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Analysis of understanding by design concept of teachers' independence and creativity in developing evaluations of mathematics learning in inclusion schools

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Abstract: Independence and creativity in developing evaluations of mathemetics learning based on the comprehension of the Understanding by Design (UbD) concept are skills that mathematics teachers in inclusive schools must possess. This research aimed to obtain an accurate and comprehensive picture of teacher independence and creativity in developing evaluations of mathematics learning based on understanding the concept of Understanding by Design (UbD). It used mixed methods by design, which combined quantitative and qualitative approaches. The population was all mathematics teachers in inclusive schools in the provinces of Bali, Nusa Tenggara Barat (NTB), and Nusa Tenggara Timur (NTT). The sample selection used the cluster random sampling technique, with a total sample of 465 math teachers. Furthermore, the data were collected using a questionnaire. The results of the group mean difference test on teacher independence in developing evaluations of learning mathematics in inclusive schools were obtained at 11500.249, and on teacher creativity in developing learning mathematics evaluations in inclusive schools, they were obtained at 13129.593. It showed that understanding the concept of Understanding by Design (UbD) influences teacher independence and creativity in developing evaluations of learning mathematics in inclusive schools. Increasing the independence and creativity of teachers in the provinces of Bali, NTB, and NTT to develop Understanding by Design (UbD)-based learning evaluations can be done by preparing guidelines for developing Understanding by Design (UbD)-based learning evaluations that can be utilized by teachers studying independently.

Keywords: *Creativity, Disabilities, Inclusive school, Independence, Understanding by design.*

1. Introduction

So far, parents of children with special needs have sent their children to special schools. It is due to the teaching strategies in special schools created and modified for use with children with special needs, and it is known that regular schools are not prepared to accept all forms of student disabilities, from special supervision to limited access to facilities [1]. Special schools are not the only alternative for children with special needs to get educational services. Children with special needs can also receive education in regular schools called inclusive schools [2]. Inclusive schools, also referred to as ABK schools or schools without discrimination, provide educational services for children with special needs [3]. Students with special needs study together in the same class and receive a similar education, although in some cases, for definite lessons, children with special needs are given an uncommon room that is separate from other students due to initial difficulties in identifying the type of children with special needs [4]. Inclusive schools are one way to increase children's social sensitivity, with the exception that in

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inclusive schools, students with special needs are still accompanied by special supervising teachers during teaching and learning activities, especially interactions with general students [5]. Based on the explanation above, the conclusion is that inclusive schools are regular schools where students with special needs can study together with other regular students. Inclusive education is officially an educational service system that includes students with special needs studying in public schools in the surrounding environment with their peers. The inclusive education paradigm aims to provide equal opportunities for all children to learn [6]. The emphasis on inclusive education is on the strengths and development potential of all students, not on their strengths and weaknesses. The latest development in the educational model for children with special needs is inclusive education, which offers learning opportunities for all students regardless of their characteristics and learning challenges [7]. Therefore, inclusive education tries to accommodate all students regardless of their diverse backgrounds and ensures that teaching happens equally without bias or dichotomy. Inclusive education can embrace and meet the unique needs of each child. People who practice it assume that learning and living together are the best ways to live [3]. The concept of our nation's Pancasila serves as the intellectual basis for inclusive education implementation in Indonesia. This idea is a way to acknowledge human beings' vertical and horizontal diversity. Horizontal diversity refers to differences in ethnicity, race, language, culture, religion, place of residence, geography, and other factors, while vertical diversity refers to differences in intellectual, physical, financial, emotional, and other differences. Therefore, inclusive education is a service offered in the education system to enable children with special needs and children without special needs to participate in regular programs without separation [5]. Hence, everyone has the same right to get an education. The implementation of mathematics learning in inclusive schools has three stages: introduction, core, and closing. Before starting the learning process, the mathematics teacher prepares students mentally and physically. Special companion teachers inform students with special needs during previous learning to prepare them [8]. Before explaining the topics taught, the mathematics teacher discusses learning outcomes and learning objectives to be achieved to prepare students psychologically and physically. Mathematics teachers give quizzes to regular students and students with special needs regarding their understanding of the topic discussed during the introductory stage [9]. The questions given are simpler for students with special needs. Special accompanying teachers provide support or instruction to students with special needs so that they can participate in class activities and answer the math teacher's questions. Mathematics teachers use several learning strategies, instructional media, and other learning resources during the core stages. Mathematics teachers actively involve regular students and students with special needs in every learning activity by providing questions, assignments, and answers that encourage students to speak and provide answers [5]. Teachers do not differentiate between regular students and students with special needs. Math teachers and special accompanying teachers encourage interaction between regular students and students with special needs and between students and teachers in each lesson. In the closing stages of learning, the mathematics teacher summarizes or concludes lessons with regular students and students with special needs. Special companion teachers help and advise students with special needs when they make summaries. Evaluation (assessment) and follow-up are the final stages of the mathematics learning process [5]. At this stage, the mathematics teacher prepares follow-up activities such as remedial teaching, enrichment activities, and counseling services for regular students or students with special needs. Based on the explanation above, learning mathematics in inclusive schools does not differentiate between regular students and students with special needs. However, mathematics teachers still encounter obstacles in designing and developing learning evaluations. Understanding by Design (UbD) is a new design in learning evaluations. UbD is a design for understanding. Understanding, in this case, is interpreted in depth, where the teacher does not only know a topic and its discussion but everything related to that understanding [10]. UbD has a flow called backward design, which aims to remember the task and how to achieve it, or it can be called planned training. Several teachers typically teach using textbooks, preferred subjects, and time-consuming activities rather than detracting from targeted goals or standards. Understanding by Design is the other way: around one starts with the desired result (targets or standards), then is derived based on evidence of

