Hacettepe Üniversitesi Eğitim Fakültesi Dergisi

Hacettepe University Journal of Education

e-ISSN: 2536-4758



360 Degrees Reflective Teaching Application: The Relationship between Learning Motivation and Performances

Nazire Burçin KAYA[*], Mehmet Emre SEZGİN[**], Hurşit Cem SALAR[***], Emre ÇAM[****]

Article Information

Received: 03.07.2025

Accepted: 06.10.2025

Online First: 18.01.2026

Published: 31.01.2026

ABSTRACT

Educational environments where change is inevitable also require the integration of digital technologies into learning and teaching processes. Pre-service teachers should have the qualifications to fulfill the teaching profession by enriching their latent potential with 21st century skills. The design of instruction is very important in ensuring the quality assurance of these competencies. This study aims to explore activities in accordance with the SMART Approach throughout the processes of pre-lesson, during and post-lesson within the framework of instructional design to ensure quality assurance through evaluating the relationship between learning motivations and performances of 360-degree reflective micro-teaching application, carried out on the basis of motivation elements related to the design of Special Teaching Methods-1 course. Accordingly, 30 participants of the Special Teaching Methods-1 course involved to the study. The data was obtained through motivation scale of instructional material and semi-structured interview form. The design of instructional processes was carried out with the basis of SMART ***(Specific, Measurable, Achievable, Relevant, Timely)*** Approach and PDCA *(Plan, Do, Check, Act)* cycle to evaluate qualifications and provide quality assurance. The results will be effective and a road map for the practitioners and researchers which is the most important on adaption of digital resources in to the educational process.

Keywords: Educational technology, integration, teaching skills, digital resources, quality assurance

doi: 10.16986/hunefd.1734263 Article Type: Research Article

Citation Information: Kaya, N. B., Sezgin, M. E., Salar, H. C., & Çam, E. (2026). 360 degrees reflective teaching application: The relationship between learning motivation and performances. *Hacettepe University Journal of Education, 41*(1), 112-135. https://doi.org/10.16986/hunefd.1734263

1. INTRODUCTION

In the process of micro-teaching, pre-service teachers give lectures and make lesson practices in the classroom environment specifically prepared for them, and this process is recorded in video format. By this way, pre-service teachers can become aware of their strong and weak sides. Despite the fact that the roots of micro-teaching date back to 1906s, it is still used in education faculties. Primarily used in the University of Stanford in the USA, improvements were made on the stages later on (Çoban, 2015). Various approaches have been developed to evaluate an individual's performance on a subject in terms of objectivity and realism. In the evaluation of the individual himself or his performance, described as classical performance evaluation, the evaluation of a superior or a person decreases the reliability. As a result of this, such contemporary methods as 360 Degrees Performance Evaluation have emerged. In this method, stakeholders are also involved in the evaluation process in accordance with their opinions and predetermined criteria (Ernalbant, 2014). It is seen that these approaches are generally oriented towards the evaluation of the performance of individuals working in business environments. In addition, it is seen that this method has been used in educational institutions and teacher training programs (Yıldız, 2016).

Micro-teaching practices used in teacher education programs provide preservice teachers with valuable teaching experience before they enter the profession. However, most of these practices lack a systematic approach to quality assurance in the

[*] Assoc. Prof. Dr., Eskisehir Osmangazi University, Faculty of Education, Department of Educational Sciences, Division of Instructional Technologies, Eskişehir-TÜRKİYE. e-mail: nazire.hamutoglu@ogu.edu.tr (ORCID: 0000-0003-0941-9070)

[**] Assist. Prof. Dr., Çukurova University, Faculty of Education, Department of Computer Education and Instructional Technologies, Division of Computer Education and Instructional Technologies, Adana-TÜRKİYE. e-mail: esezgin@cu.edu.tr (ORCID: 0000-0002-9495-5101)

[***] Assist. Prof. Dr. Pamukkale University, Faculty of Education, Department of Computer Education and Instructional Technologies, Division of Computer Education and Instructional Technologies, Denizli-TÜRKİYE. e-mail: csalar@pau.edu.tr (ORCID: 0000-0003-3986-0342)

[****] Assoc. Prof. Dr., Tokat Gaziosmanpaşa University, Faculty of Education, Department of Educational Sciences, Division of Instructional Technologies, Tokat-TÜRKİYE. e-mail: emre.cam@gop.edu.tr (ORCID: 0000-0001-9413-0292)

planning, implementation and evaluation processes. This can result in limited improvement in the motivation and performance of pre-service teachers. This study is based on the integration of three powerful approaches:

- The SMART approach (**S**pecific, **M**easurable, **A**chievable, **R**elevant, **T**imely) ensures that teaching objectives are designed in a concrete, measurable and achievable manner.
- The PDCA cycle (Plan, Do, Check, Act) provides a roadmap for continuous improvement and quality assurance in teaching processes.
- 360° reflective micro-teaching enables a holistic assessment of teaching performance through teacher, peer, self-assessment and stakeholder feedback.

While there are numerous studies on micro-teaching and instructional design, research addressing the integration of SMART, PDCA and 360° reflective multidimensional evaluations is lacking. Comprehensive studies examining the relationship between teacher candidates' learning motivation and performance within this triple framework are needed. Therefore, this research aims to provide a guiding model for instructional design and contribute to teacher training policies. In teacher training programs, it is important that other teacher candidates give feedback in addition to the teacher in the application of micro-teaching technique, which has an important place in the professional experience of teacher candidates, and in giving feedback to the teacher candidate. When the studies are examined, it is seen that the applications based on active learning strategies are limited. This situation creates an obstacle for field experts in terms of where to start and what to do in designing their courses. The related study can be a roadmap for researchers, teachers and practitioners with the method and application results it deals with.

1.1. The Aim and the Significance of the Study

The educational and inclusive change requires to overview how the adaption of digital technologies are provided to meet the demand in teaching and learning environment. However, the recent studies emphasize the impact of digital skills to manage learning processes (Anthonysamy et al., 2020; Okoye et al., 2022; Timotheou et al., 2022). Accordingly, it is worth to note the lack of a road map while designing a course to satisfy the educational needs of students through the PDCA cycle. The importance of providing quality assurance should be taken in to consideration to assess the learning outcomes which is also related with program outcomes and national and international qualifications. Addition to this designing of an instruction should be consisted with motivational strategies to perform student learning outcomes. In the literature, there is not any studies that road a way for practitioners and researchers that fill the alleged gap holistically. This study aims to explore activities in accordance with the SMART Approach throughout the processes of pre-lesson, during and post-lesson within the framework of instructional design to ensure quality assurance through evaluating the relationship between learning motivations and performances of 360-degree reflective micro-teaching application, carried out on the basis of motivation elements related to the design of Special Teaching Methods-1 course, which was taught in the 3rd grade of a state University at Computer and Instructional Technologies Education Department in 2018-2019. Accordingly, the relationship between the learning performances and motivations of reflective micro-teaching applications designed on the basis of 360-degree alternative assessment approaches carried out within the scope of the "Special Teaching Methods-1" course, in which individuals participated for a period of time, was examined, and it was found out whether a tendency towards active learning practices emerged in their professional lives and if they had an awareness of the importance of instructional design or not.

Within the scope of the study, Google Drive and Doctopus Application were integrated with the Google Classroom environment and included in the learning process. In the study, Google Drive media was used for sharing, storing and collaboration. The Doctopus Application, on the other hand, forms the basis of the synchronous and asynchronous sustainability of in-class and out-of-class activities both individually and collaboratively. In addition, Google Classroom application serves to form online classroom environment. It is thought that the individual and collaborative activities carried out in this study, forming the basis of active learning strategies, will make a great contribution to the field in terms of contributing to the planning, implementation, evaluation and improvement of the teaching process.

This study reveals that at the intersection of SMART, PDCA, and micro-teaching applications, there is a “continuous improvement and goal-oriented feedback loop in instructional design.” SMART answers the question “Where are we going?”, micro-teaching answers the question “How will we experiment and receive feedback?”, and PDCA answers the question “How will we develop this in a systematic and sustainable way?” Therefore, the combined use of these three approaches provides a powerful holistic framework for quality assurance in teacher education, digital pedagogical design, and educational technologies. Hereunder, this study:

- The current study is up-to-date, in terms of addressing the motivational factors that affect the course design processes in order to ensure quality assurance.
- The current study is unique, as the micro-teaching application carried out within the scope of Special Teaching Methods-1 course design studies the relationship between learning motivation and performance,
- The current study is necessary as it forms a basis for online learning by focusing on the integration of technology into course designing processes.

- The current study is regarded as functional in terms of providing a roadmap for providing quality assurance to practitioners in course design processes.

In this context, the study aimed to address the following research questions:

1. How are students' learning motivation and performance influenced by the 360° reflective micro-teaching application, which is based on the SMART approach and the PDCA cycle?
2. What is the relationship between learning motivation and performance in the context of this application?
3. How do the activities carried out in instructional design processes impact preservice teachers' awareness of instructional design and their tendency towards active learning approaches?
4. At which stages of the PDCA cycle do the Plan, Do, Check and Act stages contribute most to the development of students' learning motivation and performance?

1.2. Learning Motivation

Motivation can be defined as taking part in a task and having the will or tendency to continue it (Schunk et al., 2014). In other words, it refers to taking action to do something or an action that directs a person's behavior (Park & Yun, 2017). For Keller (2010), motivation generally explains the direction and magnitude of behavior, in other words, which goals people choose to pursue and how effectively or intensely they follow them. Deckers (2018) describes motivation as future expectations and likens it to a journey. With this likening, he implies that individuals have the ability to look forward and imagine their future. These explanations reveal the awareness of philosophers and psychologists that people are motivated by the expected consequences of their actions.

Education researchers have long recognized the role of motivation in learning and examined motivation from various perspectives. Their efforts have formed a rich foundation of motivation theories. Previous theories of motivation reflected the traditional behaviorism approach, an approach that saw the basis of motivation as punishment and reward. Other theories on the other hand have focused on the impulses and individual's needs. Besides, over the past 30 years, researchers have examined motivation primarily from a social cognitive perspective, focusing on individuals' beliefs and contextual factors that influence motivation. These theories are respectively Expectancy-value Theory, Self-efficacy Theory, Attribution Theory, Self-determination Theory and Keller's ARCS model (Schunk et al, 2014).

One of the most important factors that helps to increase learner motivation positively is to use appropriate, interesting, instructive and interactive teaching methods in teaching. People control and regulate their own motivation. Self-efficacy belief plays a crucial role in motivation's self-control, along with the difficulty of the objective and outcome expectations. The probability of taking action to deliver a performance depends on beliefs about whether people can produce those performances or not, and people choose what tasks they will undertake in the tasks they choose and how much effort they will put in when they are faced with obstacles or difficulties, and whether the results achieved are motivating or demoralizing are determined by depending on their self-efficacy beliefs (Bandura, 1977). Schunk et al. (2014) stated that self-efficacy and motivation can increase with social comparison and the observation of development. People can support their thoughts about what they can do by observing other people who are similar to them, and in this way, they can develop their self-efficacy. A person can be motivated with the thought that "If he can do it I can do it, too." In addition, one's comparing his previous performance with his current performance and noticing the progress he/she has made can also increase self-efficacy and motivation.

The ARCS Motivation Model was created by John Keller in 1987 by combining a number of studies on human motivation. This model is a problem-solving approach created to design learning environments with a motivation-based perspective in order to stimulate student motivation in the learning process and to ensure the continuity of motivation (Keller, 1987). The ARCS Motivation Model, in which the motivation factor is taken into account and placed in the center of the teaching process, it consists of four basic steps: attention, relevance, confidence, and satisfaction. Likewise, each stage includes three sub-strategies that forms it.

