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Pedagogical Competence of Elementary School Teachers: Basic Knowledge and Forms of Learning Activity

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Abstract. A 2019 survey by the Programme for International Student Assessment (PISA) showed that Indonesia occupied a low position, specifically 74th out of 79 countries. In line with this problem, the government has accommodated teachers by implementing the Teacher Competency Test (TCT) since 2012 specifically for teachers who would take part in certification. The focus of TCT is to identify teacher weaknesses in mastering pedagogical and professional competencies. This research aims to explore and analyze the methods of elementary school teachers as fresh graduates at one university in West Java in actualizing pedagogical competence. Mixed method was used to obtain quantitative and qualitative data. This study used two sampling techniques, random sampling to obtain quantitative data and purposive sampling for qualitative data. The instruments used were questionnaires and interviews. The data analysis referred to the sequential explanatory research design. The findings showed various elements of the four indicators of teacher pedagogical competence beginning knowledge foundation, the lesson planning steps determined by the teacher, the teacher's creative pedagogic manifestations, and the teacher's manifestation as a student facilitator. The various intensities and forms of activities were found in the research results. Further outlook of the findings can become a bridge between teachers and students. Students' understanding of the material can be more comprehensive and more creative. It can lead to finding out students' problems and obstacles so that they can decide on solutions quicker and more comprehensively.

Keywords: Elementary School, Knowledge, Learning Process, Pedagogical Competency, Teacher

1. Introduction

The implementation of education and the nation's progress are unified into each other (Lubis, 2015). Quality education generates quality graduates, and quality graduates enable the quality of human resources (HR) to participate in improving living standards. The purpose of education changes rapidly, depending on the times' demands. The requirements for higher capabilities directly affect the education system (Bojović et al., 2020; Ratten, 2020; Zhao & Watterston, 2021). This change encourages teachers to take responsibility for making improvements and reviewing their competencies. The teacher is a crucial element that needs to accompany students in class. The teacher's role and responsibility is not only to educate, teach, and guide but also to read the situation and condition of amenable students in learning (Putri et al., 2019). In the Regulation of the Minister of National Education of the Republic of Indonesia Number 16 of 2007 concerning Academic Qualification Standards and Teacher Competency, there are four competencies that educators should have, including pedagogical, personal, professional, and social competencies obtained from professional education. Moreover, the most essential role of the teachers is to direct and guide students to the right path. Only a few teachers can implement it, and they are the ones who have mature attitudes (more accurately considered as wise teachers) (Rusilowati & Wahyudi, 2020). One of the four integrated competencies is pedagogical competence which refers to the teacher's ability to create effective teaching and learning activities because it may affect student learning outcomes. (Efendi, 2021). The manifestation of pedagogical competence is the

teachers' role in building student learning abilities through providing motivation that can determine the improvement and success of student learning (Efendi, 2021).

1.1. Problem Statement

The problem in Indonesia's education consists of two types, namely macro and micro. The micro problem arises in the components of education as a system, such as the curriculum (Alfian & Anwar, 2023). Meanwhile, the macro problem originates from one system with another broader system covering communal life, such as the uneven distribution of education in the regions (Alfian & Anwar, 2023). Based on the *Programme for International Student Assessment* (PISA) survey results in 2019, Indonesia occupies a low rank, specifically the 74th out of 79 countries. In line with these problems, the government has accommodated teachers by implementing the Teacher Competency Test (TCT) since 2012 specifically for teachers who would take part in certification. The focus of TCT is to identify teacher weaknesses in mastering pedagogical and professional competencies (Kementerian Pendidikan dan Kebudayaan, 2015, pg. 2).

Preliminary research was conducted through interviews with 29 elementary school teachers. They consisted of 20 females (69%) and nine males (31%) with an age range of 22 to 58 years. For their educational background, 28 of them had bachelor's degree and one teacher had a master's degree. Employment-wise, 13 (44.8%)teachers were government employees (*Pegawai Negeri Sipil*/PNS), five (17.2%) were government employees with work agreement (*Pegawai Pemerintah dengan Perjanjian Kerja*/PPPK), and 11 (37.9%) were honorary employees. 12 (41.4%) of the teachers already had certification status and 17 (58.6%) people had not. Meanwhile, their teaching experience ranged from one to 29 years.

In the interviews, first, the teachers defined competence as the ability which includes skills, knowledge, and teacher behavior in carrying out performance. Secondly, they were asked about the relationship between teachers and competencies. 27 teachers stated that they are closely related (80%), one teacher assumed it was very crucial (10%), and one teacher revealed it was only related (10%). Regarding competence courses, 29 teachers stated that they received teacher competence courses at the university (100%). The university course on teacher competency was filled with simulations, lectures, and presentations. A total of 17 teachers assumed that all competencies (pedagogical, professional, personality, and social) were necessary to be maintained. Six teachers thought pedagogic was the most crucial competency. Four teachers focused on personality competencies. One teacher referred to professional competencies, while one teacher stated that personality competencies and pedagogic, as the most crucial. The teachers concluded that pedagogical competence is a skill that must be mastered by teachers to (1) see students from various aspects of life (moral, emotional, and intellectual), (2) comprehend student characters, (3) design the lessons, and (4) evaluate learning outcomes. The teachers obtained materials to study pedagogical competence from (1) books, journals, and social media, (2) lectures, (3) the process of designing lesson plans, and (4) seminars. They also exemplified the implementation of pedagogical competence in terms of (1) preparing the annual program with lesson plans and types of learning assessments, (2) accommodating students the guidance and counseling, (3) giving advice and motivating students, (4) instilling moral values and Pancasila student profiles, (5) studying the foundation of education, applying learning theory, and determining learning strategies, (6) reflecting, and (7) understanding the characteristics of students from the moral, social, cultural, and emotional aspects.

Based on the interview results, the teachers, be it having a status as PNS, PPPK, or honorary, have the same understanding of pedagogical competence. They could acquire pedagogical competence based on academic activities on and off campus. Particularly in campus activities, pedagogical materials were given in a single course for one semester, and its application in micro-teaching materials.

Based on the observation results of seven elementary school teachers, the learning process referred to the theme book and student worksheets. Meanwhile, two of seven teachers integrated information and communication technology (ICT) in their learning process. Efforts to develop student's academic and non-academic achievements resulted in two out of five

teachers carrying out activities such as extracurricular activities and additional teaching hours at home. Meanwhile, teacher competency has developed as Technological Pedagogical and Content Knowledge (TPACK). These are the basic concepts of effective teaching with technology, knowledge of learning concepts, and the use of technology (Elas et al., 2019). There were still teachers who were unable to use technology for educational purposes.

Further investigation of the elementary school teachers' pedagogical competence is needed. Especially in the specifics of the basic understanding and forms of activities of new graduate teachers who can embody the latest knowledge values, implement learning methods, and build a relationship with students using actual technology.

