

Reflections on 4F Model Learning for Professionalism Development of Prospective Teachers: Evidence from Teacher Professional Education

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Abstrak

Pembelajaran reflektif dalam pendidikan calon guru merupakan pendekatan penting untuk mempersiapkan mereka menjadi pendidik profesional. Penelitian ini menyelidiki bagaimana Model Pembelajaran Refleksi 4F meningkatkan pengembangan profesional calon guru. Penelitian ini menggunakan pendekatan kualitatif untuk menganalisis tanggapan dari dua belas mahasiswa di berbagai program pendidikan di Universitas Wijaya Kusuma Surabaya di Indonesia. Model 4F, yang meliputi Fakta, Perasaan, Temuan, dan Masa Depan, berfungsi sebagai kerangka praktik reflektif dalam pendidikan guru. Temuan mengungkapkan bahwa model ini secara signifikan meningkatkan pengetahuan teoretis dan kompetensi profesional serta menumbuhkan lingkungan belajar yang berpusat pada siswa. Siswa melaporkan pengalaman emosional yang positif namun mencatat stres karena beban kerja yang berat. Di sini, pembelajaran teori diintegrasikan dengan magang praktis dan secara efektif memperkaya filosofi pendidikan dan metodologi pengajaran siswa. Studi ini juga mengidentifikasi area perbaikan, termasuk mengoptimalkan Sistem Manajemen Pembelajaran dan meningkatkan materi perkuliahan. Penelitian ini berkontribusi pada pemahaman praktik reflektif dalam pendidikan guru, menekankan pentingnya pendekatan holistik dan berpusat pada siswa dalam pengembangan profesional.

Kata Kunci: *Refleksi Pembelajaran, Model 4F, Guru, Pendidikan Profesi Guru, Pendidikan Calon Guru*

Abstract

Reflective learning in the education of prospective teachers is an essential approach to prepare them to become professional educators. This study investigates how the 4F Model Learning Reflection enhance the professional development of prospective teachers. The research uses a qualitative approach to analyse responses from twelve students across various educational programs at Wijaya Kusuma University of Surabaya in Indonesia. The 4F Model, encompassing Fact, Feeling, Finding, and Future, serves as a framework for reflective practice in teacher education. Findings reveal that the model significantly enhanced theoretical knowledge and professional competencies and fostering a student-centered learning environment. Students reported positive emotional experiences yet noted stress due to heavy workloads. Here, the theoretical learning is integrated with practical internships and effectively enriching students' educational philosophy and teaching methodologies. The study also identifies improvement areas, including optimizing the Learning Management System and enhancing lecture materials. This research contributes to the understanding reflective practices in teacher education, emphasizing the importance of holistic and student-centered approaches in professional development.

Keywords: *Learning Reflection, the 4F Model, Teacher, Teacher Professional Education, Prospective Teacher Education*

Introduction

Education is essential in developing society and the country (Alharbi, 2023). Education and literacy help people to understand themselves and the world. This raises their standard of life and benefits society and individuals (Purnomo et al., 2020; Sakmurzaeva, 2018; Ziberi et al., 2022). Teachers are at the forefront of the education process. They play a central role in shaping the quality of education (Sun, 2021). They are responsible for shaping students' character, knowledge, and skills. Therefore, prospective teachers need to get education in carrying out comprehensive and in-depth preparation before they stepping into the teaching profession (Flores, 2020; Ploj Vrtič et al., 2023). They also need to be able to establish coherence on the scientific understanding of learning and development and its relevance for educational practice in schools (Darling-Hammond et al., 2020). One of the most essential instructional ideas that can significantly impact the teaching and learning process is selecting an appropriate teaching style (Khozaei et al., 2022). Besides, determining teaching methods can also influence student learning achievement (Cordero & Gil-Izquierdo, 2018; Metekohy et al., 2022; Rohmah & Mukhlis, 2022).

Prospective teachers play a role in forming the younger generations and helping them become leaders in the future. With professional development programs, prospective teachers become the integral part in ensuring quality education in a country (Lindfors & Olofsson, 2023; Marrero Galván et al., 2023). In recent years, there have been many changes in education. These significant changes in terms of technology, curriculum, as well as the students' characters, which highlight the importance of education for the professional development of prospective teachers (Keiler, 2018; Kim et al., 2019; Persada et al., 2022; Purnomo et al., 2021).

Besides, Reflection is critical in teacher education (Suphasri & Chinokul, 2021). The reflection process is often described in a cyclical model. Reflection in a learning context, known as reflective learning, is a critical process in which individuals investigate and understand their learning experiences inside and outside the classroom (Cirocki & Widodo, 2019; Machost & Stains, 2023). Reflection allows students to dig deeper into their understanding of the subject matter, develop skills, and grow personally (Kim et al., 2019). This practice is increasingly important in modern education, where learning is no longer limited to provide information but involves deep understanding, problem-solving, and critical thinking (Darling-Hammond et al., 2020). Reflection allows students to develop critical thinking (Nuraini et al., 2020). By reflecting on their learning experiences, they can evaluate what they have learned and how it relates to the knowledge they already have. Understanding the importance of reflection in the learning process helps produce learners who are more aware and actively involved in their learning process (Pang(彭新强), 2022; Veine et al., 2020).