1.3. Learning Performance (Micro-Teaching)

Micro-teaching is a teaching technique that is generally used by pre-service teachers to experience teaching before starting their professions. Besides gaining experience through micro-teaching, pre-service teachers can see their strengths as well as the mistakes they can make and deficiencies they may experience in the teaching process. As it is known, teaching is a profession that includes formation knowledge as well as field knowledge. At this point, micro-teaching also shows itself as a technique where teaching experiences specific to different fields can be evaluated in terms of student performances. Various studies reveal that micro-teaching makes a great contribution to pre-service teachers in terms of student performance. For instance, in the literature review conducted by Güven et al. (2016) on micro-teaching, it was seen that the studies conducted with micro-teaching in Turkey were mostly quantitative and experimental. In this study, it was revealed that other studies in the literature review generally revealed that the micro-teaching method created positive and significant differences in student performance. Chawla & Thukral (2011) concluded that the micro-teaching method was effective in the acquisition of teaching competencies in a single-group first-test-posttest study conducted with more than one scale. Micro-teaching technique finds its place not only

in the teaching profession but also in other fields. Herrera et al. (2018) stated in their experimental study with engineering students that micro-teaching was quite more effective on students' communication and presentation skills than traditional methods.

Despite the fact that there are frequent studies that state micro-teaching technique has positive effects on student performance, on the other hand, there are also various criticisms of this technique. The general objective of micro-teaching is to create environments that allow students to experience the profession before starting it. At this point, we can also encounter with several studies stating that the environments created are far from real environments. In the research carried out by Azrai et al. (2020), it was stated that students had concerns on micro-teaching as it could not create real teaching environments.

Information and communication technologies have found a wide application area in the field of education as it has found in every field. However, when the development of micro-teaching is considered historically, it is seen that the first applications were generally made in the form of video recording.

1.4. Active Learning

Learning involves choosing relevant information and interpreting it with one's current knowledge. In short, learning is facilitated not by recording information, but by interpreting it. Dewey (1991) defines the active learning process as: "Learning is active, it involves reaching one's mind and an organic assimilation that takes place in the mind." Accordingly, the teacher becomes a participant with the learner in the learner's process of creating meaning in a particular situation. Freeman et al. (2014) describes active learning as engaging students in the learning process through activities and/or classroom discussions, rather than letting them passively listen to an expert.

Active learning strategies enable students to participate in their own learning processes by thinking, discussing, researching, and creating. Studies carried out show that the integration of active learning strategies in lessons improves students' learning experiences significantly (Freeman et al., 2014; Theobald et al., 2020). Micro-teaching, on the other hand, is an approach that aims to develop teachers' teaching skills by employing active teaching strategies in teacher education. Therefore, it can be said that the more active learning strategies are included in the micro-teaching process, the more the effectiveness of micro-teaching will increase. Another research finding has shown that micro-teaching is effective in helping pre-service teachers develop their attention-grabbing skills (using an audio-visual stimulus, a thought-provoking expression) and observation skills at the beginning of the lesson. Along with that, a high correlation was found between pre-service teachers' micro-teaching performance and their subsequent teaching performance (Ingersoll & Strong, 2011).

2. METHODOLOGY

This study was planned and carried out in accordance with the simultaneous transformational mixed methods research design. For Creswell (2003), simultaneous transformational mixed methods research design is based on the simultaneous gathering and analysis of quantitative and qualitative data, thus both data types can also be of equal importance when compared to other designs. Simultaneous transformative design, where data analysis is done separately and combining different data types usually occurs during the data interpretation phase; it is useful in terms of better understanding of the studied phenomenon by allowing alternative perspectives. In this way, a multidimensional evaluation was conducted of the learning motivation and performance of prospective teachers.

2.1. Sample

The selection of the sample in the study was carried out depending on the purposeful sampling method. Teddlie and Yu (2007) state that purposive sampling method type is based on the fact that individuals - or a group of individuals, institutions - are selected in relation to the answers to the research questions within the scope of the study. And, in this study, the sampling type providing representativeness was preferred within the scope of the purposeful sampling method. The relationship between the learning performances and motivations of reflective micro-teaching applications designed on the basis of 360-degree alternative assessment approaches carried out within the scope of the "Special Teaching Methods-1" course, in which individuals participated for a period of time was examined, and whether a tendency towards active learning practices in their professional lives emerged or they had awareness on the importance of instructional design was identified.

Accordingly, the study was carried out with the voluntary participation of 30 participants of the Special Teaching Methods-1 course, which is taught in the 3rd year of in a state University, Computer and Instructional Technologies Department in 2018-2019.

2.2. Data Collection Tools and Data Collection

2.2.1. Motivation scale for instructional material

In the study, the motivation scale for the teaching material (MSTM), which was developed by Keller (2010) and adapted into Turkish by Dinçer & Doğanay (2016) was used. The scale consists of four subscales: Attention: Attracting and maintaining the student's attention; Relevance: The meaningfulness of what is being learnt for the student; Confidence: The student's sense of self-efficacy in achieving success; Satisfaction: The student's satisfaction with the learning experience. The adapted scale consists of four subscales and explains 47.50% of the total variance. The Cronbach Alpha Internal Consistency Coefficient for the entire scale is .93. It can be seen that the fit indices of the structure obtained by confirmatory factor analysis of the scale were χ^2/df= 2.32, SRMR = .04, RMSEA= .07, AGFI=.78, GFI=.81, NFI=.97, and CFI=. 98.

2.2.2. Interview form

In the study, with the semi-structured interview form developed by the researchers to obtain participants' opinions about the process. The interviews focused on the contribution of the teaching method and the evaluation process, as well as the participants' strengths and weaknesses and their professional contributions, and it was ensured that the participants' views on the practices were interpreted holistically with the quantitative data obtained. In addition, by combining the data gathered, it was also studied whether there was a tendency towards active learning practices in the professional lives of the participants and whether there was an awareness of the significance of instructional design. These questions are "1. What are your views on the teaching method used in the lesson?"; "2. What are your views on the evaluation method (instructor, peer, and self-evaluation) used to determine performance in the lesson?"; "Do you think that the method applied in the 3rd lesson (input level = theoretical knowledge; process level = micro-teaching applications; output level = 360degree stakeholder evaluation) will contribute to your teaching profession? Why? Explain each step separately."; "4. What do you think are the aspects of the course that are open to improvement? During the course of the lesson, what do you say "that should have been in the lesson" or "that should not have been in the lesson"? Please explain."; "5. Indicate the advantageous aspects of the course that you think will provide you professionally in the future."; "6. Specify the disadvantageous situations that you think the course will provide you professionally in the future."; "7. If you were the teacher of this course, what method would you follow? Please explain."

The data has been gathered on a completely voluntary basis, the participants were reminded of the necessary points and that they could leave the study whenever they wanted. The data was obtained from online learning environment and confidentiality was protected. Participants were informed that the data would not be shared in any way but in the study.

2.2.3. Instructional design process

Planning of the study is related with the lesson's design processes. Firstly, in the designing process of the lesson, learning outcomes of the lesson were determined on the basis of SMART (**S**pecific **M**easurable **A**chievable **R**elevant **T**imely) approach within the scope of the question "Where do we want to go" and subsequently, by grounding on the question "How do we go there?", strategies, methods and techniques along with learning and teaching approaches that will be implemented to achieve the goals of the lesson were determined. Also, the question: "Have we reached the point we want to reach?" forms the basis for the questions that are sought within the scope of the planning, implementation, evaluation, and improvement of measurement and evaluation in the process of designing the teaching within the scope of the study. In the study, the design process of instruction proceeded on the basis of the PDCA cycle aimed at providing quality assurance, and answers were sought for relevant research questions. Student performance was measured through a multi-stakeholder assessment: Self-assessment (20%), peer assessment (30%) and instructor assessment (50%). Feedback was provided to each student through video recordings of their coursework, in which their strengths and areas for improvement were discussed.

To answer the research questions within the scope of the design processes of the Special Teaching Methods-1 course the following questions were clarified;

1. What are the activities carried out in the planning stage (pre-lesson)?
2. What are the activities carried out in the "do" stage (during the lesson)?
3. What are the activities performed in the "check" stage (during the lesson and post-lesson)
   a. What are students' learning motivations and performances?
   b. What is the relation between the students' learning motivations and performances?
4. What are the activities carried out in the "act" stage (post-lesson)?

Plan

Pre-Lesson: SMART Approach(Planning)

The planning of the course was carried out based on the instructional design processes. In this context, for the Analysis Stage, the educational objectives of the course, which are defined in the relevant higher education program and shaped by the opinions of internal and external stakeholders, the program outputs, and the issues based on the course learning outputs were taken into consideration. In the design stage, the course was planned within the scope of the weekly learning outcomes based on the

relevant program outcomes and course learning outcomes. Within this context, the students carried out Micro-teaching Practices during the lesson plan preparation and instructional design process, which forms the basis for the Micro-teaching practice. Application of individual supervision was used in the evaluation of the lesson plan preparation and instructional design process carried out by the students, and rubric was included in the planning process for the evaluation of micro-teaching applications. By taking the SMART approach as a basis in the design of the lesson before the lesson, and depending on the program and learning outcomes associated with the objectives and goals of the lesson, weekly learning outcomes, teaching methods, techniques, and strategies that will be used for acquisition, and evaluation criteria are presented below on Table 1.

Table 1.
Lesson Design

At the end of this lesson, students	**Planning**	**Implementing**	**Evaluation**
1. Will be able to prepare lesson plans. -Identify the lesson's objectives/goals. -Creates target learning outcomes related to different learning areas of the lesson. -Identify methods/techniques/strategies to be used to achieve the goals related to the lesson. -Choose appropriate measurement and assessment approaches.	In the planning stage of the course design, learning outcomes were created in accordance with the SMART approach, and the strategy, method, technique, environment, and technology were selected to achieve these goals.	Students were asked to design their own teaching processes with a sample form (Appendix 2)	Supervision (Formative assessment)
2. Will be able to implement the lesson plan he/she has prepared. -Initiates the lesson in an intriguing way. -Associates the subject with the real life. -Are willing to use the basic principles and concepts in the field. -Organizes the learning environment in accordance with the objectives. -He or she pays great attention to present the lesson in a clear and decent way. -Manages time in an efficient way. -Enables students to engage in the lesson actively. -Leads students to problem-solving/critical thinking -Chooses/uses the appropriate material for the subject. -Uses the board effectively. -Makes use of ınstructional technologies. -Uses the appropriate model while explaining abstract subjects. -Stresses important points. -Gives appropriate/sufficient answers to students' questions. -Directs students' activities and studies without interfering too much. -Uses his/her voice effectively/makes emphasizing at the right place. -Uses his/her body language effectively. -Listens to the students carefully. -He/she is willing/enthusiastic/active while lecturing. -He/She has self-confidence.	Learning outcomes have been created in accordance with the SMART approach to implement the learning outcomes they have reached within the scope of the planning stage of the course.	Students were mentored to organize the learning environment in accordance with the teaching processes designed by them.	Supervision (process and result evaluation) -Peer assessment(%30) -Self assessment(%20) Instructor assessment(%50)

2.3. SMART–PDCA Integration

2.3.1. SMART criteria

The study's instructional objectives were determined in line with the SMART approach: ***S****pecific*: Each learning outcome was clearly defined; ***M****easurable*: Success criteria (rubrics and performance tasks) were established; ***A****chievable*: Goals appropriate to the students' level were selected; ***R****elevant*: The goals were linked to program's outcomes and professional competencies; ***T****imely*: Activities were planned according to class hours and the semester calendar.

2.3.2. PDCA cycle

Plan cycle: The course learning outcomes were determined according to SMART criteria. Methods, techniques and tools were selected to achieve the goals. Rubrics and evaluation criteria were prepared.

Do cycle: Preservice teachers implemented micro-teaching practices. Active learning strategies such as drama, discussion and problem-solving were employed in the activities. The process was supported digitally using Google Classroom, Drive and Doctopus applications.

Check cycle: Student performances were analyzed using 360° assessments (self, peer and instructor). Motivation scales and interview forms were also used. Quantitative (correlation analysis) and qualitative (thematic analysis) data were collected.

Act cycle: Student lesson plans and practices were revised based on feedback. Additional activities were designed to address identified shortcomings. Participants offered suggestions for continuous improvement in instructional design.

2.4. Data Analysis

Quantitative data were analyzed using SPSS (descriptive statistics and correlation analysis). All assumptions were checked, and met. Qualitative data were coded using content analysis and organized into themes according to the PDCA cycle. The qualitative data were visualized using the MAXQDA program. Findings were integrated using triangulation.