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learning (obtained through an assessment based on goals and standards), and then just plans learning experiences and learning [11]. The stage of identifying the desired results considers the learning objectives set by the national curriculum and reviews the curriculum expectations. Because usually, several materials must be discussed, but they are not adjusted to the time available, and at this stage, the teacher makes choices or priorities. Learning priorities are determined based on long-term performance. Performance that students can do what they have learned in the end. UbD emphasizes transfer activity; that is, what is understood is transferred in one's life. High-achieving students not only excel in their class but can also use someone else's learning in another environment.

Specify the assessment evidence that proves that the student has achieved the desired results in meeting the standard. How a teacher determines whether students have achieved the desired understanding. Gathering teacher-understanding evidence should consider a variety of assessment methods. The method is a project assignment and other evidence. Project assignments ask students to apply learning in authentic situations to assess their understanding and ability to transfer it. Meanwhile, other evidence, such as quizzes, tests, observations, or portfolios, is used to complete the assessment to determine student knowledge and what can be done. Peer assessment is highly recommended in this step. Students are allowed to engage in self- and peer assessments to help them determine if their work is appropriate and meets standards.

If all this time planning learning is the first step in designing learning, UbD is the final step. For this reason, it is called a backward design. Several key questions must be considered in the backward design [10]: (1) What enabling knowledge (facts, concepts, and principles) and skills (procedures) do students need to perform effectively and achieve the desired results? (2) What activities equip students with the required knowledge and skills? (3) What needs to be taught and trained, and how should it be taught based on performance objectives? What materials and resources are best suited to achieve this goal? (4) Is the overall design coherent and effective? Based on the explanation above, mathematics teachers in inclusive schools need to design learning by knowing the learning objectives first. Learning planning is a process of making choices about teaching methods, lesson sequences, and resource materials to achieve the desired results. Teaching is a means to an end. Having clear goals helps to focus teacher planning and guides actions towards the desired results [9]. Teaching for understanding requires that students be given many opportunities to draw conclusions and generalize for themselves with the teacher's support. Understanding is not only shown by explanation, but students must be more active in building meaning. Meanwhile, learning for transfer is achieved by applying learning to new situations and environments and receiving timely feedback on student projects [12]. The teacher's UBD framework is not the only source but rather a facilitator for making meaning and a coach who provides feedback and suggestions for effective content. Independence is the ability to respond to situations without depending on others. According to Marlina, et al. [13], independence is a state in which a person is ready and able to realize his desires and practice them to produce goods or services for his own needs and those of others. Psychological and mental independence refers to a person's ability to make decisions and act in his life without outside help. This ability can only be developed if a person can carefully weigh the advantages and disadvantages of a decision or action and the potential advantages and disadvantages [14]. A person must have high independence so all activities can run smoothly according to their goals. Based on the opinions of some of the experts above, in this research, independence is an attitude that allows a teacher to act freely, do something on impulse, and organize himself according to his rights and obligations so he can solve his problems without asking for help from other people or depending on other people, and can be accountable for all decisions taken after going through careful consideration in making learning evaluations. Indicators of independence in Mahendra, et al. [9] included initiative, the ability to identify needs, be able to set goals and targets, be able to organize, control, and monitor issues, see challenges as opportunities, use the right resources, choose learning strategies, put them into practice, and then evaluate the results. After the reform, namely the introduction of Law No. 22/1999 on Regional Government, independence for teachers in Indonesian schools has been discussed. Setting national policies, norms, and educational standards is one of the powers that the central government has in determining the nature of