1.2. Related Research

Şentürk & Zeybek (2019) examined the conception of teaching and learning and teachers' perceptions of pedagogical competence by utilizing correlational techniques. This research found, first, a positive or negative relationship between the teachers' conceptions of teaching and learning and the sub-dimensions of perceptions of pedagogical competence. Second, based on the regression analysis, the overall model was significant and the teachers' conceptions of teaching and learning and perceptions of pedagogical competence were significantly related. Third, the majority of teachers had a traditional conception of teaching and learning, and there was no significant relationship between the traditional conception of teaching and learning and their perception of pedagogical competence except for the first dimension. Fourth, there was a significant positive relationship between the conception of teaching and learning and the perception of pedagogical competence in teachers who had a constructivist conception of teaching and learning. Based on these findings, the level of perception of teachers' pedagogical competence decreased as the conception of teaching and learning moved towards the traditional conception, and the level of perception of teachers' pedagogical competence increased as the conception of teaching and learning moved towards constructivism.

The next study by Apriliyanti (2020) concerned the challenges and benefits of strengthening competence through professional development programs. The use of qualitative case study methods in this research gained three findings. First, pedagogical and professional competencies were basic formulas for learning the material taught in the program. Second, there were four obstacles and challenges to implementing teacher knowledge in the classroom and institutions related to innovative teaching methods and creative teaching designs. Third, challenges and benefits in implementing professional learning development were one of the solutions to strengthening the competence of English teachers in Indonesia.

Gedik & Delican (2022) investigated the relationship between the level of professionalism and pedagogical digital competencies of pre-service elementary school teachers. The research aimed to determine the relationship between the level of professionalism of prospective elementary school teachers and competence in using/creating pedagogical digital tools. In line with this aim, it used descriptive and relational survey models from quantitative research methods. The research sample consisted of prospective grade 3 and 4 teachers in the 2019-2020 academic year. Descriptive and relational survey models were used, and instant measurement by sectioning method was preferred throughout the research. The "Pre-Service Teacher Professionalism Scale" which consisted of four sub-dimensions, and the "Pre-Service Teacher Pedagogical Digital Competency Scale" which consisted of three sub-dimensions were used as data collection tools. For data collected in this period, the software package SPSS 20, Simple Linear Regression Analysis, and Pearson Product-Moment Correlation Analysis were used. By collecting data at the end of the process, the level of professionalism of elementary school teachers and competence in using/creating digital pedagogical tools were also analyzed based on variables such as gender, grade level, age, time using computers, and the internet. In conclusion, prospective primary school teachers' digital pedagogical competence is a significant predictor of their level of professionalism.

Further, Mariscal et al. (2023) expanded the pedagogical competence of elementary school teachers in integrating educational technology in the classroom. The research found that elementary school teachers had positive attitudes toward educational technology, and most

reported a high level of competence in its use. However, the level of pedagogical competence regarding educational technology varied significantly among teachers. Therefore, the research emphasized the need for programs and interventions to improve teachers' pedagogical competence in integrating educational technology into their teaching practices. Teachers had to identify the right technology tools and resources to effectively implement educational technology to support their teaching goals and engage students in meaningful learning experiences. Teachers should also assess students' technical skills and design activities appropriate to their level of technological competency. This research recommended that elementary school teachers underwent training to improve their pedagogical competence in utilizing educational technology. Therefore, integrating technology into education is essential in providing high-quality education in the 21st century. Programs were needed to improve teachers' pedagogical competence in implementing it into their teaching practice.

In contrast to previous research, this current research aims to explore and analyze the actualization of pedagogical competencies taken from the perspective of elementary school teachers who were fresh graduates of the primary school teacher education program at a university in West Java Province. This research utilized a mixed method to acquire various and in-depth data. With the two types of data obtained, the research results were intended to present concrete data in the form of numbers explained again by the participants through interviews.

1.3. Research Objectives

This research focuses on how elementary school teachers as fresh graduates actualize their pedagogical competence.

2. Theoretical Framework

2.1. Pedagogical Competence

The pedagogical area leads to educating and teaching qualifications. Extensive and up-to-date knowledge in the subject area, as well as cognition of learning and teaching issues are also required (Poro et al., 2019). Pedagogic competence is a significant element in determining the success of the learning process such as student management, planning, designing learning processes, evaluating learning outcomes, and student development (Goss, 2022). Its role include comprehending the students in-depth, designing learning based on their perception, carrying out conducive learning, carrying out continuous learning evaluations with various methods, conducting evaluation analysis of learning processes and outcomes, and developing academic and non-academic potential of the students (Sointu et al., 2023). The stability of the quality of education lies in the teacher's pedagogical competence (Mariscal et al., 2023). It directs teachers' skills in designing effective learning processes, and accommodating all learning styles and different levels of student learning abilities, as well as establishing appropriate teaching strategies to engage students in meaningful and productive learning experiences (Toshtemirovich, 2019). In line with the 21st-century skills, pedagogical competencies involve technological tools in the learning process (Vera et al., 2021)

2.2. Basic Knowledge and Activity Forms of Pedagogical Competence

Features of pedagogical abilities are crucial in ensuring rational organization and implementation of pedagogical activities by educators, for instance, effective practical tasks. How effective and successful the organization of the pedagogical process depends on the teacher's pedagogical abilities (Toshtemirovich, 2019). The manifestation of pedagogical competence includes at least mastering educational insights and foundations, understanding the students, being proficient in developing curriculum or syllabus, designing learning, carrying out educative and dialogic processes, integrating technology, and evaluating learning outcomes (Fahmi et al., 2022). The priority characteristics inherent in pedagogical abilities are (1) pedagogical tactics (differentiated activities of the teacher and students existing in dialogue, organized in the form of observance of moral principles, rules of behavior, and possession of the skills to approach them correctly), (2) pedagogical observability (the ability

to pay attention to students even typical of the teacher's modest features characteristic), (3) love towards students (showing kindness, inner experiences, feelings, dreams, friendship with life aspirations, they handle difficult situations), and (4) the need for knowledge transfer (as teachers try to provide students with the knowledge they have) (Toshtemirovich, 2019). In modern conditions, educators must be able to train themselves in the following pedagogical abilities: (1) communication accessibility; (2) emotional sensitivity (professional awareness, towards others to be able to sympathize, to have inner intuition); (3) mobility, the strong will of participants in the educational process, possession of the ability to influence and convince; (4) emotional stability (self-esteem, self-control, self-control); (5) predicting the future optimally; and (6) professional independence, possession of creative abilities (Toshtemirovich, 2019).

3. Method

3.1. Research Design

This research used mixed methods. It allowed the researcher to use both quantitative and qualitative data simultaneously, allowing the researcher to mine the data even further beyond the additional insights of quantitative and qualitative data (Creswell, 2021). This research used the sequential explanatory design. First, the study emphasized quantitative research whereupon collection and analysis of data was carried out, and then continued to qualitative research to explain the results of quantitative research (Creswell, 2021). An illustration of the research design is presented in Figure 1.