3. FINDINGS

3.1. Quantitative Findings Obtained within the Scope of Learning Performance and Motivation

Table 2.
Descriptive Statistics

Variables	N	Min	Max	Mean	Sd	Skewness	Kurtosis
Previous semester grade average	30	1,90	3,50	2,6080	,37940	,167	-,119
Overall success average	30	2,00	3,00	2,5417	,28320	-,241	-,685
Lesson evaluation	30	8,00	10,00	9,7333	,52083	-1,867	2,934
Semester grade average	30	64,20	9 2,90	82,4367	7,19945	-1,039	,788
Peer evaluation	30	59,33	91,33	81,0889	7,52515	-1,279	1,719
Instructor evaluation	30	53,00	97,00	82,6667	10,04930	-1,019	1,310
Self-evaluation	30	59,00	96,00	83,3000	7,36792	-1,402	3,436
Attention	30	38,00	50,00	45,9000	2,99828	-1,081	1,526
Relevance	30	31,00	40,00	36,7333	2,65139	-,738	-,301
Confidence	30	37,00	45,00	40,6000	2,40115	,300	-,904
Satisfaction	30	25,00	30,00	28,7000	1,36836	-,971	,373
Total	30	135,00	165,00	151,9333	7,50601	-,718	,554

3.2. The Relationship between the Students' Learning Motivation and Performance

Table 3.
Correlations

Variable	n	M	SD	1	2	3	4	5	6	7	8	9	10	11	Total
Previous semester grade average (1)	30	2.61	.38	1	.691**	-.130	.235	.490**	.440*	.237	-.054	-.314	.077	.435*	-.011
Overall success average (2)	30	2.54	.28	.691**	1	.160	.018	.420*	.214	.393*	.109	-.186	.162	.375*	.165
Lesson evaluation (3)	30	9.73	.52	-.130	.160	1	-.143	-.158	-.275	.358	.122	-.006	.077	-.381*	.198
Instructor evaluation (4)	30	82.67	10.05	.235	.018	-.143	1	.392*	.896**	-.146	-.266	-.101	-.088	.385*	-.201
Self-assessment (5)	30	83.30	7.37	.490**	.420*	-.158	.392*	1	.690**	.050	.075	-.042	.214	.649**	.072
Semester grade average (6)	30	82.44	7.20	.440*	.214	-.275	.896**	.690**	1	-.119	-.167	-.092	-.038	.717**	-.143
Attention (7)	30	45.90	2.98	.237	.393*	.358	-.146	.050	-.119	1	.656**	.339	.463**	-.071	.824**
Relevance (8)	30	36.73	2.65	-.054	.109	.122	-.266	.075	-.167	.656**	1	.465**	.662**	.066	.884**
Confidence (9)	30	40.60	2.40	-.314	-.186	-.006	-.101	-.042	-.092	.339	.465**	1	.434*	-.028	.699**
Satisfaction (10)	30	28.70	1.37	.077	.162	.077	-.088	.214	-.038	.463**	.662**	.434*	1	-.040	.740**
Peer evaluation (11)	30			.435*	.375*	-.381*	.385*	.649**	.717**	-.071	.066	-.028	-.040	1	-.021
Total	30	151.93	7.51	-.011	.165	.198	-.201	.072	-.143	.824**	.884**	.699**	.740**	-.021	1

3.3. Qualitative Findings Obtained Within the Scope of PDCA Cycle

Findings obtained in the study were categorized as “Pre-Lesson, During the Lesson, and Post-Lesson” and categories were formed under the Plan-Do-Check and Act (PDCA) cycle under the related themes. Accordingly, Plan (P) cycle was examined before the lesson and the part of the Do (D) cycle and the Check (C) cycle regarding the evaluation of the result were examined in the post-lesson, and finally, the part related to the evaluation of the result of the Act (A) cycle and the Check (C) was examined within the scope of the post-lesson themes.

In addition, in order to ensure the continuity and sustainability of the PDCA cycle, there is a definition under the post-course theme within the scope of the "widespread impact" category. In Figure 1, codes presented within the scope of relevant themes and categories can be seen.

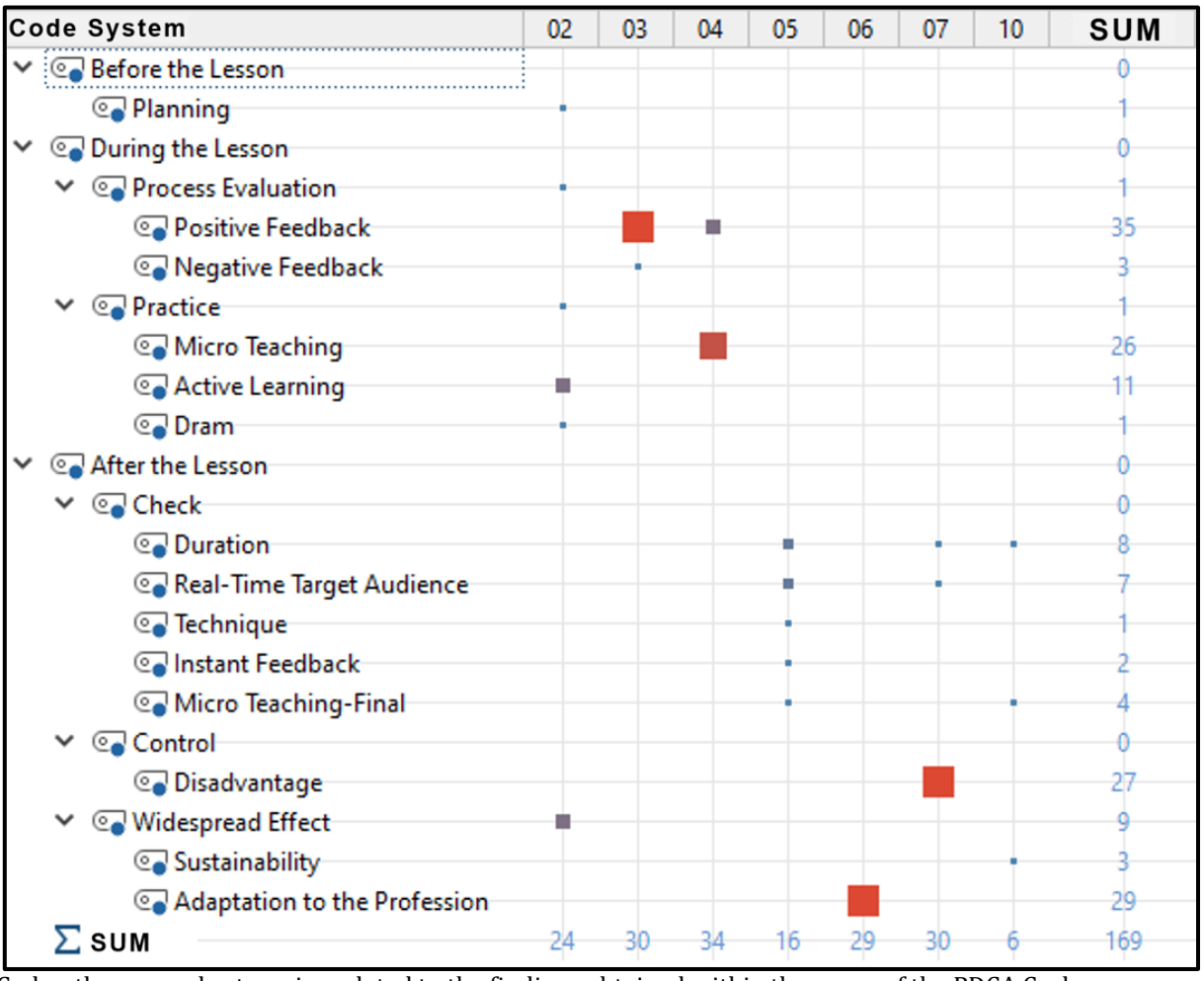


Figure 1. Codes, themes and categories related to the findings obtained within the scope of the PDCA Cycle

The codes created within the scope of the themes and categories in Figure 1 are formed with the opinions of the participants on the teaching method used in the lesson, evaluation method used to determine the performance in the lesson, the contribution of the method implemented in the lesson, the aspects of the lesson that are open to improvement, the advantages that the course will provide in the professional sense, and by analyzing the answers the participants gave to the questions such as “The method you would follow if you were the teacher of the course". Accordingly, the figures reflecting the views of the participants within the scope of the related questions are given under the relevant themes and categories.

Figure 2, in which the participants' views on the teaching method used in the lesson are evaluated, is given below.

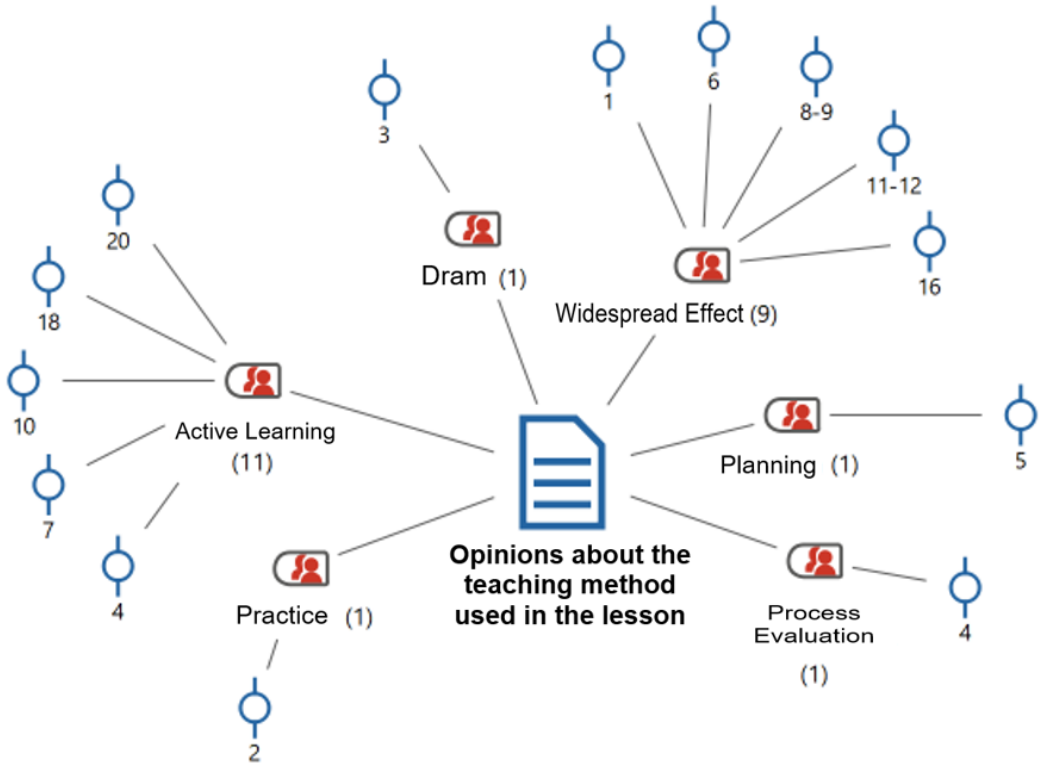


Figure 2. Categories related to the findings obtained within the scope of the "opinions on the teaching method used in the lesson."

3.3.1. Before the lesson: Planning (P)

As can be seen in Figure 2, Plan category takes place under the theme of Pre-Lesson. In the relevant category (f=1), where the participants' "opinions about the teaching method used in the lesson" are evaluated, the opinions of the participants are as follows: S5: "It was much better for us as we were sent homework and grades before the lecture." In the light of the results obtained, it can be said that there is a need for further enrichment of the participants' views on Planning. Considering the grades of the participants, it is important to support their previous learning in the context of "Planning". In fact, considering the grades of the participants, it is important to support their previous learning in the context of "Planning". It is predicted that related planning can be supported by restructuring the content of the "Instructional Design" course. It can be clearly said that the structure of the "Instructional Design" lesson, which is one of the basic lessons of the Computer and Instructional Technologies Education Departments, will serve a lot in the planning cycle while designing the activities at the stage of pre-lesson is recommended that this course be offered as a compulsory interdisciplinary faculty common course for pre-service teachers studying in different departments.