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the education system in Indonesia. It implies that the implementation of education is outside the scope of the central government. However, the operational authority of the local government in the education sector must be emphasized. It is because if the education unit or school operates effectively, it will form an independent school. As shown in Table 1, independence can be seen in various dimensions and indicators.

Table 1.
Dimensions and indicators of independence.

Dimensions	Indicators
Self-understanding and the situation at hand	a. Recognize the qualities, interests, and challenges you face
	b. Develop self-reflection
Self-regulation	a. Emotion regulation
	b. Setting goals, achievements, self-development and strategic plans to achieve them
	c. Shows initiative and works independently
	d. Develop control and self-discipline
	e. Confident, tough (Resilient), and adaptive

Two indicators form the dimensions of knowing yourself and the situation you are facing [15]: (a) recognizing personal qualities and interests and the challenges faced, which means the teacher can recognize strengths and challenges in the context of learning, social interactions, and the professionals they deal with, and (b) developing self-reflection, namely the ability to reflect on feedback from friends, teachers, principals, and schools. There are five indicators that can be used to indicate teacher independence [16]. (1) emotional regulation, which refers to the capacity to regulate and adjust one's feelings in an appropriate way when she or he faces difficult or stressful situations in the learning context, relationships, or workplace. (2) The achievement of goals, self-development, and strategic plans to achieve them, referring to one's capacity to assess the success of the learning strategies used. (3) Practicing initiatives and working independently as a teacher, namely the ability to determine priorities and take the initiative to seek and obtain new information and teaching skills. (4) Acquiring self-control and self-discipline, which are related to the capacity to act consistently to meet career and self-development goals, and the desire to seek and adopt alternative activities when one faces challenges [12]. (5) Having self-confidence and being resilient and adaptable, which includes the ability to start practicing plans and strategies for self-development by taking into account interests and demands in the context of learning and work and trying to overcome obstacles that may arise [17].

The ability to integrate or develop something based on existing facts, information, or components is called creativity. A person's capacity to produce something that is essentially original and unprecedented is called creativity. Creativity can make works of art, literature, scientific discoveries, or something procedural or methodological [18]. Creative teachers always have several concepts, common sense, and concepts to make up for something perceived as lacking or non-existent. Meanwhile, Handayani and Utami [17] stated that teachers must exert their best creative efforts to produce new approaches in the teaching-learning process that can improve the quality of education of their students in every educational environment. Based on some of the expert opinions above, in this research, teacher creativity is the teacher's ability to develop ideas or ideas owned so that they can develop evaluations in various learning activities to meet some levels of student abilities as well as types and student learning styles [17]. Teachers are professionals, and it proves that a teacher requires the application of previously acquired skills and knowledge to new situations. Teacher creativity also refers to the type of transfer to ensure that students are consistently enthusiastic and happy to participate in the learning process and that the learning objectives are successfully achieved. Teachers must possess a high degree of originality in their instruction. Expressions of teacher creativity can be applied to teachers who use new resources to facilitate learning without having to result in something original. It indicates that the new understanding may consist of concepts, ideas, or things that are completely new and already known. However, because there is no desire to apply them, the teacher is trapped in behavioral habits that are considered established and

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become routine in the teacher's context. A teacher who has been facilitating learning only emphasizes the teaching aspect by using a lecture approach or technique as the only source of learning materials for students without considering other options. Teachers must start being creative by using forms or types of teaching methods that can encourage more active student behavior, attract and challenge students to learn, not be boring, and so on. Table 2 provides information on indicators of teacher creativity.