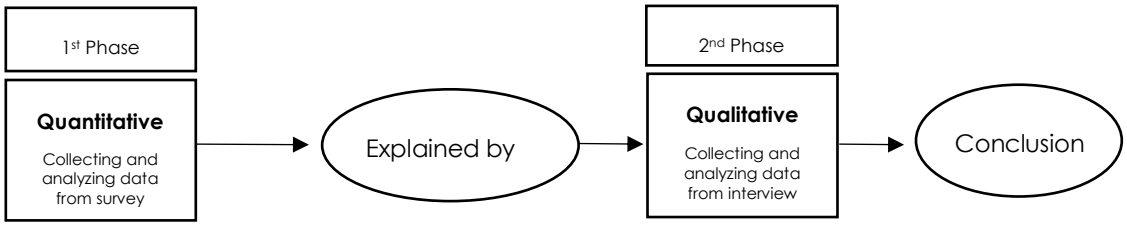

Figure 1. The Sequential Explanatory Design
Source: Creswell (2021)

A qualitative approach was needed to gather verbal and in-depth information from the teachers regarding how to manifest pedagogical competence creatively and teachers' challenges in educating. Meanwhile, a quantitative approach was required to obtain complex verbal dimensions of pedagogical competencies data on the teachers' methods to fulfill pedagogical responsibilities.

3.2. Population and Sample

To acquire data, the random sampling technique was used in the qualitative part of the research, while purposive sampling technique was used in the quantitative part. The population of this study was graduates of the elementary school teacher study program at a university in West Java Province. In more detail, the research sample were fresh graduates from elementary school teacher education in 2017. A survey was distributed to 126 graduates, and only 36 responses were received. This happened because not all graduates took jobs as teachers, some have never taught, and others immediately took part in the Pre-service or teachers' professional learning program.

The sample consisted of five male teachers (13.9%) and 31 female teachers (86.1%). 17 teachers (42.2%) were aged 23 years, and 19 teachers (52.8%) were aged 24 years. They were spread in several cities namely Majalengka, Bandung, Sumedang, Cirebon, Garut, Jakarta, Lampung, Padang, and Subang. Based on grades that they were teaching at that time, six teachers (16.7%) were teaching in the 1st grade, six teachers (16.7%) in the 2nd grade, three teachers (8.3%) in the 3rd grade, nine teachers (25%) in the 4th grade, nine teachers (25%) in the 5th grade, and three teachers (8.3%) in the 6th grade. In terms of the participants' workplaces, 31 teachers (86.1%) were teaching in public schools and five teachers (13.9%) in private schools.

3.3. Ethical Consideration

The sample's/participants' approval to be the primary data source is notable in this research. Since the research used a sequential explanatory design, the researcher identified samples willing to participate in qualitative research by seeking their consent when collecting quantitative data. As per the samples' consent, the data was allowed to be collected, analyzed, and tested for validity. Finally, publication in the form of scientific research results could be accounted for.

3.4. Data Collection

This research used questionnaires and interviews. Before conducting the survey distribution, the questionnaire was validated by an expert. The survey was distributed to the alumni of a university in West Java Province via a Google Form. The survey referred to a self-assessment that allowed us to measure habits in applying pedagogical competencies in the school environment. This research also used in-depth interviews to gain further information in addition to information obtained through the survey. The interviews were conducted with the participants who were willing to be interviewed.

3.5. Data Analysis

This research used sequential explanatory design. Initially, the data were quantitative, then the data analysis and findings identification that required further explanation were done using qualitative. Figure 2 illustrates analysis procedure.

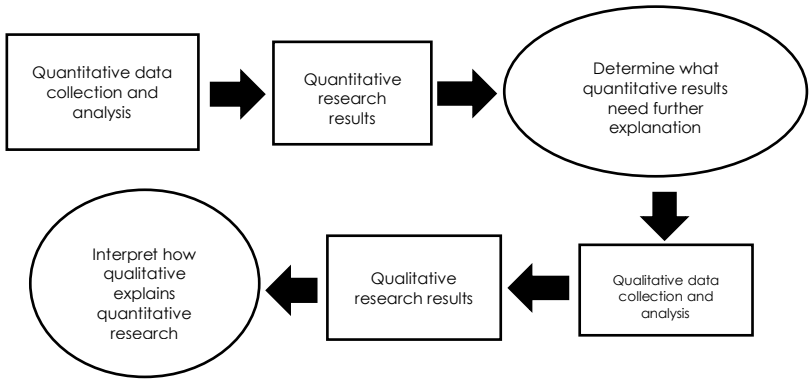

Figure 2. Sequential Explanatory Design Data Analysis Procedure
Source: Creswell (2021)

Based on Figure 2, the quantitative stage included collecting populations and samples, distributing surveys, and obtaining scales. This stage produced data with a self-assessment result scale. Furthermore, the quantitative data analysis included cleaning the data, entering the data into MS Excel software, and producing descriptive statistical results. The qualitative stage was based on the findings of quantitative data. It was attained by the participants' consent to conduct interviews. This process produced interview transcripts, video recordings, and supporting documents. The final stage were conducting data transcripts, coded results, and themes. More details were also acquired in the forms of a list of statements, coding, themes, and even diagrams that connect between themes.

3.6. Validity and Reliability

The preparation of the questionnaire instrument required a validation test. Validation testing of the instrument on the basic knowledge of pedagogical competency learning activities for elementary school teachers as fresh graduates' used the construct validation involving an expert. The construct validity result showed that all instrument items were valid. However, to support this validity, content validity was also used involving 15 civil servant teachers to measure the instrument's validity. The validation test results on the questionnaire instrument using SPSS version 26 is presented in Table 1.

Table 1. Validity Test Results of Questionnaire Instruments

Question item	Reliability	r table	Decision
1	0.561	0.4575	valid
2	0.720	0.4575	valid
3	0.765	0.4575	valid
4	0.640	0.4575	valid
5	0.765	0.4575	valid
6	0.640	0.4575	valid
7	0.765	0.4575	valid
8	0.585	0.4575	valid
9	0.640	0.4575	valid
10	0.765	0.4575	valid
11	0.585	0.4575	valid
12	0.640	0.4575	valid
13	0.765	0.4575	valid
14	0.640	0.4575	valid
15	0.765	0.4575	valid
16	0.585	0.4575	valid
17	0.640	0.4575	valid
18	0.765	0.4575	valid
19	0.543	0.4575	valid
20	0.657	0.4575	valid
21	0.662	0.4575	valid
22	0.786	0.4575	valid
23	0.615	0.4575	valid
24	0.605	0.4575	valid
25	0.589	0.4575	valid

Source: Processed data (2023)

This research used SPSS version 26 to conduct the instrument reliability test. The reliability test results are shown in Table 2.

Table 2. Reliability Test Results of Questionnaire Instruments

Reliability Statistics

Cronbach's Alpha	N of Items
.949	25

Source: Processed data (2023)

Testing the consistency of the questionnaire statement items is was based on the following Table 3 below.

Table 3. Reliability Level

Cronbach's Alpha Score	Reliability Level
0.0-0.20	Less reliable
>0.20-0.40	Rather Reliable
>0.40-0.60	Quite Reliable

>0.60-0.80	Reliable
>0.80-1.00	Very Reliable

Source: Sarstedt et al. (2021)

Sarstedt et al. (2021) stated that Cronbach's Alpha is acceptable if >0.6. Based on the calculation results, the reliability test result of 0.949 means that the instrument is reliable.

