachers to be able to create meaningful learning and comprehensive evaluation.

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