Table 2.
Teacher creativity indicator.

Dimensions	Indicators
Person (Private)	a. Able to see the problem from all aspects
	b. Great curiosity
	c. Open to everything new
	d. Have broad insight
	e. Able to appreciate the work of others
Process	a. Introduction stage
	b. Preparation stage
	c. Illumination stage
	d. Verification stage
Product	a. New, unique, useful, and valuable
	b. Heuristic
Press	a. Sensitivity in action
	b. Freedom in action
	c. Have a strong commitment to progress
	d. Optimistic and willing to take risks
	e. Persevere in practice
	f. Face problems as self-practice
	g. Conducive environment and not rigid and authoritarian

There are five indicators on the dimensions, namely: (a) Being able to see problems from all angles is the teacher's ability to see problems from various perspectives and consider many types of solutions. Flexible individuals can see problems in a variety of different contexts and produce unusual solutions. (b) Great curiosity, which wants to know new things to develop students' abilities, (c) Open to everything new, which is being open to something and new experiences and beneficial discoveries, oriented to the present and the future. (d) Having broad insight and a high curiosity about everything that exists in learning and the development of the era, (e) Being able to appreciate the work of others, namely the attitude of acknowledging and respecting the work of others as a result of their creativity by giving positive appreciation in the form of pleasant words, praise, and encouragement [19].

The process dimension has four indicators, including (a) the introduction stage, which is feeling that there is a problem in the activities carried out, (b) the preparation stage, which is collecting information on the causes of the problems felt in the activity, (c) the illumination stage, which is the time when inspiration or ideas appear to solve problems, (d) the verification stage, which is the clinical testing stage based on the reality that occurs [20]. The product dimension has two indicators, including (a) new, unique, useful, and valuable, which means teachers can create new techniques, new materials, and new concepts; in terms of inside and outside the field; both the impact of the product on creative products and meeting the needs of problem situations, (b) heuristic, which shows methods that are rarely used by others [21]. The press dimension has seven indicators, namely (a) sensitivity in acting, which is caring for students' learning needs, (b) freedom in acting, which is having full rights and responsibility for decisions taken, (c) having a strong commitment to progress, which is how much the teacher's attachment and responsibility to the work he does at school, (d) being optimistic and willing to take risks, namely teachers who like more challenging efforts to achieve success in carrying out learning, (e) being diligent in practicing, which is the teacher tries with earnestly to obtain the desired goals, (f) Facing problems as self-training, which is being able to solve the root of the problem through gathering facts, analyzing

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information, compiling various alternative solutions, and choosing the most effective problem solving, (g) a conducive environment that is not rigid and authoritarian, which means being able to create an atmosphere that supports the teaching and learning process for students in the learning environment at school and outside of school in an atmosphere where the teaching and learning process takes place [22].

2. Methodology

This research used a quantitative method with an explanatory design [23]. This research aimed to obtain an accurate and comprehensive picture of teacher independence and creativity in developing evaluations of mathematics learning based on understanding the concept of Understanding by Design (UbD). The population is all-inclusive school mathematics teachers in the provinces of Bali, Nusa Tenggara Barat (NTB), and Nusa Tenggara Timur (NTT). The sample selection used the cluster random sampling technique, with a total sample of 465 math teachers. Data were collected using a questionnaire. First, a quantitative method was used to look at the dependent variables of independence (Y1) and creativity (Y2) in order to make an assessment of math learning based on the independent variable of understanding the concept of Understanding by Design (UbD) (X). Then, the data for each variable that had been recapitulated beforehand was processed as follows: (a) We calculated the raw score of each respondent by adding up the scores of all the statement and question items. Next, we transformed the raw score of each respondent into a T-score. This was done so that the score obtained by each respondent could be compared among respondents. Then, we also analyzed the T-score, which has a mean of 50 and a standard deviation of 10. For the T-score, we used the following [24].

$$T = 50 + 10\left[\frac{X - \underline{X}}{SD}\right]$$

Information:
X : Raw score.
$\underline{X}$: Average score.
SD : Standard deviation

Variable data that has been transformed into T-scores is then processed and analyzed using SPSS 26.0 for Windows. MANOVA (Multivariate Analysis of Variance) was used to look at the independent variable X, which has an effect on the independent variables (Y1) and teacher creativity (Y2) in creating assessments of math learning in inclusive schools. Before the MANOVA analysis, a descriptive analysis was first carried out. Analysis requirements tests performed include normality tests and multivariate tests. The constellation among variables (X, Y1, and Y2) is described in Figure 1.