4. Findings

This research focuses on extracting data on the efforts of elementary school teachers in actualizing pedagogical competence in the learning process. Pedagogic manifestation is an advanced stage of the pedagogical courses during the bachelor study. The research findings yielded four themes, namely (1) basic knowledge base, (2) lesson planning steps, (3) elementary school teacher creative pedagogy, and (4)]teachers as student facilitator.

4.1. Basic Knowledge Base

The survey was distributed to graduates to study the creative pedagogic efforts of elementary school teachers. This research took their perspective to examine the closeness between theory acquired at the university and teaching practice in elementary schools. Figure 3 shows the survey results related to the intensity of teacher assessment efforts on the type of curriculum applied and the basis of educational materials.

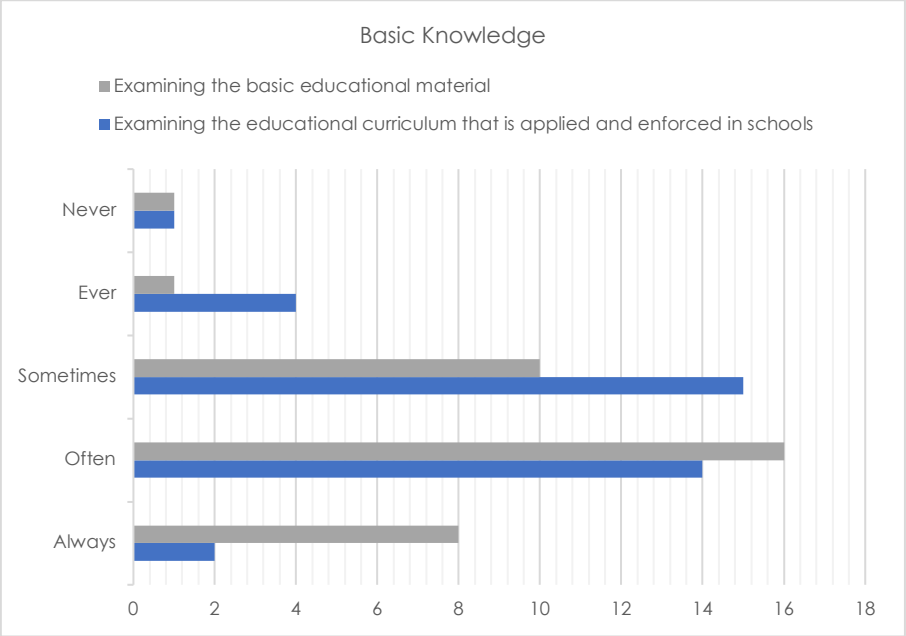

Figure 3. The Results of Basic Pedagogic Knowledge
Source: Processed data (2023)

Based on the data, two components were acquired in building the basic knowledge of pedagogical competence. Each component was divided into several intensities, there are 'always', 'often', 'sometimes', 'ever', and 'never'. First, regarding the study of the curriculum applied in schools, eight teachers (22.2%)answered 'always', 16 teachers (44.4%) answered 'often', 10 teachers (27.8%) answered 'sometimes', one (2.8%) teacher answered 'ever' (has done), while one teacher (2.8%) answered 'never'. The next component was the effort to study the fundamental education material carried out. Two teachers (5.6%) answered 'always', 14 teachers (38.9%) answered 'often', 15 teachers (41.7%) answered "sometimes', four teachers (11.1%) answered 'ever' (have done), meanwhile, one teacher (2.8%) answered 'never conducted a study'.

To obtain in-depth information, interviews were conducted using an interview guide to obtain more information to support the questionnaire. The questions and the participants' answers were as follows.

Q1: What kind of method was used in finding out the level of cognitive abilities of students according to their age?P1: Diagnostic test

P2: Games oriented towards calculations, telling stories, experimenting/trying, assignments through worksheets, and giving tests

P3: Observations during the lesson and an evaluation test at the end of the lesson

The participants' answers indicate the vital methods used according to the teacher's needs. The first participant used a diagnostic test to determine the level of students' cognitive abilities. It relates to students' needs and the material applied in class. The second participant combined thinking and trying activities. The orientation of the third participant was the teacher as a participatory observer.

Q2: What are your considerations in recognizing student personality types and stages of personality development?

P1: Applying communication not in only one direction but in various directions by involving student-student and, students and teachers' interactions, and vice versa

P2: Observation of student character (quiet, shy, angry, and active), student independence, student sense of knowledge, interactions between students who tend to be in groups or individually, even during breaks

P3: The results of observing student behavior during learning takes place and outside of learning hours using a lot of time because it needs to pay close attention properly

The answers of all participants led to the same point, that is strengthening observation and communication between teachers and students. The first participant corroborated multidirectional communication. The third participant answered observations of student habits. The second participant combined observation activity of character, independence, knowledge, and strengthening communication.

Q3: How do you improve your quality as a teacher?

P1: Dissatisfaction with one ability and continue to learn to take advantage of sources available in the environment, including technology. Participate in activities that can improve self-quality, evaluate and share with fellow teachers

P2: Participating in training and seminars, sharing with colleagues and seniors through the KKG, searching for information on the internet

P3: Participating in seminars and training organized by educational institutions and government agencies

Based on the replies, the three participants agreed that training and seminars were a way to improve self-quality as a teacher. In both places, they discovered other abilities, including utilizing technology, And converging with colleagues who can provide evaluations and share experiences.

Q4: What are your considerations in choosing a teaching profession?

P1: Ideals since school and considering the linearity of the bachelor's degree from an education

P2: Add insight because of the availability to learn and develop yourself and keeping up with the times, participate in educating the life of the nation

P3: The teaching profession is the right choice to participate in liberating a nation by improving the quality of education

Q5: What is the biggest challenge you have faced as a teacher?

P1: Understanding the students' different characteristics. Especially during the COVID-19 pandemic, the parents, knowledge, skills, and students' attitudes needed to be reshaped post-pandemic.

P2: The diversity of student behavior and class management in grade 1 so that students can focus on learning

P3: The diverse characteristics of students are a challenge. Teachers sort and choose the appropriate models and strategies so that students can understand the subject learning

Q6: How do you deal with these challenges?

P1: Practice good communication with parents, and encourage ourselves more to grow the knowledge, skills, and attitudes of students involved after the pandemic

P2: Provide time to chat with students after individual learning time so they can talk about their problems at school (reasons for not willing to write, read, etc.), carry out diagnostic and cognitive tests (which direction do students tend to go, level of creativity, level of beginning writing skills, adult tutor at home)

P3: Identifying the character of each student to determine the way and pattern of student learning

The participants' viewpoints revealed the ideal contribution to the country by being teachers. They build upon this idealism and did not deny the existence of challenges, especially following the students' characteristics and habits. This diversity encouraged teachers to immediately implement learning differentiation that was able to accommodate and respect students' differences in character. The method of acquiring solutions was through communication with parents and students at two different times to obtain information personally and freely. Diagnostic tests and student knowledge, abilities, and attitudes Were used as the basis for obtaining information on student character development to determine appropriate learning patterns.

Q7: Are the materials in the classes (during your study at the university) sufficiently helpful in developing your pedagogical competence?