3.3.2. During the lesson: Doing(D) and Checking (C)

As can be seen in Figure 2, there are categories of Doing and Checking under the theme of during the Lesson. In the category of "Doing" in which the participants' "opinions about the teaching method used in the lesson" were evaluated, the participants' opinions were as follows: S2: "The fact that the lesson is practice makes evaluation possible regardless of the evaluation phase", and in the Checking (f=1) category, S4: "We actively taught the lesson. Peer review and self-assessment showed us our deficits". Under the theme of during the lesson, there is the approach formative assessment related to the checking stage. Besides, Active Learning (f=11) and Drama (f=1) are among the prominent codes regarding the application in line with the opinions of the participants within the scope of the related question. While the opinions of the participants within the scope of the active learning code were as follows: S18: "Positive and useful, I have heard Gagne's 9-stage teaching model so far, I did it by heart in the exam, but I did not memorize both the 9 steps and what to do in 9 steps any more, I learned it instead"; Opinions of the participants within the scope of drama code were: S3: "We had drama practices related to that week's topic in our lesson and it was useful to see how a lesson could be taught in practice."

3.3.3. Post-lesson: Checking(c), Acting (A) and widespread impact

As seen in Figure 2, there are the categories of Checking(c), Acting (A) and Widespread Impact under the theme of post-lesson. The participants' "opinions about the teaching method used in the lesson were evaluated only within the scope of Widespread Impact category. Opinions of the participants in the category of Widespread Impact (f=9) T11 were as follows "It was a method we used for the first time, it was different at first, but we got used to it later on, and it helped us learn several important points before undergoing training. Figure 3, in which the participants' views on the evaluation method used to determine performance in the lesson are evaluated, can be seen below.

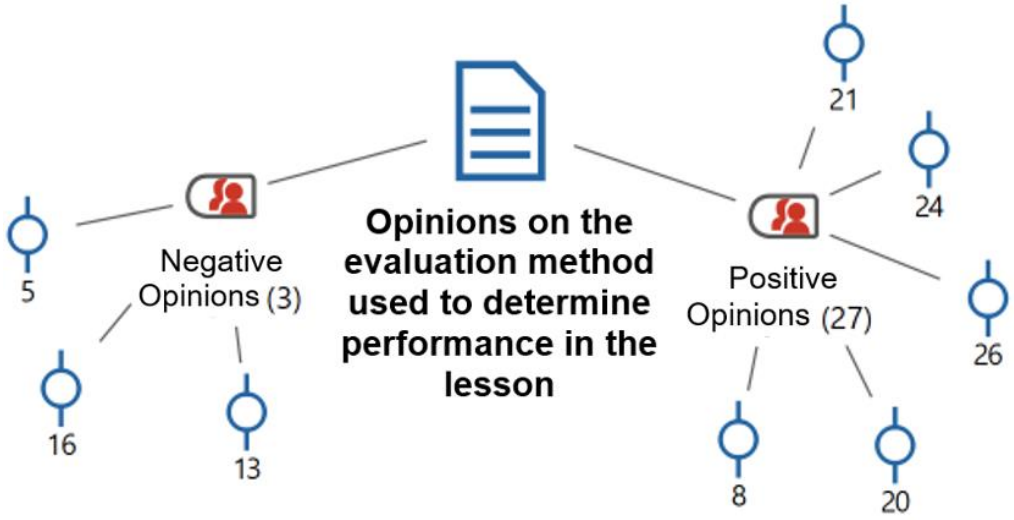


Figure 3. Categories related to the findings obtained within the scope of the "participants' views on the evaluation method used to determine performance in the lesson."

3.3.4. Before the lesson: Planning (P)

As seen in Figure 3, there is no category under the pre-lesson theme. Therefore, within the scope of the related question, the participants do not have any awareness that there is a planning stage for the pre-lesson. In this regard, it can be said that there is a need to raise the awareness levels of the participants that the evaluation method included in the process is also planned before the lesson.

3.3.5. During the lesson: Doing (D) and Checking (C)

As seen in Figure 3, the Checking category under the theme of During the Lesson contains codes under Positive Opinions (f=27) and Negative Opinions (f=3). While the expressions under the code of Positive Opinions in the relevant category in which the participants' "opinions about the evaluation method used to determine the performance in the lesson" were as follows S21: "I think the evaluation method is successful. In addition to being evaluated not only by our teacher but also by our peers, it was important for reliability as it was supported by three students, not just being limited to one student. In terms of self-evaluation, I think it is a successful study." the opinions of the participants under the code of Negative Opinions were as follows S16: "The evaluation of the instructor was a decisive evaluation. However, peer assessment was less effective and inaccurate due to our lack of experience."

3.3.6. Post lesson: Checking(C), Acting (A) and widespread impact

As seen in Figure 3, there is no category under the post-lesson theme. Accordingly, within the scope of the relevant question, the participants should also be aware that there is a need for a planning within the scope of permanence activities aimed at ensuring the continuity and sustainability of the performance after the lesson. Within the scope of related opinions, it can be said that it may be possible for the participants to engage in a planning process after the lesson within the scope of planning through a well-structured instructional design lesson.

Figure 4, in which the views of the participants on the "Contribution made by the method implemented in the lesson" are evaluated, can be seen below.

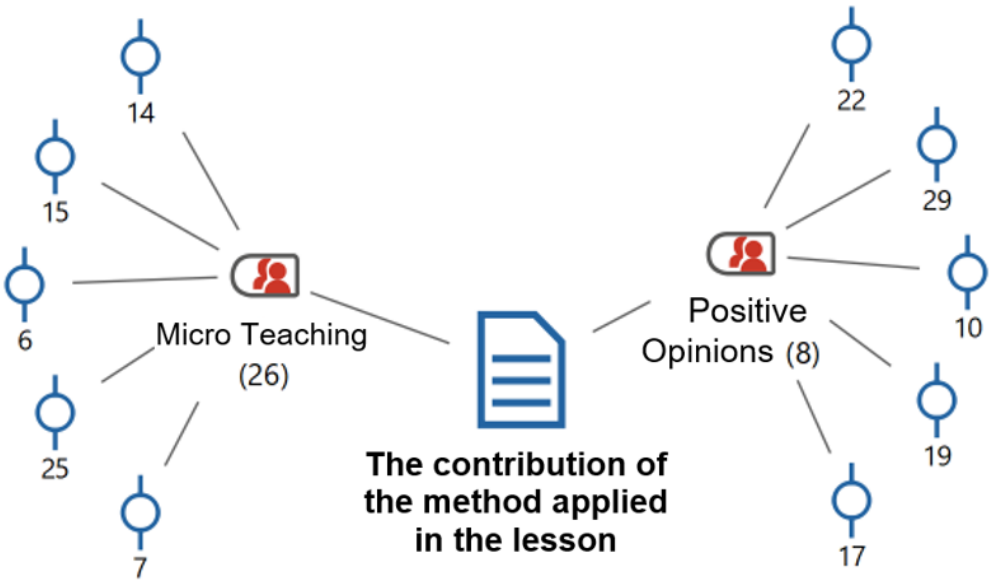


Figure 4. Categories related to the findings obtained within the scope of "Contribution to be made by the method implemented in the lesson"

3.3.7. Pre-lesson: Planning (P)

As seen in Figure 4, there is no category under the pre-lesson theme. Participants express their opinions only focusing on the practices that are reflected on them. Accordingly, within the scope of the related question, the participants do not have any awareness of the fact that there is a planning stage for the pre-lesson phase. However, it is of high importance to create awareness about the planning that is generally in the background for the practices to reach their goals. In this respect, it can be said that there is a need to raise the awareness levels of the participants that the evaluation method included in the process is also planned before the lesson.

3.3.8. During the lesson: Doing (D) and Checking (C)

As seen in Figure 4, "Doing" category under the During the Lesson theme includes codes under Micro-Teaching (f=26), and Checking category contains codes under Positive Opinions (f=8). While the expressions under the Positive Opinions code in the relevant category in which the "Contribution to be made by the method applied in the course" of the participants were evaluated were as follows: S17: "I think that every stage was the one where effective learning was taught well, and it was good for all of us to have the chance to assess ourselves."

S15: "Yes, I think because I learned how to pass the information to be taught to children in the most effective and correct way at the input step. In the process step, I understood whether I could use the information I learned correctly or not by doing micro-teaching in the classroom environment and getting feedback." On the other hand, the Participants' opinions under the Micro Teaching code were as follows S15: "Yes, I think so, because I learned how to pass on the information to be taught to children in the most effective and correct way in the input stage. I understood whether I could use the information I learned correctly or not by doing micro-teaching in the classroom environment and getting feedback in the process stage. I could remember what I learned about the lesson in general terms thanks to this form in the output stage." Accordingly, it can be said that the opinions of the participants regarding the practices carried out during the lesson within the scope of the relevant question are positive.

3.3.9. After lesson: Checking (C), Acting (A) and widespread impact

As seen in Figure 4, although there is no category under the post-lesson theme, the relevant codes in which the answers given within the scope of different questions are evaluated (for example, the Micro Teaching-end), It can be evaluated along with the awareness of the participants within the scope of permanence activities aimed at ensuring the continuity and sustainability of the performance after the lesson. Even though the participants stated their beliefs that the method applied during the lesson prepared them for the profession under different questions, this point puts an emphasis on improving the practice within the scope of the acting part of the lesson. Figure 5, in which the views of the participants on the "development aspects of the course" were evaluated, is given below.

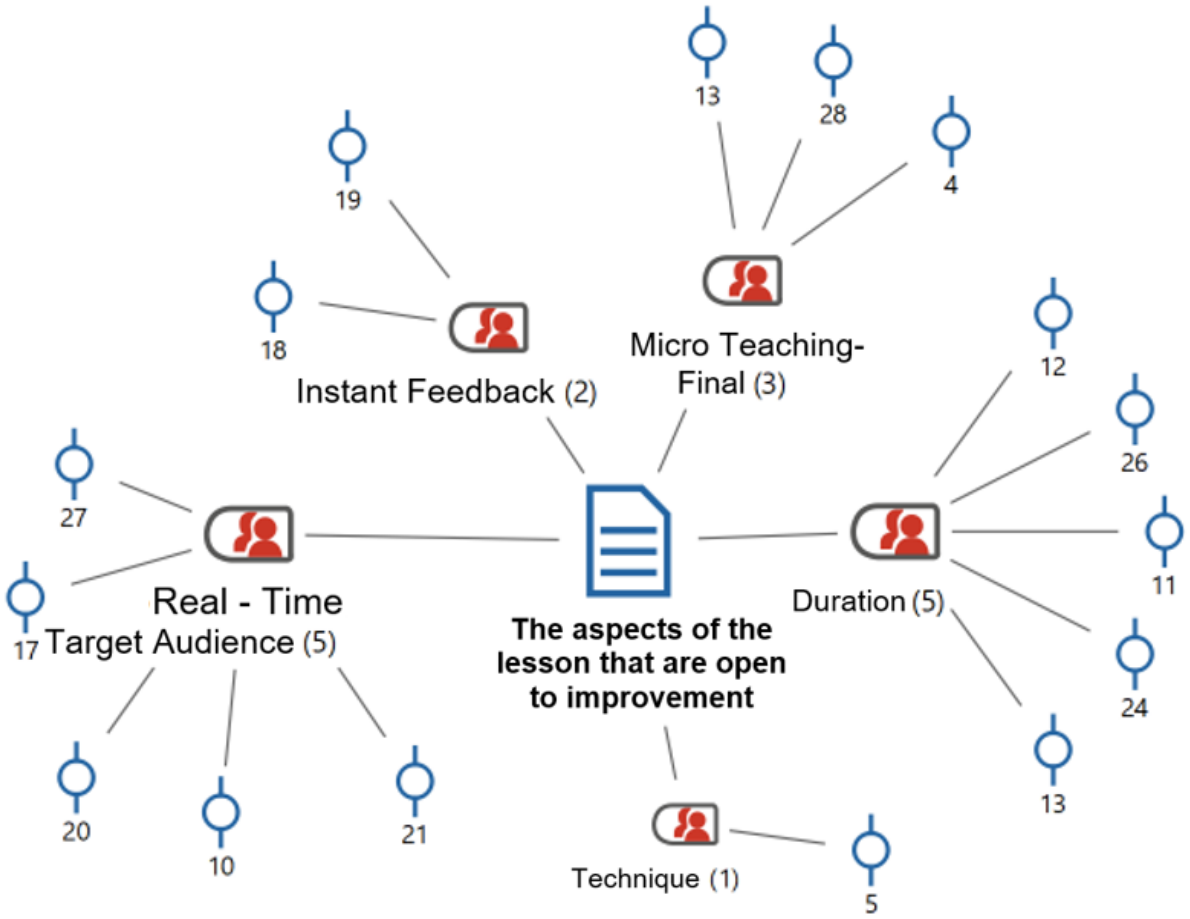


Figure 5. Categories related to the findings obtained within the scope of "aspects of the lesson open to improvement"

3.3.10. Pre-lesson: Planning (P)

As seen in Figure 5, there is no category under the pre-lesson theme. Accordingly, the participants are not aware of the fact that the main denominator that will provide the infrastructure for the improvement issues within the scope of the related question is the planning stage. As is the case with the other questions, when the answers to this question are evaluated as a whole, it can be said that there is a need for studies in order to raise awareness that the planning stage of instructional design is the beginning of the cycle in all other stages.