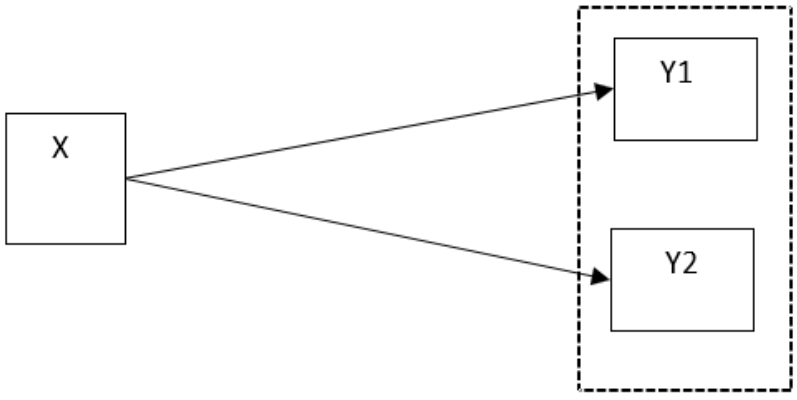

Figure 1.
A constellation of research variables.

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The next stage is an analysis using a qualitative approach, aiming to explain phenomena that have not been able to be explained using a quantitative approach. Qualitative data collection was carried out through observation, research documents, and in-depth interviews. The focus is on extracting data by observing and listening to information directly from informants to gain a deep understanding of the dimensions of the research object. Furthermore, taxonomic, component, and theme analyses were carried out. The analysis was carried out by detailing, grouping, looking at relationships and differences, and looking for relationships between domains, so a deep understanding of the research object was obtained [25].

3. Results and Discussions

3.1. Results

The research data, in the form of independent variables, understands the concept of Understanding by Design. Meanwhile, the dependent variables are Y1 = teacher independence in developing evaluations of learning mathematics in inclusive schools, and Y2 = teacher creativity in developing evaluations of learning mathematics in inclusive schools, which are in Table 3.

Table 3.
Description of research data.

Variables	Group			Statistic	Std. error
Y1	Treatment	Mean		69.923	0.3318
		95% Confidence interval for mean	Lower bound	69.269	
			Upper bound	70.576	
		5% Trimmed mean		69.851	
		Median		69.373	
		Variance		25.649	
		Std. deviation		5.0645	
		Minimum		55.4	
		Maximum		85.6	
		Range		30.2	
		Interquartile range		6.9	
		Skewness		0.211	0.159
		Kurtosis		0.278	0.318
	Control	Mean		59.976	0.3114
		95% confidence interval for mean	Lower bound	59.363	
			Upper bound	60.59	
		5% trimmed mean		59.976	
		Median		60.203	
		Variance		22.499	
		Std. deviation		4.7433	
		Minimum		47.4	
		Maximum		72.4	
		Range		25.0	
		Interquartile range		6.6	
		Skewness		0.019	0.160
		Kurtosis		-0.207	0.318
Y2	Treatment	Mean		80.378	0.4630
		95% confidence interval for mean	Lower bound	79.466	
			Upper bound	81.29	
		5% trimmed mean		80.415	

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Variables	Group			Statistic	Std. error
		Median		79.932	
		Variance		49.95	
		Std. deviation		7.0675	
		Minimum		56.7	
		Maximum		99.8	
		Range		43.2	
		Interquartile range		9.1	
		Skewness		-0.095	0.159
		Kurtosis		0.13	0.318
	Control	Mean		69.751	0.4526
		95% confidence interval for mean	Lower bound	68.859	
			Upper bound	70.643	
		5% Trimmed mean		69.726	
		Median		70.228	
		Variance		47.529	
		Std. deviation		6.8941	
		Minimum		53.0	
		Maximum		92.3	
		Range		39.2	
		Interquartile range		9.7	
		Skewness		0.029	0.160
		Kurtosis		-0.015	0.318

Before doing a MANOVA analysis, a descriptive analysis was first carried out. Analysis requirements tests performed include normality tests and multivariate tests. The results of the normality test are presented in Table 4.