P1: Very helpful. They help in developing pedagogical competence

P2: Sufficiently helpful in recognizing student characters, designing pedagogically oriented learning, and providing provisions for working in the field based on concrete conditions. The opportunity for practical field experience programs and real work lecture programs is a continuation of the pedagogical subject at the university

P3: Very helpful. They facilitate teachers in overcoming and taking steps in the learning

According to the participants, the experience of learning pedagogical material in a particular subject is beneficial in developing pedagogical competence. Based on the responses, the samples agreed that pedagogic lecture material is basic knowledge in the work world.

Q8: What things can help develop your pedagogical competence?

P1: Experience

P2: Participating in training, seminars, teacher work groups, and textbooks

P3: Reading and practicing pedagogical competencies in the learning process in the classroom

The participants attempted to develop basic knowledge of pedagogical competence by continuing to strengthen pedagogical material. It enabled them to practice it well, by participating and collaborating in a group.

Q9: How do you show a good personality in front of students?

P1: Be more careful and wiser in taking a stance so that it can be an example for students, hoping they can imitate it. Appreciate student effort without comparing scores and have the willingness to admit mistakes

P2: Demonstrate enthusiasm as a teacher, hospitality, friend figures for students, and other positive activities so that students can emulate.

P3: Set an example in speech and behavior.

Three participants stated that they demonstrated a good personality in words and behavior. The first and second participants considered students as imitators of all teacher behavior.

Q10: What students' problems does the teacher find?

P1: Various.

P2: Students lack confidence in reading, writing, and arithmetic. They often cry, are angry and lazy, and have conflicts.

P3: Students have difficulty understanding the subject matter.

Q11: What kind of solution did you give to students?

P1: Adjusting the problems found in students.

P2: Bridging and listening to student's points of view and communicating with their parents.

P3: Doing innovative and creative learning.

The two questions above are related to each other. The participants found a diversity of student problems. The second participant described in detail that students' self-confidence and emotional regulation were still unstable. Meanwhile, the third participant found students had difficulty understanding the material. The solutions were in the form of creating innovative and creative learning as well as being a bridge to hearing the views of students and their parents.

4.2. Lessons Planning Steps

Planning or designing a concept is the primary basis for a proper and purposeful activity. In line with the initial construct of education leads to a conscious and planned effort. Figure 4 below is the result of teacher actualization in carrying out lesson planning.

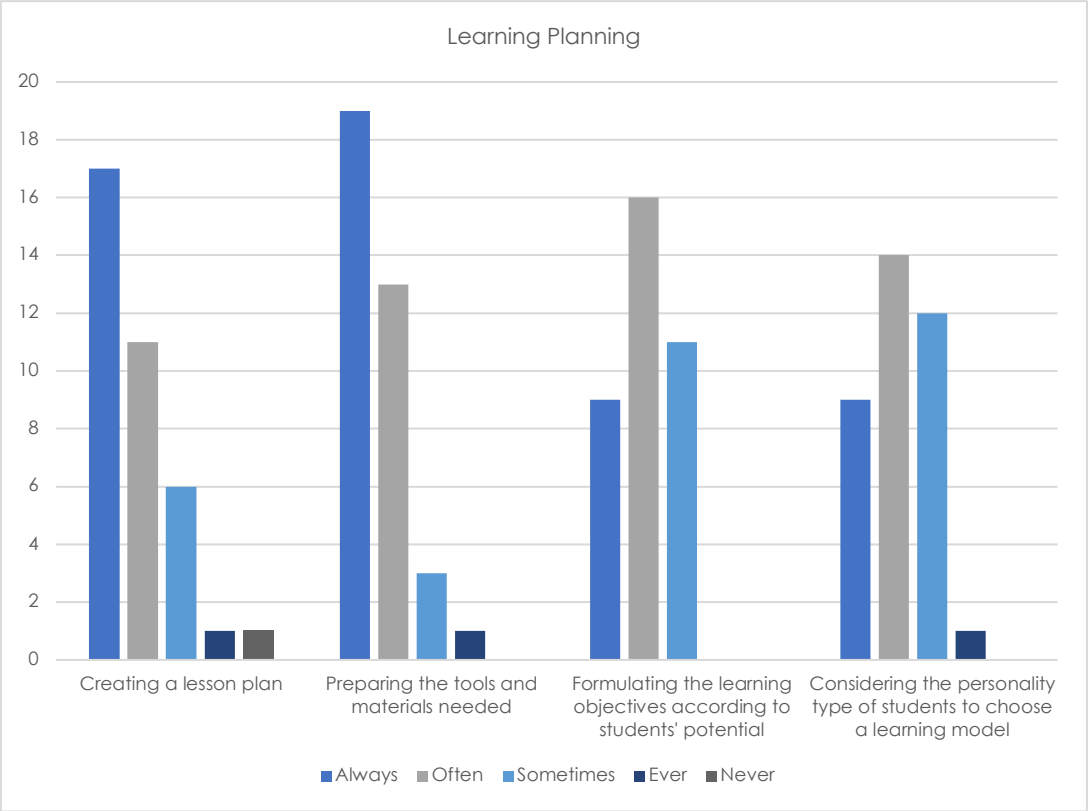

Figure 4. Results of Lessons Planning Steps
Source: Processed in 2023

It is shown in Figure 4 that there are four components allowed the form of data groups as planning learning steps. The first step is to make a lesson plan before carrying out the teaching and learning process. Seventeen out of 36 teachers (47.2%) answered 'always', eleven teachers (30.6%) answered 'often', six teachers (16.7%) answered 'sometimes', one teacher (2.8%) answered 'ever', and one teacher (2.8%) answered 'never'. The second step is practically preparing the tools and materials needed before implementing the learning process. The answers were dominated by teachers who 'always' did it (19 teachers, 52.8%). Meanwhile, 13 teachers (36.1%) did it 'often', three teachers (8.3%) 'sometimes', and one teacher (2.8%) 'ever' did it. For this component, no participants (0%) answered 'never'. The third component was efforts to formulate learning objectives according to student potential. Nine teachers (25%) answered 'always', 16 teachers (44.4%) answered 'often', and 11 teachers (30.6%) answered 'sometimes'. Choices 'ever' and 'never' received zero votes or no one voted (0%). The fourth component was to consider the personality type of students to choose a learning model. Based on the survey results, nine teachers 'always' did it (25%), 14 teachers 'often' did it (38.9%), 12 teachers 'sometimes' did it (33.3%), and one teacher has 'ever' done it (2.8%). Meanwhile, the choice 'never' had zero votes (0%).

Further information of the survey results through interviews were gained from two participants. This dimension generated six questions related to the teacher's ability to plan lessons.

Q1: What are your considerations in choosing the type of learning strategy/method?

P1: Adjusting to the material, reviewing the availability of facilities and infrastructure, paying attention to student's abilities, and considering the learning time.

P2: The geographical location of the remote school, the school's facilities and infrastructure, and the needs of students in grade 1. A lecture method is not suitable. So, utilizing role-playing methods and field trips adapted to the objectives and time of learning are more suitable, for example, art and collage using experimental or demonstration methods.