3.3.11. During the lesson: Doing (D) and Checking (C)

As seen in Figure 5, the Application category under the theme of During the Lesson includes codes under Micro Teaching (f=3). In the relevant category, where the participants' aspects of the course open for improvement were evaluated, and the expressions under the Micro- teaching code were as follows S4: "It could be better to see that we could achieve our goals by carrying out micro-teaching once more after the evaluation of the results."

3.3.12. Post-lesson: Checking (C), Acting (A) and widespread impact

As seen in Figure 5, the Acting category under the post-lesson theme, Real-time target audience (f=5), Instant feedback (f=2), Duration (f=5), Micro-Teaching-end (f= 3), and Technical codes were included in the process. In the relevant category where the "Aspects of the course that are open to improvement" were evaluated, while the expressions under the real-time target audience code were as follows: S10: "I think it would be more effective to carry out micro-teaching with a peer group about the subject we will teach, rather than in the classroom environment". Participants' opinions under the instant feedback code were as follows: S18: "I think it would be better to get instant feedback from the teacher when our micro-teaching application ended"; Expressions under the duration code S11: "While carrying out micro-learnings, most of us had problems with the duration, I think the duration could have been a little longer, other than that, the lesson was good and productive"; Expressions under Micro Teaching-final code S28: "Micro teaching in two stages could be better, for example, the first thirty percent and the second seventy percent part could be effective" and the expressions under the Technical code S5: "Everything related to its processing was way above what it should be, we had problems with sound and image because the formats of the videos we received were troublesome." Accordingly, in the category in which the opinions of the participants within the scope of the relevant question were evaluated, no expressions were found regarding the checking and widespread effect categories. This case shows that besides the participant's' suggestions on the evaluation of process, it also asserts the fact that there is a need for knowledge of instructional design in order to be implemented as being based on result evaluation. Similarly, it is thought that it would be

beneficial to carry out awareness studies that it is an innovative approach to include continuous and sustainable steps for the future among the suggestions for improvement, along with the issues to ensure quality assurance in the knowledge of instructional design. Figure 6, which evaluates the opinions of the participants on the "professional advantages of the lesson", can be seen below.

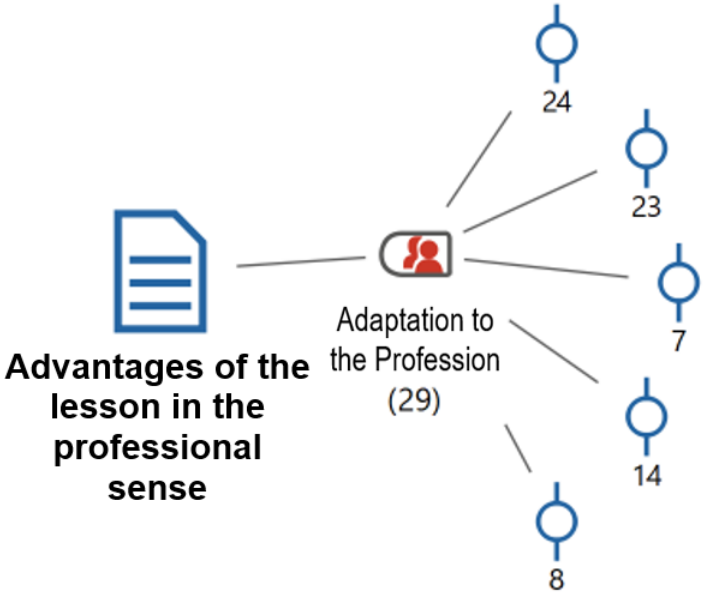


Figure 6. Categories related to the findings obtained within the scope of "the professional advantages of the lesson"

3.3.13. Pre-lesson: Planning (P)

As seen in Figure 6, there is no category under the pre-lesson theme. Accordingly, it is important for the participants to realize that stakeholder views, which will be used as a basis for revealing the professional advantages within the scope of the relevant question, constitute an important input at the planning stage.

3.3.14. During the lesson: Doing (D) and Checking (C)

As can be seen in Figure 6, there is no category under the theme of During the Lesson within the scope of the related question. Accordingly, within the scope of the relevant question, although the participants are expected to consider the formative assessment regarding the practices carried out during the lesson as a professional contribution; within the scope of the related question, there were no expressions about this issue among the opinions of the participants. However, while determining the program outputs to which the courses are related, it can be said that there is a need to raise awareness about their preparation for the profession as well. Obtaining the outputs describing the qualifications of the graduates of the related program aimed at providing quality assurance is closely related to the design of the lessons. While this design includes pre-lesson planning activities, it refers to the practice and formative assessment activities during the lesson. Accordingly, the participants should be aware that the practices carried out during the lesson are an issue that needs to be addressed in terms of preparing them for the profession.

3.3.15. Post-lesson: Checking (C), Acting (A) and widespread impact

As seen in Figure 6, the Widespread Impact category under the post-lesson theme contains codes under Adaptation to the Profession (f=29). Expressions under the code of Adaptation to the Profession in the relevant category in which the "professional advantages of the course" were evaluated by the participants were as follows: S24: "We had our first teaching experience with this lesson. While teaching, we learned what to do and what not to do. We learned that we need to listen to the students carefully and teach the lesson effectively and efficiently by giving examples from real life without going off topic." Accordingly, in the category in which the opinions of the participants within the scope of the relevant question were evaluated, no statements were found regarding the categories of checking and acting. This situation requires the participants to develop an awareness that the method they take as a basis for their lessons includes evaluation and improvement practices that support their preparation for the profession. Figure 7, which evaluates the opinions of the participants on the "Disadvantages of the lesson in the professional sense", is given below.

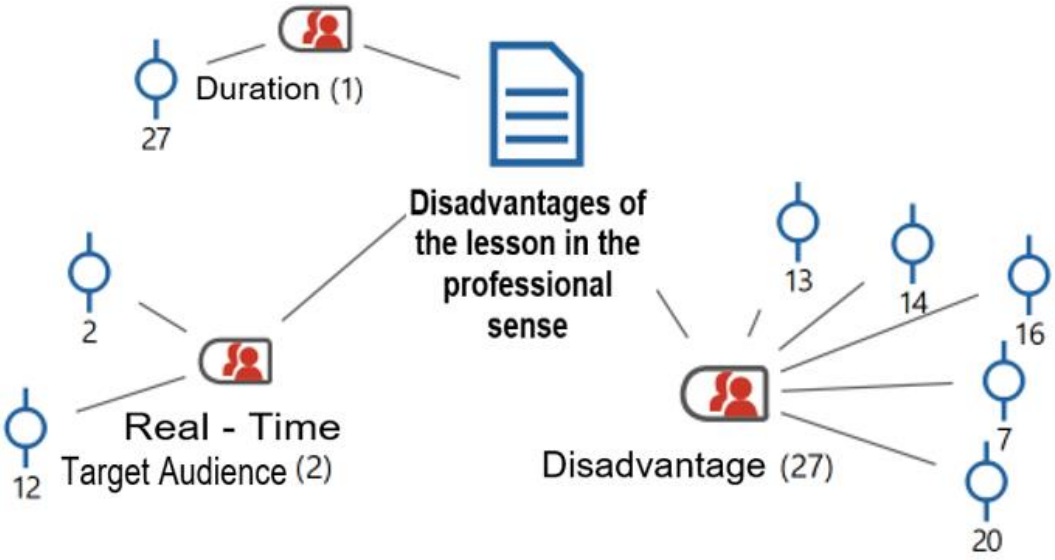


Figure 7. Categories related to the findings obtained within the scope of "Disadvantages of the lesson in the professional sense"

3.3.16. Pre-lesson: Planning (P)

As seen in Figure 7, there is no category under the pre-lesson theme. Accordingly, having taken this lesson, participants should not have the perception that they do not need planning in their professional studies in the future in order to reveal the disadvantages in the professional sense within the scope of the relevant question. Though they have gained experience within the scope of the lesson, it can be said that there is a need to raise their awareness about not carrying out their future work independently or without sufficient care and plan by adhering to this experience. In parallel with the continuous development of technology, it may be possible that micro-teaching practices require different implementations in different environments, and students should constantly improve themselves and include new environments and technologies in their planning processes.

3.3.17. During the lesson: Doing (D) and Checking (C)

As can be seen in Figure 7, there is no category under During the Lesson theme within the scope of the relevant question. Accordingly, within the scope of the related question, it can be stated that the participants should raise their awareness on the fact that practices carried out during the lesson may change constantly, and that there is a need for them to raise awareness considering such elements as subject, target audience, time etc. on the basis of different designs. Otherwise, this may lead the students to implement the experiences in the same way they have gained within the scope of the lesson without taking such elements as the environment, technology and time, etc. This issue is of high importance and the implementation of the plans made specifically for each lesson, subject and target audience may differ from one another. Considering that the experiences gained within the scope of this lesson are specific to this one, it is important to emphasize that they should be able to adapt to different situations and show quick reflexes in their future professional studies.

3.3.18. Post-lesson: Checking(C), Acting (A) and widespread impact

As seen in Figure 7, Checking category contains codes of Disadvantage (f=27) and Acting category contains codes of Real-time target audience (f=2), and the duration (f=1) under the post-lesson theme. While the expressions of the students in the Checking category, where the "professional disadvantages of the course" of the participants were evaluated, under the Disadvantage code were as follows: S20: "For example, if we have a bad memory in micro-teaching applications, it would be a disadvantage for us to remember it when we start our professional life." However, the statements of the students under the real-time audience code in the "Acting" category, S12: "Problems arising from the student and classroom management can be considered as a disadvantage, and the statements of the students were taken under the Duration code. S27: "The matter of duration-time is the difference between the actual duration of the lesson and micro-teaching" Therefore, in the category in which the opinions of the participants within the scope of the relevant question were evaluated, no expressions regarding the widespread impact category were found. This situation draws attention to the point that there is a need for the participants to be aware of the disadvantages of the method based on, especially in terms of widespread effect. Figure 8, in which the opinions of the participants related to the "Method you would follow if you were the teacher of the lesson" were evaluated, is given below.

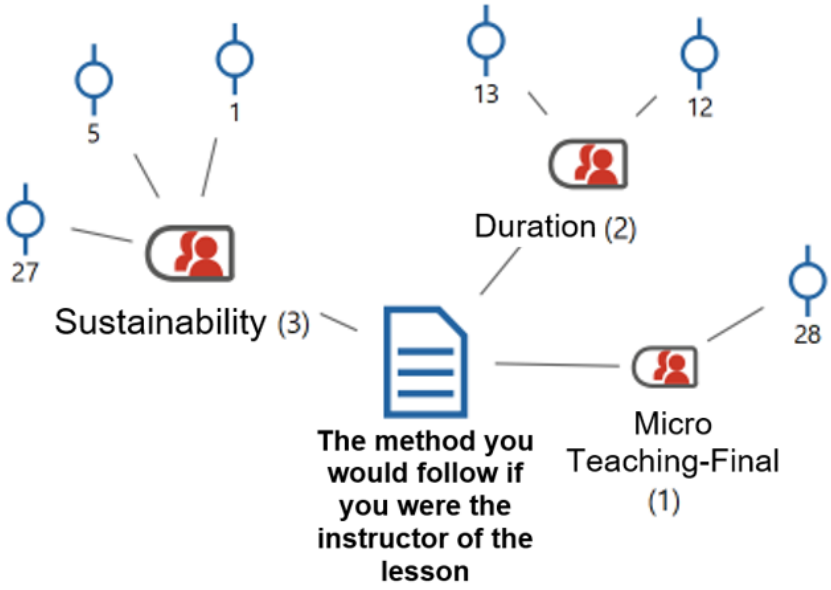


Figure 8. Categories related to the findings obtained within the scope of "the method you would follow if you were the teacher of the lesson?