Table 4.
Normality test of research data.

Tests of normality

Variables	Groups	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	Df	Sig.
Y1	Treatment	0.051	233	0.200*	0.993	233	0.336
	Control	0.030	232	0.200*	0.995	232	0.685
Y2	Treatment	0.038	233	0.200*	0.995	233	0.682
	Control	0.038	232	0.200*	0.994	232	0.561

Note: *. This is a lower bound of the true significance.
a. Lilliefors significance correction.

Each group of data was tested with Kolmogorov-Sirnov and Shapiro Wilk. The results of this test stated that the data for each group of each dependent variable Y1 and Y2 were declared to be significantly normally distributed at the 5% alpha significance level. Then a multivariate test was carried out. The multivariate test results are presented in Table 5.

Table 5.
Multivariate test result output.

Multivariate tests[a]						
Effect		**Value**	**F**	**Hypothesis Df**	**Error Df**	**Sig.**
Intercept	Pillai's Trace	0.997	73038.926[b]	2.000	462.000	0.000
	Wilks' Lambda	0.003	73038.926[b]	2.000	462.000	0.000
	Hotelling's Trace	316.186	73038.926[b]	2.000	462.000	0.000
	Roy's Largest root	316.186	73038.926[b]	2.000	462.000	0.000
Groups	Pillai's Trace	0.636	402.945[b]	2.000	462.000	0.000
	Wilks' Lambda	0.364	402.945[b]	2.000	462.000	0.000
	Hotelling's Trace	1.744	402.945[b]	2.000	462.000	0.000
	Roy's Largest root	1.744	402.945[b]	2.000	462.000	0.000

Note: a. Design: Intercept + Klp.
b. Exact statistic.

The multivariate test was carried out with 4 tests, which are Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root. The test results stated that the Intercept + Klp design model was suitable for multivariate testing or suitable for testing with MANOVA. The four test results above state that the treatment carried out affects Y1 and Y2 simultaneously or jointly.

The results of the group mean difference test are in Table 6.

Table 6.
Results of the group mean difference test.

Tests of between-subjects effects						
Source	**Dependent variable**	**Type III sum of squares**	**Df**	**Mean square**	**F**	**Sig.**
Corrected model	Y1	11500.249[a]	1	11500.249	477.635	0.000
	Y2	13129.593[b]	1	13129.593	269.368	0.000
Intercept	Y1	1961567.985	1	1961567.985	81469.020	0.000
	Y2	2620114.984	1	2620114.984	53754.557	0.000
Groups	Y1	11500.249	1	11500.249	477.635	0.000
	Y2	13129.593	1	13129.593	269.368	0.000
Error	Y1	11147.869	463	24.077		
	Y2	22567.635	463	48.742		
Total	Y1	1984871.231	465			
	Y2	2656622.137	465			
Corrected total	Y1	22648.118	464			
	Y2	35697.228	464			

Note: a. R squared = 0.508 (Adjusted R squared = 0.507).
b. R squared = 0.368 (Adjusted R squared = 0.366).

Based on Table 4, the treatment carried out significantly affected Y1 at the 5% alpha significance level, and the treatment also affected Y2 at the 5% alpha significance level. Meanwhile, the dependent variable is Y1 = teacher independence in developing evaluations of learning mathematics in inclusive schools, and Y2 = teacher creativity in developing evaluations of learning mathematics in inclusive schools.

3.2. Discussions

The group mean difference test on teacher independence in developing evaluations of learning mathematics in inclusive schools was obtained at 11500.249. It indicates that understanding the concept of Understanding by Design (UbD) influences teacher independence in developing evaluations of learning mathematics. The mathematics teachers in the experiment were from schools that had implemented an independent curriculum. They also realized that the students they faced at school were diverse and needed different learning assistance. Teachers also provide flexibility and can accommodate students' needs to

increase their potential according to learning readiness, interests, and different student learning profiles. An educator must be able to lead his students to find their identity. This action is part of recognizing personal qualities and interests and the challenges they face, which means teachers can recognize strengths and challenges in the learning, social, and professional contexts they face.