P3: Starting from the learning objectives, students' initial abilities, and the subject matter to be studied

Based on the answers from the three participants, facilities, infrastructure, materials, and students' abilities as considerations were stated repeatedly. Specifically, the first participant added study time. The second participant considered geographic location. The third participant considered learning objectives. These three differences build upon the results of each analysis in the learning process. In particular, in the second participant, the school was geographically located far from residential areas, through forest and hill areas.

Q3: What are the appropriate learning patterns or steps?

P1: Patterns or steps following the material and conditions of the students. The materials are not made instantly, but needs to be planned through lesson planning.

P2: Provided with the habit of reading *Asmaul Husna* and short surahs in Al-Quran as well as prayers, singing Indonesia Raya songs and the national anthem) and other steps according to the lesson plan document

P3: Following the stages in the lesson plan document, such as the preliminary stage, core activities, and closing.

According to the participants' answers, their viewpoints on learning patterns or steps that need to be planned was that if there was character strengthening at the beginning, the learning steps would still follow to the lesson plan as a guide.

4.3 Creative Pedagogy of Elementary School Teachers

The pedagogical discussion does not only target lecture theory but also focuses on the practice manifested in the learning process. This theme derives two main elements related to the creative pedagogy of elementary school teachers, as follows in the first part discusses students' mental and intellectual strengthening.

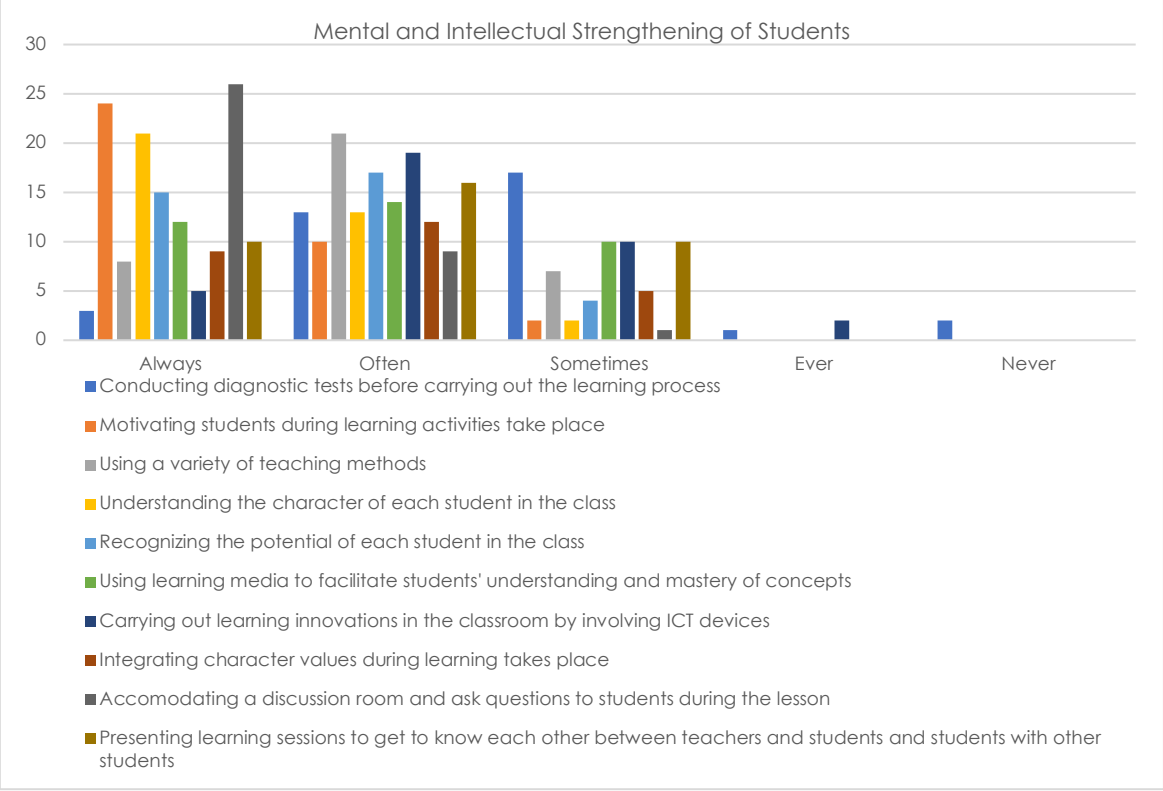

Figure 5. The Results of the 1st Element Survey

Source: Processed in 2023

Figure 5 shows the results of a survey of the elementary school teachers' pedagogical practices through the mental and intellectual strengthening of students. It includes ten components with their respective intensities. For the first component, the implementation of the diagnostic test by the teacher before carrying out the lesson, the answer 'always' was obtained from eight teachers (8.3%), 'often' from 13 teachers (36.1%), 'sometimes' from 17 teachers (47.2%), 'ever' from one teacher (2.8 %), and 'never' from two teachers (5.6%). For the second component, giving motivation to students during learning 24 teachers (66.7%) answered 'always', 10 teachers (27.8%) answered 'often', two teachers (5.6%) answered 'sometimes'. For the Third, using a variety of teaching methods, eight teachers (22.2%) answered 'always', 21 teachers (58.3%) answered 'often', and seven teachers (19.4%) answered 'sometimes'. For the fourth, understanding the character of each student, 21 teachers dominated (58.3%) with the answer 'always', 13 teachers (36.1%) answered 'often', and two teachers (5.6%) answered 'sometimes'. For the fifth component, recognizing the potential of each student in the class, 15 teachers (41.7%) answered 'always', 17 teachers (47.2%) answered 'often', and 4 teachers answered 'sometimes'. For the sixth, using learning media, 'always' was given by 12 teachers (33.3%), 'often' by 14 teachers (38.9%), and 'sometimes' by 10 teachers (27.8%). For the seventh, carrying out learning innovations in the classroom involving ICT devices. 'always' was given by five teachers (13.9%), 'often' by 19 teachers (52.8%), 'sometimes' by 10 teachers (27.8%), and 'ever' by two teachers (5.6%). For the eighth component, integrating character values during learning, nine teachers (52.8%) answered 'always', 12 teachers (33.3%) answered 'often', and five teachers (13.9%) answered 'sometimes'. For the ninth, opportunity to have open discussion and question and answer, 26 teachers (72.2%) answered 'always', nine teachers (25%) answered 'often', and one teacher (2.8%) answered 'sometimes'. For the tenth component, presenting sessions to get to know each other, 'always' was given by 10 teachers (27.8%), 'often' by 16 teachers (44.4%), and 'sometimes' by 10 teachers (27.8%).

Obtaining survey data discusses more broadly related to follow-up learning carried out by the research sample. As visualized in Figure 6 below.