3.3.19. Pre-lesson: Planning (P)

As seen in Figure 8, there is no category under the pre-lesson theme. Thus, it is important for the participants to realize the fact that the method that needs to be used as a basis in the lesson within the scope of the relevant question constitutes an important input to the planning stage by considering its appropriateness with the target audience and the subject.

3.3.20. During the lesson: Acting (A) and Checking (C)

As seen in Figure 8, there is no category within the scope the relevant question under the theme of During the Lesson. Accordingly, it can be seen that the participants do not have a creative design and critical point of view in relation with formative assessment regarding the practices implemented during the lesson. Even though they state that the lesson has made a great deal of contribution to them, they need to have awareness regarding the fact that they need a design at the point of practicing considering particular aspects. Although the views of the students on "duration" and "Micro-Teaching-end" codes they expressed for post-lesson may be fundamental within the context of the during-lesson theme, students need to gain awareness about the method that needs to be used in the lesson to assert their point of view in a critical manner.

3.3.21. Post-lesson: Checking (C), Acting (A) and widespread impact

As seen in Figure 8, Checking category contains codes of Duration (f=2) and Micro-Teaching-end (f=1) and, widespread Impact category contains codes of sustainability (f=3) under the post-lesson theme. While the expressions of the students in the Checking category, where the "the method you would follow if you were the teacher of the lesson" of the participants were evaluated under the Duration code were as follows: S12: "I would not set a certain limit for micro-teaching but on the condition that school and lesson requirements are appropriate for it." Expressions of the participants under Micro Teaching-end code were as follows: S28: "I used to apply micro teaching in two stages. The first one being thirty percent, and the second one being seventy percent effective." The expressions of the participants under the Sustainability code in the Widespread Impact category were as follows S5: "Except for what we saw in the whole lesson, I would send the students scientific articles related to that week's subject and ask them to examine and take lessons for themselves." Accordingly, in the category where the opinions of the participants within the scope of the related question were evaluated, no expressions were found regarding the "check" category.

In line the findings for both quantitative and qualitative findings it could be summarized as follows:

Quantitative findings: Positive and negative correlations were observed between the attention, interest, confidence and satisfaction subscales of the ARCS motivation scale, and performance indicators (i.e. peer, self and instructor evaluations). In particular, a significant relationship was found between the attention subscale and the overall achievement average.

Qualitative findings: Students reported that they were less aware during the planning phase of the application, that they used active learning strategies such as drama, discussion and problem-solving during the course, and that they gained significant career preparation in the period after the course. However, limitations such as time constraints and the reliability of peer evaluation were also highlighted.

4. DISCUSSION

The current study aims to explore the evaluation of the relationship between learning motivations and performances of 360-degree reflective micro-teaching applications within the framework of instructional design, in accordance with the SMART Approach, which aims to provide quality assurance in the activities before, during, and after the lesson. To reach this aim, concurrent transformative mixed methods study design was used in the study. In the following part, the findings will be discussed with the related literature.

In the finding part, both quantitative and qualitative data were shared. First of all, when looking at the quantitative data, the relationship between learning performance and motivation, both negative and positive correlations, were found in sub-dimensions of the scale and participants' grades. Moreover, in the quantitative part, participants provided detailed information on their experiences of the process. Addition to this, this study found that integrating the SMART approach, the PDCA cycle and 360° reflective micro-teaching positively impacted pre-service teachers' learning motivation and performance. In particular, attention and satisfaction dimensions of motivation were significantly associated with performance outcomes, demonstrating a mutually reinforcing relationship whereby successful performance strengthened motivation, which in turn enhanced performance. The instructional design activities carried out during the process also increased participants' awareness of systematic planning and their tendency to use active learning strategies. However, planning awareness remained relatively limited compared to the other phases. Of the PDCA stages, the Do and Check phases were found to be the most influential as they provided opportunities for active engagement and multi-stakeholder feedback, fostering reflection and improvement. The Act phase supported the iterative refinement of instructional design. However, the Plan phase required further scaffolding to be fully internalized by students, despite its importance. Overall, the results highlight the potential of this integrated model to enhance teacher education practices systematically by combining reflective evaluation, structured goal-setting and continuous quality improvement.

4.1. Learning Performance and Motivation

With regard to the research aim, the relationship between learning performance concerning the new design of Special teaching methods course. The results display both negative and positive relationships between the variables. First of all, it was observed that participants' grade average from the previous semester was positively correlated with overall success average, self-evaluation, and semester grade average. Thus, this situation can prove the consistency on the students' learning performance. Secondly, when looking at the overall success average and attention sub-dimension of the motivation scale, a positive correlation was found. Keller (2010) explains attention as arousing someone's interest in the instructional process. Thus, because in the current study, participants were applied a method that took their attention. Thus, this might be the reason for this positive correlation. On the other hand, Jong (2022) found similar results on attention because Jong suggests that their curiosity was supported in this process, so the source of the correlation might be about their supported curiosity.

When the motivation scales' sub-dimensions were investigated, attention was found positively correlated to relevance, and satisfaction but not confidence. Personal aims in the instructional process are essential for this process because individuals believe that the learning will contribute to them in their actual professional life. Thus, the goal satisfies their motivational behaviors and it is relevant to desired actions. As a result, the attention that they show also increases (Keller, 2010).

Even if no correlation was found between learning performance and motivation's overall results, it might have resulted from the insufficient number of participants for the quantitative results. That is why, when the qualitative data was examined, participants shared development in skills and positive experiences related to the current course design. With this regard, the quantitative data is provided in the following section.

In sum, holistically, quantitative data demonstrated a positive correlation between attention and overall achievement. This finding is consistent with the results of qualitative interviews, in which students reported that they were most motivated during engaging and interactive activities (e.g. drama and audiovisual stimuli). Therefore, it can be argued that attention plays a critical role in achieving the goals set out in the SMART approach of the ARCS model.

4.2. PDCA Cycle

For the qualitative data, findings were obtained in the study and thematized as "Before the Lesson, During the Lesson, and After the Lesson." The categories were presented under the Plan-Do-Check and Act (PDCA) cycle under the related themes. Thus the questions were about "Opinions on the teaching method used in the lesson," "Opinions on the evaluation method used to determine the performance in the lesson," "Contribution of the method applied in the lesson," "Aspects open to the improvement of the lesson," "Professional advantages of the lesson," "Disadvantages of the lesson professionally" and "The method you would follow if you were the teacher of the course." Thus, in the following part, the findings related to these questions will be provided.

In sum, holistically, implementing the PDCA cycle in the study fostered a culture of continuous improvement in instructional design. Defining SMART objectives clearly in the 'Plan' phase clarified student expectations for the course. Active learning strategies in the 'Do' phase increased student engagement. Multi-stakeholder feedback (360°) in the 'Check' phase promoted

self-awareness and professional development. Finally, revisions made in the 'Act' phase enabled students to reconsider their instructional designs. These results are consistent with studies in the literature that support the use of PDCA as a quality assurance tool in educational contexts.

4.2.1. Pre-lesson

When the answers related to the theme before the lesson related to the teaching method, it was revealed that one of the participants revealed the importance of planning. Aftoni et al. (2021) emphasize the importance of planning to be able to have more concrete and specific goals that might increase the possibility of reaching the goals in a more independent way. Roche et al. (2021) also share the strengths of the 360-degree reflective micro-teaching applications to help teacher candidates experience and realize how to make learning more effective and reach learning goals. From this point, the findings of the current study can be supported.

Another issue on pre-lesson theme was the assessment method. The findings showed that there were no categories under this theme, and the reason might be about lack of awareness of participants for the assessment pre-lesson. However, Derdiyok (2019) argued that the planning stage is necessary for the action plan and the time required for the implementation chart to be created. Because the assessment is one of the important steps, it also needs to be prepared in the first step.

The following findings were about the contribution of the method applied in the course, areas of the course that are open for improvement, professional advantages of the course, and disadvantages of the course in the professional sense which was similar to the previous findings. That is, it was observed that participants do not have an awareness of the importance of the planning step. Pietrzak and Paliszkiewicz (2015) suggest that planning is required to decide what and how you accomplish the goal. Thus, this stage is where the individual determines the vision and develops a strategy. Again, in this stage, the strategy transition into operational terms is made. Therefore, this stage shapes the framework for the aim, and the estimated results are determined in this stage. As mentioned in the findings, it is clear develop participants' awareness of the importance of the planning stage.

4.2.2. During the lesson

Under the during the lesson theme, there are Implementation and Control categories. When opinions on the teaching method used in the course were taken, it was seen that participants emphasized active learning and drama during implementation. That is, they argued that it was beneficial to see how the lesson could be maintained in practice. Hales & Kalyvaki (2017) also share similar findings on 360-degree reflective micro-teaching applications. That is, in that study, realistic experiences of this teaching method were one of the findings in their study. Because this method provides opportunities to experience various situations and authentic learning as in real life (Shadiev et al., 2021; Snelson & Hsu, 2019), more permanent learning is gained (Roche et al., 2021).

Participants' opinions on the evaluation method used to determine performance in the course were also examined, and both positive and negative opinions were shared. Whereas some of the participants argued that it was good to have different ways of assessment, including peers and self-assessment, some others stated that peer evaluation was not valid. In Yalmanci & Aydın's (2014) study, the participants provided similar answers and shared their concerns about not having valid assessments by peers. On the other hand, the aim of micro-teaching is the development of teaching skills by taking feedback from peers (Saraçoğlu et al., 2018). Popovich & Katz (2009) stated that constructive feedback from peers might be an effective way of developing teaching skills for pre-service teachers.

The contribution of the method applied in the course was also investigated by taking the participants' views. The participants highlighted how effective each stage was. That is, they argued that because it provides a chance to practice as they are in a real teaching environment, they gain useful experiences, as suggested by Shadiev et al. (2021) and Snelson & Hsu (2019). Even though they practiced thanks to micro-teaching, the participants also suggested having another session after they took the final evaluation when they were asked for areas of the course that are open for improvement. That is why, after learning their weaknesses, they required another chance to provide performance by updating their behaviors.

For the questions on the advantages and disadvantages of professional development and the method they would follow if they were the instructor of the course, no categories could be created. Even if the participants were expected to realize the effect of micro-teaching as a preparation for their professional life (Roche et al., 2021), the participants in the current study did not provide this kind of data. Also, because during the teaching, they experience a specific condition, it would be hard to generalize their teaching to their actual teaching life. They may face different challenges, and they will need to adapt the process to their actual situation when they become a teacher (Roche et al., 2021). However, the disadvantages of the participants did not share. This may be a source to work more on increasing their awareness.

4.2.3. Post-lesson

The final theme is about participants' reflections post-lesson. Control, Prevention, and Widespread Impact were discussed in those reflections. When opinions on the teaching method used in the course were taken, participants mentioned only the Widespread Impact category. Thus, they shared that even if the method was not familiar at first, they got used to it over time and the method contributed to learning by not going to the internship. Chang et al. (2019) also revealed similar findings on nursing students and stated that learning motivation and satisfaction were higher than the traditional methods.

On the other hand, there were no categories on opinions on the assessment method used to determine performance in the course and the contribution of the method applied in the course. That can be because of the lack of awareness on the importance of permanence activities to ensure the continuity and sustainability of performance. As Chawla & Thukral (2011) stated, micro-teaching enhances to shape and strengthens the skills of pre-service teachers on teaching. Thus, to be able to have permanent learning, the teacher candidates should focus on not only what they learn in the process but also how long these skills will appear in their teaching.

Another question was about areas of the course that are open for improvement, and the researchers found some categories under this question that are the real-time audience, constant feedback, duration, micro-teaching-end and technique. In the literature, there are studies that emphasize similar findings. For example, Jong (2022) also mentions the weaknesses of lack of face-to-face communication that teacher candidates should make with children. However, he also suggests that the clips that are taken when teacher candidates make face-to-face internships. If the clips were gathered from their own experiences, more realistic experiences might be provided. However, Jong (2022) also highlighted the importance of solving the problem of lack of interactivity in this teaching method. Another finding of his study was about user-unfriendliness. This finding was similar to the current study's finding because the participants shared that they had problems with sound and image because the formats of the videos were troublesome. Thus, future studies should address these problems.