Mathematics teachers in inclusive schools that implement the independent curriculum are also active in self-reflection, which is with fellow teachers, principals, and supervisors. Fellow-teacher reflection activities are carried out through the learning community. Reflection with the school principal is carried out after class supervision. Meanwhile, reflection with stakeholders such as the agency, supervisors, and school committee is carried out through in-house training (IHT) activities that take place at the beginning of each school year. Mathematics teachers in inclusive schools that implement the independent curriculum already have a good understanding of the concept of Understanding by Design (UbD).

The group mean difference test on teacher creativity in developing evaluations of learning mathematics in inclusive schools was obtained at 13,129,593. It indicates that understanding the concept of Understanding by Design (UbD) influences teacher creativity in developing evaluations of learning mathematics. Mathematics teachers in inclusive schools who apply the independent curriculum realize that to be a teacher, they must be creative and innovative in integrating or developing something based on existing facts, information, or components. Mathematics teachers in inclusive schools are also able to produce works that are original and unprecedented. Mathematics teachers in inclusive schools have various common sense and many concepts to cover for something perceived as lacking or non-existent. Teachers are professionals, and it proves that a teacher requires the application of previously acquired skills and knowledge to new situations. Teachers' creativity also refers to the type of transfer to ensure that students are consistently enthusiastic and happy to participate in the learning process and that the learning objectives are successfully achieved. Teachers must have a high degree of originality in their instruction. The opposite happened to the control group, where the inclusive schools in this group had never been touched and were familiar with the concept of Understanding by Design (UbD). Some mathematics teachers at this school consider that the procedure for developing learning evaluation does not need to be carried out strictly, for example, there is no need to compile a grid of questions and carry out item analysis because students with special needs are not able to reason with problems that are as high as those of regular students. The teachers only need to quote the questions in the book or those that have been made several years before. It shows the teacher's low independence and creativity in his duties as a teacher because he does not give the best things to his students. They assumed that by testing pre-existing questions, it was considered sufficient to evaluate learning. Apart from that, the teachers also complained about the lack of guidelines and sample questions that adapted to the students' characteristics learning needs. Principals and school managerial supervisors must maintain the commitment of teachers so that they remain enthusiastic and responsible for carrying out their duties. Academic supervision activities, empowerment of Subject Teacher Deliberations conducting workshops, In-House Training (IHT), and periodic coaching are alternatives that can be chosen to increase teachers' sense of responsibility in carrying out their duties. The education office must also carry out other external motivation in the form of teacher performance evaluation. With performance appraisals, teachers will be motivated to carry out their special obligations in developing assessments under applicable procedures. Evaluation of teacher performance will impact developing career paths, such as the right to promotion or being promoted to occupy a definite position. Therefore, increasing the independence and creativity of teachers in carrying out their duties as teachers, especially in the field of assessment, needs special intervention so that it indirectly spurs teachers to increase their professionalism. The data analysis results show that the knowledge of mathematics teachers in inclusive schools regarding the procedures for developing Understanding by Design (UbD)-based learning evaluation is still lacking. Teachers need to be given reinforcement by the government through education and training activities, workshops, or IHT, specifically on the basic concepts of instrument development in Understanding by Design (UbD)-based learning assessments. So far, teachers in inclusive schools develop evaluations based on what they understand, so they feel their performance is not optimal, even though most of the inclusive teachers have

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not even prepared a question grid. Although some make it, it is not fully under the provisions. The choice of operational verbs in the formulation of the question indicators is still weak and not under the instruments they produce. Likewise, with writing item questions, they did not use question cards but wrote directly on the question packets. Thus, they did not analyze the items under the provisions. The quality of the items made is very varied and does not fully meet the learning needs of students.

4. Conclusion

Based on the data analysis results above, the understanding of mathematics teachers in inclusive schools of the concept of Understanding by Design (UbD) influences the independence and creativity of teachers in developing evaluations of learning mathematics in inclusive schools. The teacher's independence and creativity in developing Understanding by Design (UbD)-based mathematics learning evaluations are categorized as sufficient.

5. Recommendation

To increase the independence and creativity of teachers in the provinces of Bali, NTB, and NTT to develop Understanding by Design (UbD)-based learning evaluations, it can be done by preparing guidelines for the development of Understanding by Design (UbD)-based learning evaluations that can be utilized by learning teachers independently.

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Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Competing Interests:

The authors declare that they have no competing interests.

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All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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