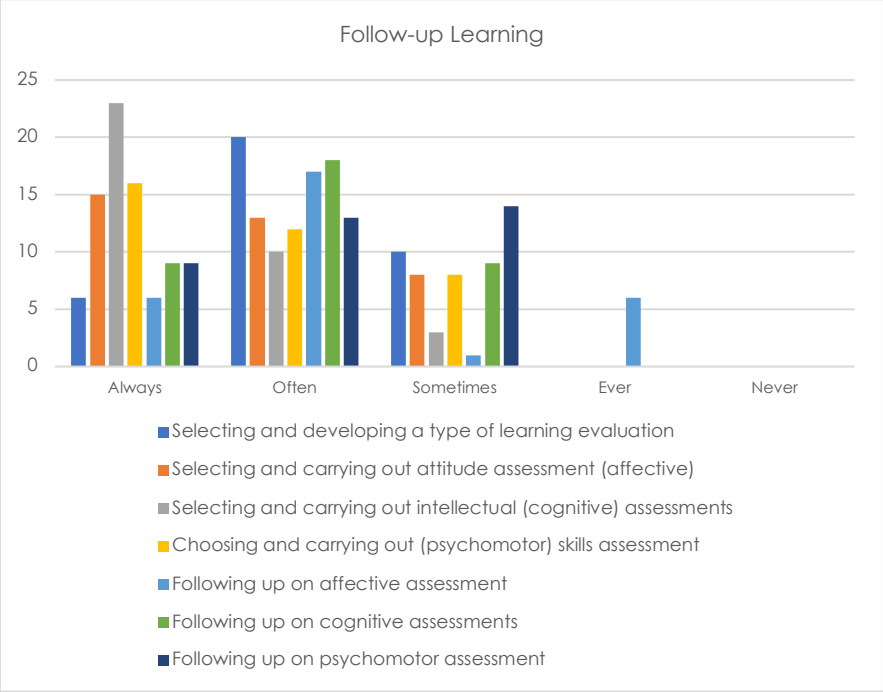

Figure 6. The Results of the 2nd Element Survey
Source: Processed in 2023

The quantitative data in Figure 6 shows several choices of time in carrying out follow-up learning. This second element obtained seven crucial components. First, selecting and developing the type of learning evaluation was 'always' carried out by six teachers (16.7%), 'often' carried out by 20 teachers (55.6%), and 'sometimes' carried out by ten teachers (27.8%).

Second, selecting and implementing effective assessments was 'always' carried out by 15 teachers (41.7%), 'often' carried out by 13 teachers (36.1%), and 'sometimes' carried out by eight teachers (22.2%). Third, choosing and carrying out cognitive assessments was 'always' carried out by 23 teachers (63.9%), 'often' carried out by ten teachers (27.8%), and 'sometimes' carried out by three teachers (8.3%). For the fourth, choosing and carrying out psychomotor assessments, 'always' was given by 16 teachers (44.4%), 'often' by 12 teachers (33.3%), and 'sometimes' by eight teachers (22.2%). For the fifth, carrying out the follow-up affective assessment, six teachers (16.7%) answered 'always, 17 teachers (47.2%) answered 'often', 12 teachers (33.3%) answered 'sometimes', and one teacher (2.8%) answered 'ever'. Lastly, for the sixth, follow-up on cognitive assessment, nine teachers (25%) answered 'always', 18 teachers (50%) answered 'often', and nine teachers (25%) answered 'sometimes. Seventh, in follow-up psychomotor assessments, nine teachers (25%) chose 'always', 13 teachers (36.1%) chose 'often', and 14 teachers (38.9%) chose 'sometimes'.

In pursuance of the results of the interviews submitted by the samples, the following data were obtained as further explanation of the survey results. There were three questions as follows.

Q1: What learning innovations have you made?

P1: Utilizing technology to create a fun and interesting learning

P2: Looking for creative learning media, using a variety of methods, designing learning by doing learning steps, guided inquiry, vlogging assignments for material objects at home

P3: Using designed-panel paper learning according to the material of geometric nets

Q2: What are the challenges in developing this innovation?

P1: The availability of school facilities and infrastructure

P2: Due to using the *Kurikulum Merdeka* (Independent Curriculum), the challenge is the lack of references about learning tools, lack of experience using the new curriculum as a new teacher, getting used to using the previous curriculum, and exploration outside the classroom is still a question for students as learning time.

P3: Facilities and infrastructure as well as diverse cognitive abilities of students

Q3: What types of learning media do you use in class?

P1: Various according to the material. The media does not always come from the teacher, but the teacher can collaborate with students to make it.

P2: Printed pictures so that students can see concrete objects, learning videos using PowerPoint, and items that can be found around the students in the classroom.

P3: PowerPoint and reading text.

Q4: How to deal with these challenges?

P1: Prepare and develop self-abilities better than before, and seek new knowledge by reading books, utilizing technology, and attending seminars.

P2: Searching for information on the internet, looking for more diverse models, methods, and strategies, designing more focused learning, making play rules/learning contracts/class agreements, reflecting on strengths and weaknesses and improving them.

P3: Must be able to adapt to situations and conditions in the field.

Various innovations were stated by the participants, including integrating technology. In detail, one participant used vlogging assignments to discover knowledge independently and another participant used panel paper art skills. Meanwhile, the challenges in carrying out innovation

were in the facilities and infrastructure repeatedly stated by both samples. Another participant stated that the new curriculum required adjustments, especially taking part as a new teacher. Moreover, there were only few references for using the latest curriculum. The approach faced these challenges and led to the most necessary improvement in self-quality. Moreover, the third participant revealed adaptability, the second participant strengthened knowledge of the learning component, and the first participant combined the two strengthening self-ability and increasing knowledge.

Q5: How do you motivate students?

P1: Taking the right time and atmosphere to convey through material that has been found or experienced by students in everyday life, or real examples in the surrounding environment.

P2: During the learning process.

P3: Selecting and using appropriate and varied learning methods, making students learning subjects, utilizing eye-catching media, and optimally being able to provide enthusiasm for students.

Based on the questions above, the participants attempted to enrich student motivation in three ways: the right time, with concrete and contextual examples, and interesting learning media.

Q6: How do you increase student activity in class?

P1: Balancing between practice and theory, using learning models that support student activity, holding group discussions, and individual and group presentations, creating a fun learning atmosphere, and giving praise or rewards to students.

P2: Students of grade 1 naturally are already active, in learning using various methods, conducting questions and answers, not always using lectures, increasing practice, demonstrations, and group discussions.

P3: Using a cooperative learning model has been proven by various studies, it can increase student activity in class.

Based on the participants' answers, students' activity could be increased by establishing learning components (models, methods, and strategies). Compatibility and balance of components with students were expected to be present in the classroom.

Q7: What type of student learning outcomes assessment model did you use?

P1: Adapting to the applicable curriculum.

P2: Formative, summative, and diagnostic assessments according to *Kurikulum Merdeka* as a new curriculum used in school.

P3: Assessment of cognitive outcomes utilizes tests or questions while assessing psychomotor and affective uses observation sheets or daily journals.

The assessments were based on the type of curriculum used as stated by the three participants. The second participant used cognitive assessment with the help of instruments, namely tests and observation sheets. The third participant used formative, summative, and diagnostic assessments.

4.4 Teachers as Student Facilitators

The role of the 21st-century teacher is increasingly diverse in line with the demands of graduates. Student development targets both academic and non-academic. In this theme, two elements were obtained through survey results, as shown in Figure 7.