Professional advantages of the course under the "post-lesson" theme was about the adaptation to the profession in widespread impact. That is, the teacher candidates shared that they realized what they should and should not do in their teaching. Korthagen (2010) describes the gap between theory and practice as practice shock. Because the use of 360° video decreases this stress related to practice shock (Shadiev et al., 2021), the adaptation process of teacher candidates to their actual teaching environment will be easier (Sato & Kageto, 2020; Zolfaghari et al., 2020).

When the disadvantages of the process were asked, the codes were a disadvantage, real-time target audience and duration. Almost all of the participants talked about the disadvantages in the check category. That is, participants argue that they may have negative experiences while teaching or classroom management. Thus, these negative memories might affect their teaching in the future due to their lack of confidence. On the other hand, Hales & Kalyvaki (2017) stated that these applications ensure not having negative consequences for participants. Shek et al. (2021) suggest using feedback to realize the weaknesses and develop ways to deal with unsuccessful experiences. Thus, even teacher candidates experience negative consequences in their 360-degree reflective micro-teaching. Thanks to the feedback, they learn what they might have done when they are in the real class. Thus, rather than having these negative experiences in real class experiences, 360-degree reflective micro-teaching may be seen as an opportunity for precaution.

Through the transformation of vague goals into specific, measurable, achievable, relevant, and timely objectives, the SMART approach offers a methodical framework that improves the relationship between learning motivation and performance. According to motivational theory, learners' self-efficacy is boosted by well-defined and achievable goals (Bandura, 1977), which also serve as proximal motivators (Locke & Latham, 2002). Perceived goal clarity and attainability also help to maintain engagement. Learners may track their own progress and feel a sense of success with each milestone when educational outcomes are SMART-defined. This directly supports the confidence and satisfaction dimensions of Keller's (1987) ARCS model. High goal clarity and achievability raise students' expectations of success, while quantifiable progress boosts intrinsic motivation and improves performance results. This alignment fosters a cyclical reinforcement between motivation and performance. SMART goals support teacher candidates in internalizing evaluation criteria, interpreting feedback constructively, and engaging in self-regulated learning—all of which improve their professional competence and perseverance—in the framework of 360° reflective micro-teaching. Therefore, SMART-based instructional design bridges the gap between goal-setting theory and pedagogical practice by fostering a motivational climate of mastery and self-improvement in addition to facilitating objective performance monitoring.

Finally, there are some categories and codes for the question on the method they would follow if they were the course instructor. Under the post-lesson theme, codes were duration (the take action category), micro-teaching-end, and sustainability (the widespread impact category). First of all, the participants mentioned the limitation of the duration and suggested more free time during micro-teaching. In addition to the teaching time, students may have individual practice time to work on their weaknesses. Roche et al. (2021) also share this weakness and suggest free access platforms with developed resources. With the help of these resources, sustainability can be also accomplished because teacher candidates can repeat their practices.

As a result, with the help of qualitative data, detailed information about teacher candidates' experiences with 360-degree reflective micro-teaching before, during, and post-lesson. Via the questions on "Opinions on the teaching method used in the lesson," "Opinions on the evaluation method used to determine the performance in the lesson," "Contribution of the method applied in the lesson," "Aspects open to the improvement of the lesson," "Professional advantages of the lesson," "Disadvantages of the lesson professionally" and "The method you would follow if you were the teacher of the course," categories and codes were created related to the answers. Thus, it is possible to say that participants developed their knowledge, and this process was helpful for them to see what their weaknesses and strengths are. Even if they have a lack of awareness on specific points such as planning, with the improvement of the applied program, the efficacy of the process might be increased.

5. CONCLUSION

With the combination of qualitative and quantitative data, the results of the study reveal that for permanent learning, students need experiences that meet their interests and personal aims for higher motivation. Also, to get rid of the stress resulting from the gap between theory and practice, 360-degree reflective micro-teaching applications might be helpful for teacher candidates to practice teaching children before they start teaching. Even if this process provides evidence of increased efficacy of learning among students, still awareness of them on the process should be developed. That is why the researchers realized that about assessment, sustainability of the process, and permanent learning, the participants did not provide sufficient answers. Thus, to get higher benefits from 360-degree reflective micro-teaching and PDCA Cycle, the aims and functions of the course design might be explained to the teacher candidates in detail. Also, the quantitative part of the study showed the relationship between the attention sub-dimension of motivation and the general grade average. Because micro-teaching might provide experiences that increase participants' curiosity and serve their aim, it becomes meaningful to observe the effect of micro-teaching on the relationship between attention and learning performance.

As a result, the current study can be used as a source for several aims. One of them is designing a course with the help of micro-teaching to provide realistic and meaningful experiences to teacher candidates. The technology integration is another contributing point of the study. With the help of technology use, active learning students was ensured, and student-centered methods could be applied. Finally, with the help of the PDCA Cycle, it was evaluated the process related to both students' development and maintenance of the designed course. According to the results, it is strongly recommended that they should gain awareness in prominent subjects and the subject of designing teaching should be reinforced with lesson involving critical and creative thinking. Furthermore, they should have experiences at a school that will be determined before the implementation of teaching practices through a pilot study by providing students with the opportunity for presentations in an environment that requires real practices.

In summary, the findings suggest that micro-teaching provides valuable experience and enhances teacher candidates' awareness of planning. This suggests that instructional design courses should be made mandatory and offered jointly by different faculties. Furthermore, the multiple feedback provided through the 360° evaluation process contributes to transparency and accountability principles in teacher training policies. It is recommended that such practices be expanded in line with quality assurance policies in higher education, and examined the relationship between the learning motivation and performance of pre-service teachers within the framework of the SMART approach, the PDCA cycle and 360° reflective micro-teaching practice. The findings highlight the following:

- Attention is the motivational factor most strongly related to students' learning performance.
- The 'Do' and 'Check' phases of the PDCA cycle enhanced students' active learning experiences and self-awareness in particular.
- The 360° assessment process (teacher, peer and self-assessment) enabled students to recognize their strengths and areas for improvement.
- However, students' awareness during the planning phase was limited, indicating the need for more systematic instructional design support in future.

In conclusion, the results of the study indicate that the integration of the SMART approach, the PDCA cycle, and 360° reflective micro-teaching positively influenced teacher candidates' motivation and performance. In particular, the attention and satisfaction dimensions showed a strong relationship with performance, thus revealing that motivation and performance mutually reinforce each other. The Do and Check stages of the PDCA cycle provided the most effective contribution, while planning awareness remained relatively limited. Overall, it can be said that the model developed teacher candidates' active learning tendencies, reflective thinking skills, and awareness of instructional design. This integration provides a valuable roadmap for the professional preparation of pre-service teachers, but larger studies are required due to limitations in the sample size and context.

6. PRACTICAL IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

The findings of this study offer several practical recommendations for teacher education programs. Firstly, workshops based on the SMART approach should be organized to enhance pre-service teachers' awareness of lesson planning. Furthermore, detailed rubrics should be used in peer evaluations, and students should receive brief 'evaluation training' to increase the reliability of the 360° evaluation process. Allowing for flexible time management in micro-teaching practices will provide pre-service teachers with more realistic and authentic teaching experiences. Additionally, integrating current digital tools (e.g. AI-supported learning analytics and virtual and augmented reality applications) into the process will reinforce active learning and reflective thinking. Finally, in terms of policy, it is deemed critical to make instructional design courses common and mandatory across faculties, and to structure quality assurance mechanisms based on the PDCA cycle, in order to ensure the continuity and sustainable development of teacher education processes.

Accordingly, the study's findings lead to two recommendations: (1) *Recommendations for practice* and (2) *Recommendations for future research*.

1. This study has several practical implications for teacher education programs. Firstly, lesson planning workshops based on the SMART approach should be organized systematically to enhance pre-service teachers' awareness of planning and their skills in designing instructional goals. Secondly, to improve the reliability of 360° assessments, detailed rubrics should be developed, and peers should undergo brief 'assessment training' to ensure more objective evaluations. Thirdly, micro-teaching time allocations should be made more flexible to enable more realistic and authentic teaching experiences. Fourthly, up-to-date digital tools, including AI-supported learning analytics and VR/AR applications, should be integrated into the teaching process to promote active learning and reflection. (2) At the policy level, instructional design courses should be cross-faculty and mandatory, and quality assurance mechanisms should explicitly be structured around the PDCA cycle to ensure systematic improvement and sustainability in teacher education.

2. Future research should prioritize sample diversity by replicating this study with participants from different universities and departments to enhance the generalizability of the findings. Additionally, longitudinal studies are required to examine the long-term impact of SMART–PDCA–360° integration on the professional performance of teacher candidates in their early careers. Incorporating emerging technologies such as AI-based assessment systems, metaverse environments and mixed reality-based micro-teaching applications would provide further insight into the evolving nature of digital pedagogy. Furthermore, policy-based research should explore how the outcomes of such studies can be aligned with national teacher education standards and institutional quality assurance frameworks. Finally, comparative studies across different countries could help to identify international best practices.

It can also be said that the study has limitations. This study's sample was limited to one university and 30 students. Therefore, the generalizability of the findings is limited. Furthermore, while the technologies used (Google Drive, Doctopus and Classroom) were appropriate for the current conditions, more advanced platforms are currently being used (e.g. AI-enhanced learning analytics and virtual/mixed reality applications). Future research could examine the integration of new technologies with larger samples from different universities.

Research and Publication Ethics Statement

The authors followed the rules of good scientific practice and there are no conflicts of interest. All procedures in the study conformed to the ethical standards of the University and to the Helsinki Declaration of 1964 and its subsequent amendments.

Contribution Rates of Authors to the Article

The first author of the manuscript is the owner of the idea. She also brings the team to work together. The first author collected the data and analyzed the data with the second author. The third author wrote the introduction part together with the fourth author. The Method and Findings part were written by the first author. The second author also supported the first author while writing the Findings part. The Discussion part is mostly handled by the fourth author. However, other colleagues also supported the fourth author to complete the Discussion and other parts.

Support Statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The data supporting the results of this study are available from the authors upon reasonable request.

Statement of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

7. REFERENCES

Anthonysamy, L., Koo, A. C., & Hew, S. H. (2020). Self-regulated learning strategies in higher education: Fostering digital literacy for sustainable lifelong learning. *Education and Information Technologies*, *25*(4), 2393-2414. https://doi.org/10.1007/s10639-020-10201-8

Aftoni, A., Susila, I. W., Sutiadiningsih, A., & Hidayatulloh, M. K. Y. (2021). Plan-Do-Review-Share-Happy (Plandoresh) strategy as an effort of developing vocational high school students' independent learning. *Jurnal Pendidikan Vokasi, 11*(1). https://doi.org/10.21831/jpv.v11i1.37165

Azrai, E. P., Rini, D. S., & Suryanda, A. (2020). Micro-teaching in the Digital Industrial Era 4.0: Necessary or not. *Universal Journal of Educational Research*, *8*(4A), 23-30. https://doi.org/10.13189/ujer.2020.081804

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Chang, C. Y., Sung, H. Y., Guo, J. L., Chang, B. Y., & Kuo, F. R. (2019). Effects of spherical video-based virtual reality on nursing students' learning performance in childbirth education training. *Interactive Learning Environments*, *30*(3), 400-416. https://doi.org/10.1080/10494820.2019.1661854

Chawla, V., & Thukral, P. (2011). Effects of student feedback on teaching competence of student teachers: A microteaching experiment. *Contemporary Educational Technology*, *2*(1), 77-87. Retrieved from https://dergipark.org.tr/en/pub/cet/issue/25723/271429

Çoban, A. (2015). Öğretmen eğitiminde mikro-öğretim ve farkli yaklaşimlar. *Elektronik Sosyal Bilimler Dergisi*, *14*(53), 219-231. https://doi.org/10.17755/esosder.43863

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Sage.