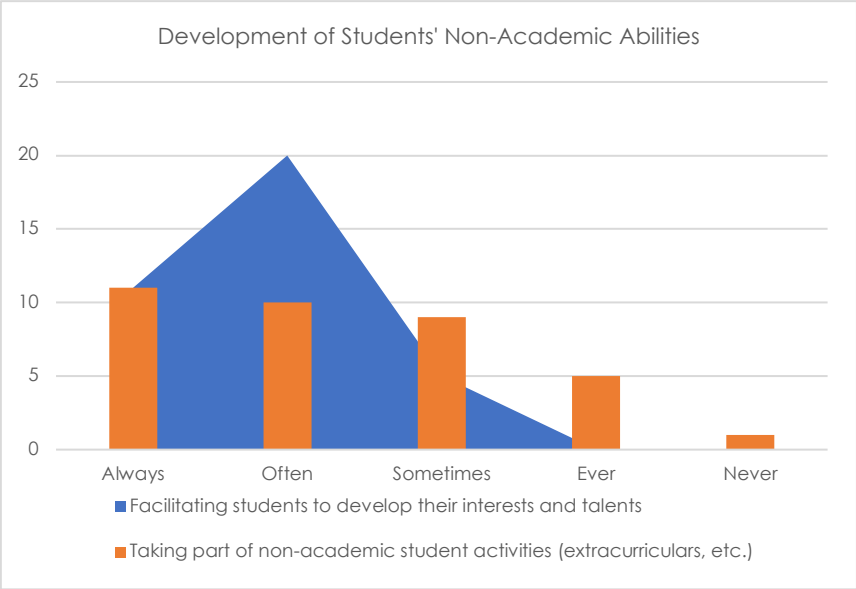

Figure 7. The Results of the Teacher's Role as Facilitator in Non-Academic Scope

Source: Processed in 2023

Based on the Figure 7 above, two components were acquired. First, facilitating students to develop their interests and talents as part of students' non-academic activities. The answer 'always' was received from 11 teachers (30.6%), 'often' from 20 teachers (55.6%), and 'sometimes' from five teachers (13.9%). For the second component, taking part in the students' non-academic activities, 11 teachers (30.6%) gave the answer 'always', ten teachers (27.8%) 'often', nine teachers (25%) 'sometimes', five teachers(13.9%) 'ever', and one teacher (2.8%) 'never'.

Further explanation was explored in the interviews. This dimension generated one question, as follows.

Q1: How do you help students develop or channel their non-academic potential?

P1: Motivating and involving students in competitive activities such as FLS2N and O2SN

P2: Participate in PMBK and FLS2N activities and involve parents

P3: Becoming a contest supervisor for students, for example, recitation of Al-Quran, *adhan*, and dancing competitions at the sub-district level

The answers above showed the continuity between the teacher's role, the will of students, and the availability of a forum for channeling talent. There was an agreement that the three participants led students to FLS2N, O2SN, and PMBK activities.

5. Discussion

Based on the collected data above, there were various findings from the first to fourth dimensions. Some of the findings fulfilled the research objectives, although this research did not fully obtain perfect results. Several descriptions as reflection in this research, concluded mainly on the scope of the population and sample, time and quantity of samples taken for interviews as well as explaining in detail their choices in the questionnaire. For further research, the population and sample can be expanded, observation instruments can be used to explain the results of questionnaires, not only interviews, and the sample quantity to explore qualitative data can be improved.

Evaluation tests, diagnostic tests, game methods, experiments, and test books were the forms that the teachers used. The role and responsibility of the teacher is not just teaching and

completing goals but also maintaining self-quality (Fuadi et al., 2023). Training, seminars, and the professional community were agreed by the participants as a forum for improving self-quality and developing pedagogical abilities. Similar to the research results of Rodriguez et al. (2020), upgrading or in-service training, workshops and seminars or scientific forums, and involving teachers in various programs were steps to improve teacher performance. Moreover, improving the quality of teachers so that they become prepared to face changes and challenges in schools. The biggest challenge expressed by the participants focused on the various characters of students. There is no denying that each class consists of students who have multiform characteristics (Rao & Meo, 2016). Meanwhile, the teacher has the responsibility to teach all students in the class without exclusion (Silva et al., 2021). This diversity requires teachers to be able to accommodate students effectively and efficiently. Moreover, it does not leave the essence of the teacher as an exemplary figure that students can emulate and a figure that can bridge student problems at school.

Pre-learning took part as pedagogical manifestations relating to the learning process design. Based on the findings, the participants chose the intensity of 'always', 'often', 'sometimes', and 'ever', while no one chose 'never'. In line with the activities of designing the learning process, it allows teachers to decide the appropriate methods, media, and materials so they can maximize student learning outcomes, and assist students in achieving competence and learning objectives (Puspitarini & Hanif, 2019). The data substantiate learning design that should be fundamental to constructing solid educational pillars.

Students' capabilities, subjects, objectives, and location were considered in designing the learning process (Al-Mawee et al., 2021). Consideration of students as learning subjects is the primary domain. It is consistent with findings that learning media can be created by involving students, thus students can build their construction of knowledge. Teachers enable the integration of information technology in the classroom to free virtual space restrictions and still have connectivity (Ally & Prieto-Blázquez, 2014).

The current digital era is a sign to the extension of digital technology, such as internet technology as an integral part of life positively to achieve educational goals (Aeni et al., 2019). Teacher competence in using technology has a significant influence on the progress of learning so that it is of high quality in terms of student learning outcomes (Sulaiman & Ismail, 2020). The research findings examined the learning change patterns during the COVID-19 period. It had implications for increasing the teacher's role as a facilitator in that it required habituation and adaptation regarding knowledge, skills, and balanced competencies to the elements (Hussin, 2018).

Education is similar to a funnel. The teacher is at the back line encouraging students and taking part as a channel for their interests and talents. Meaningful learning involves effectiveness and efficiency, including mainstreaming student creativity (Wright-Brough et al., 2023). As the findings obtained pedagogic manifestations, the teacher took on the role of supervising extracurricular activities, O2SN, PMBK, and FLS2N activities.

6. Conclusion

This research found various indicators as elements of pedagogical competence from the survey and interview stages. These findings can be a material to the pedagogical manifestations in schools carried out by teachers. These findings illustrate the harmony between pedagogical theory and the practice manifested in schools. Teachers need to maintain innovative, effective, and efficient ways of teaching. The various intensities and forms of activities were found in the research results on knowledge and forms of pedagogical competency activities for elementary school teachers. Further outlook of the findings is to be a bridge between teachers and students. Furthermore, students' understanding of the material is more comprehensive. The students' and the teachers' comprehension of the curriculum becomes more creative. The approach and activities carried out by teachers can lead to finding out students' problems and obstacles so that they can decide on solutions more quickly and comprehensively.

Limitation

The limitations of this study were the location and the number of participants involved which were limited to one particular batch, and the data collection techniques were limited to surveys and interviews. The research topic was limited to pedagogical competence.

Recommendation

Based on the research limitations, further research should take a more comprehensive location and a higher number of samples and involve observation as the primary instrument in research. Further research should also involve the four teacher competencies holistically (pedagogical, professional, social, and personality).

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Conflict of Interest

Researchers do not have a conflict of interest in terms of writing and publication of this study.

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