Deckers, L. (2018). Motivation. In Routledge eBooks. https://doi.org/10.4324/9781315178615

Derdiyok, T. (2019). Üniversitelerde kalite güvence sistemi kapsamında PUKÖ yönetim döngüsü uygulamasında bir model önerisi. *Ufuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *8*(15), 173-198. Retrieved from https://dergipark.org.tr/tr/pub/ufuksbedergi/issue/57470/815068

Dewey, J. (1991). *The school and society and the child and the curriculum*. University of Chicago Press.

Dinçer, S., & Doğanay, A. (2016). Öğretim Materyali'ne İlişkin Motivasyon Ölçeği (ÖMMÖ) Türkçe uyarlama çalışması. *İlköğretim Online, 15*(4). https://doi.org/10.17051/io.2016.19056

Ernalbant, Ö. (2014). *360 derece performans değerlendirme sistemi hakkında öğretmen ve yönetici görüşleri* (Doctoral dissertation). Marmara Universitesi.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering and mathematics. *Proceedings of the national academy of sciences of the United States of America 111(23)*: 8410–8415. https://doi. org/10.1073/pnas.1319030111

Güven, S., Kahveci, Ö., Öztürk, Y., & Akın, Ö. (2016). Türkiye'de mikro öğretim uygulamalariyla ilgili yapilan çalişmalarin içerik analizi. *The Journal of International Lingual Social and Educational Sciences*, *2*(1), 19-34. Retrieved from https://dergipark.org.tr/en/pub/jilses/issue/23621/251579

Hales, P. & Kalyvaki, M. (2017). Immersive Learning Experiences in Teacher Education. In P. Resta & S. Smith (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 1586-1587). Austin, TX, United States: Association for the Advancement of Computing in Education (AACE). Retrieved from https://www.learntechlib.org/primary/p/177439/

Herrera, R. F., Vielma, J. C., & La Rivera, F. M. (2018). Impact of microteaching on engineering students' communication skills. *Int. J. Eng. Educ*, *34*(6), 1768-1775. Retrieved from https://pure.pucv.cl/en/publications/impact-of-microteaching-on-engineering-students-communication-ski

Ingersoll, R. M., & Strong, M. (2011). The Impact of Induction and Mentoring Programs for Beginning Teachers: A Critical Review of the Research. *Review of Educational Research, 81, 201-233*. https://doi.org/10.3102/0034654311403323

Jong, M. S. Y. (2022). Flipped classroom: motivational affordances of spherical video-based immersive virtual reality in support of pre-lecture individual learning in pre-service teacher education. *Journal of Computing in Higher Education*, 1-22. https://doi.org/10.1007/s12528-022-09334-1

Keller, J. M. (1987). Development and use of the ARCS model of instructional design. *Journal of Instructional Development, 10*(3), 2–10. https://doi.org/10.1007/bf02905780

Keller, J. M. (2010). *Motivational design for learning and performance: The ARCS model approach*. Springer.

Korthagen, F. A. J. (2010). "The Relationship between Theory and Practice in Teacher Education," in *The International Encyclopedia of Education.* Editors P. Peterson, E. Bakker, and B. McGaw (Oxford: Elsevier), 669–675. https://doi.org/10.1016/b978-0-08-044894-7.00638-2

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57*(9), 705–717. https://doi.org/10.1037/0003-066X.57.9.705

Okoye, K., Hussein, H., Arrona-Palacios, A., Quintero, H. N., Ortega, L. O. P., Sanchez, A. L., & Hosseini, S. (2022). Impact of digital technologies upon teaching and learning in higher education in Latin America: an outlook on the reach, barriers, and bottlenecks. *Education and Information Technologies*, 1-70. https://doi.org/10.1007/s10639-022-11214-1

Park, S., & Yun, H. (2017b). The influence of motivational regulation strategies on online students' behavioral, emotional, and cognitive engagement. *American Journal of Distance Education, 32*(1), 43–56. https://doi.org/10.1080/08923647.2018.1412738

Pietrzak, M., & Paliszkiewicz, J. (2015). Framework of Strategic Learning: The PDCA Cycle. *Management (18544223)*, *10*(2). 149–161. Retrieved from https://web.p.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=2d8ddfaf-c58c-4d4d-98b1-9256ff03f187%40redis

Popovich, N. G., & Katz, N. L. (2009). A Microteaching Exercise to Develop Performance based Abilities in Pharmacy Students. *American Journal of Pharmaceutical Education, 73*(4), 1-8. https://doi.org/10.5688/aj730473

Roche, L., Kittel, A., Cunningham, I., & Rolland, C. (2021). 360° video integration in teacher education: A SWOT analysis. *Frontiers in Education, 6*. https://doi.org/10.3389/feduc.2021.761176

Saraçoğlu, G., Gürışık, A., & Furat, D. (2018). İngilizce öğretmen adaylarının mikro öğretim uygulamaları sonrasında yapılan eleştiri ile ilgili görüşleri. *Türk Eğitim Bilimleri Dergisi, 16*(1), 58- 76. Retrieved from https://dergipark.org.tr/en/pub/tebd/issue/37876/378642

Sato, S., and Kageto, M. (2020). The Use of 360-degree Videos to Facilitate Prelearning and Reflection on Learning Experiences. *Ijil 27* (4), 381–394. https://doi.org/10.1504/ijil.2020.10028760

Schunk, D. H., Meece, J. L., & Pintrich, P. R. (2014). *Motivation in education: Theory, research, and applications (4th ed.)*. Pearson Education.

Shadiev, R., Yang, L., and Huang, Y. M. (2021). A Review of Research on 360- Degree Video and its Applications to Education. *J. Res. Technol. Educ.,* 1–16. https://doi.org/10.1080/15391523.2021.1928572

Shek, M. M.-P., Leung, K.-C., & To, P. Y.-L. (2021). Using a video annotation tool to enhance student-teachers' reflective practices and communication competence in consultation practices through a collaborative learning community. *Education and Information Technologies, 26*, 4329–4352. https://doi.org/10.1007/s10639-021- 10480-9

Snelson, C., and Hsu, Y.-C. (2019). Educational 360-degree Videos in Virtual Reality: a Scoping Review of the Emerging Research. *TechTrends 64*, 404–412. https://doi.org/10.1007/s11528-019-00474-3

Teddlie, C., & Yu, F. (2007). Mixed methods sampling: A typology with examples. *Journal of mixed methods research, 1*(1), 77-100. https://doi.org/10.1177/1558689806292430

Theobald, E. J., Hill, M. J., Tran, E., Agrawal, S., Arroyo, E. N., Behling, S., Chambwe, N., Cintrón, D. L., Cooper, J. D., Dunster, G., Grummer, J. A., Hennessey, K., Hsiao, J., Iranon, N., Jones, L., Jordt, H., Keller, M., Lacey, M. E., Littlefield, C. E. & Freeman, S. (2020). Active learning narrows achievement gaps for underrepresented students in undergraduate science, technology, engineering, and math. *Proceedings of the National Academy of Sciences, 117(12), 6476–6483.* https://doi.org/10.1073/pnas.1916903117

Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S. V., Giannoutsou, N., Cachia, R., & Ioannou, A. (2022). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. *Education and Information Technologies*, 1-32. https://doi.org/10.1007/s10639-022-11431-8

Yalmanci, S. G., & Aydın, S. (2014). Öğretmen adaylarının mikro öğretim uygulamalarına yönelik görüşleri. *Turkish journal of education*, *3*(4), 4-14. https://doi.org/10.19128/turje.181088

Yıldız, S. (2016). Yükseköğretimde 360 derece/çoklu değerlendirme. In A. Balcı & İ. Aydın (Eds.), *Prof. Dr. Ziya Bursalıoğlu'na armağan.* Ankara: Ankara Üniversitesi Eğitim Bilimleri Fakültesi.

Zolfaghari, M., Austin, C. K., Kosko, K. W., & Ferdig, R. E. (2020). Creating asynchronous virtual field experiences with 360 Video. *The Journal of Technology and Teacher Education, 28*(2), 315–320. https://doi.org/10.70725/349347jqxqno

Appendix 1. Grading Rubric for Micro-Teaching Application (Summative Assessment)

	Did not use	Very weak	Weak	Moderate	Good	Very Good
1. Making an intriguing introduction to the lesson						
2. Associating the subject with the real life						
3. Using the basic principles and concepts, having a command of the subject.						
4. Organizing the learning environment in accordance with the objectives.						
5. Presenting the lesson in a clear and decent manner						
6. Using the time effectively.						
7.Enabling the active involvement of the students in the lesson						
8. Leading the students to problem-solving and critical thinking.						
9. Choosing and using the material appropriate for the subject.						
10. Using the board effectively.						
11. Making use of instructional technologies.						
12. Using the appropriate models while explaining abstract subjects.						
13. Stressing on the important points						
14. Answering the questions of the students sufficiently and at the appropriate level.						
15. Guiding the activities and studies of the students without interfering too much.						
16. Using the voice effectively, stressing at the right points.						
17. Using the body language in an effective way.						
18. Listening to the students with great care.						
19. Being willing, enthusiastic, and active.						
20. Confidence						
Total						

Appendix 2. Implementation of Teaching Design (Formative Assessment)

- Explains how technological inventions and creativity affects the economy.
- Creates a simple database using appropriate techniques.
- Discusses the advantages and disadvantages of buying products online.
- Lists the health problems that may be triggered by miss-use of computers.
- Identifies the routine hardware and software problems encountered in daily use and solves them by using the required methods.
- Creates and arranges tables on the database.
- Takes the necessary precautions for information security.
- Reaches to conclusions on the possible effect and development of future communicational technologies.
- Makes calculations using the formula that are specific to solve certain problems.
- Becomes aware of visual literacy.

Study the sample learning outcomes above. Prepare a sample activity suitable for a target group you have determined by taking a single learning outcome as a basis as a group. While preparing the sample activity, *you need to benefit from the teaching methods, techniques and strategies that are appropriate* for *the features of the target group and learning outcomes.* Your sample activity *can either be a case study or can be prepared in the form of a lesson plan.*

I strongly remind you to express in a remarkable way which method, technique and strategy feature of the situation you have taken as a basis for your sample activity by using such typological features as parenthesis (), quotes"", **bold**, *italics*, underlined, etc.

Appendix 3. Teaching Material Motivation Scale

1. I thought that it would be easy for me when I saw the lesson for the first time.
2. There were interesting things that drew my attention at the beginning of the lesson.
3. I understood this course material/tools (computers, books, etc.) easier than I expected.
4. After reading/listening to the introductory information I was sure of what I needed to learn from this lesson.
5. Doing the exercises of this lesson gave me the sense of achievement.
6. The relation of this lesson's content with what I learned before was quite clear.
7. There was necessary amount of information on the course material/tool. I could separate the important items.
8. The course material/lesson tool used in this lesson was interesting.
9. There were pictures, stories and examples which proved that how useful this course material/tool could be for some people.
10. It was of high importance for me to finish this lesson with a success.
11. The quality of the text and sound made it easier for me to focus on the lesson.
12 .I felt certain that I could learn the subjects as long as I studied.
13. I have so much pleasure in this lesson that I wanted to learn a lot more things about this subject.
14. Lecturing in this course material/tool was quite enjoyable.
15. The content of this course material/tool were prepared in accordance with the subjects that drew my attention.
16. The arranged form of the information in the course material made it easier for me to focus on.
17. There were samples and explanations in the course material on how people made use of the information in this lesson.
18. The exercises in this lesson were very easy.
19. There were intriguing thins in this lesson.
20. I really enjoyed studying this lesson.
21. The number of the practices in this lesson was enough. I never got bored.
22. The information and the way of their presentation in this lesson made me think that this lesson was of high importance.
23. I learned surprising, unexpected and useful information in this lesson.
24. I was sure that I could be successful in this lesson after studying it for a period of time.
25. The feedbacks (feedbacks/comments) received after the study helped me feel that I got the reward for my hard work.
26. Various elements such as reading texts, exercises, pictures, videos and sounds helped me focus on the lesson.
27. The writing of the course material was appropriate for me.
28. I could associate the content of this lesson with things in my own life.
29. Completing this lesson successfully made me feel well.
30. I was convinced that the content of this lesson would be useful for me.
31. I understood all parts of this lesson.
32. The content of the course material was prepared well. Thus, I had high confidence that I would be successful in this lesson.
33. The lesson was prepared so well that it was a pleasure for me to lecture it.

5.Very True 4. True 3. Moderately True 2. Somewhat (Slightly) True 1. Not True