One model that is quite popular nowadays is Roger Greenaway's 4F Learning Model Reflection. The idea is that individuals work through four levels of the model: (1) Fact: An objective report of what happened; (2) Feeling: Emotional reaction to a situation; (3) Finding: Concrete learning that you can take from the situation; and (4) Future: Organization of learning in such a way that can be used in the future (Gordijn et al., 2018; The University of Edinburgh, 2018a)—examining the situation critically and thinking about how to use what they have learned in the future. The 4F Model Learning Reflection describes a holistic approach to preparing prospective teachers (Körkkö, 2021). Roger Greenaway's 4F Learning Model offers a holistic approach to the professional development of prospective teachers. By emphasizing foundations, frameworks, flexibility, and future orientation, this model can be a valuable tool in preparing prospective teachers to become effective educators in an ever-changing educational environment (Cenqiz, 2020; Coman et al., 2020).

Previous research shows that supporting teachers' professional education and students' reflective abilities can be advantageous to their career development (Körkkö et al., 2016; Musthofa et al., 2023). How the 4F Model Learning Reflection enhance the professional development of prospective teachers. In this research, researchers examined, in more depth, how the 4F Model Learning Reflection enhance the professional development of prospective teachers. Through learning reflection activities, positive and negative information can be obtained regarding the

learning activities that have been carried out, as well as how lecturers can improve the quality of the learning. The outcomes of reflective learning can also serve as observational material to assess the extent to which the accomplishment of learning activities can yield satisfaction for students. This research aims to examine how the 4F Model Learning Reflection enhance the professional development of prospective teachers. Improving the understanding of this can also impact classroom practice and highlight the importance of technology in increasing teacher attention and professional development (Li & Walsh, 2023). It is expected that the results of this research can provide new insight for improving learning in the professional teacher education study program at educational institutions worldwide.

Research Methods

It is qualitative research. Qualitative and descriptive research methods have become widespread in many scientific disciplines, including education, psychology, and social sciences (Doyle et al., 2020; Lam et al., 2019). This research needs to examine how learning takes place in general or what factors influence it. It also provides a more profound examination and understanding of each student and their behavior and experiences (Nassaji, 2015). The subjects of this research were twelve students from the Professional Education Study Program of Wijaya Kusuma University of Surabaya, Indonesia, Batch 1 of 2022. The subject selection considered the existing study program, involving four students from the Indonesian Language Education Study Program (BI 1, BI 2, BI 3, BI 4), four students from the English Language Education Study Program (BING 1, BING 2, BING 3, BING 4), and four students from the Mathematics Education Study Program (MAT 1, MAT 2, MAT 3, MAT 4).

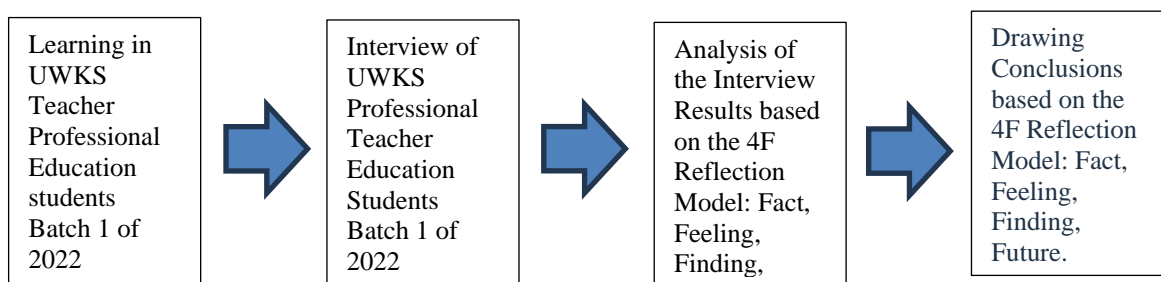


Figure 1. Research Procedure

Researchers used triangulation for research validation. Triangulation is a research approach combining various theories, data sources, or research methodologies to ensure that a research study's data, analysis, and findings are as complete and precise as possible (Sciberras & Dingli, 2023). The research design can be depicted in Figure 1. Selected subjects were asked questions based on the 4F Reflective Model, with details: (1) Fact, which has five questions about objective reports about what happened; (2) Feeling, which has three questions related to emotional reactions to the situations; (3) Finding, which has three questions related to concrete learning that can be taken from the situation; and (4) Future, which has three questions about structuring learning in such a way that it can be used in the future (The University of Edinburgh, 2018b; Veine et al., 2020). The list of questions can be seen in Table 1. Next, conclusions were drawn after analyzing the interview results based on the 4F reflective model based on facts, feelings, findings, and future.

Table 1. List of Interview Questions

Model	A list of questions
Fact	<ol style="list-style-type: none"> 1. Student experiences during learning at Teacher Professional Education. 2. The atmosphere during learning activities in the Teacher Professional Education class. 3. Students' understanding of the course material in Teacher Professional Education is taught for one semester.

Model	A list of questions
	<ol style="list-style-type: none"> Students have experienced good things in the learning process at Teacher Professional Education. Obstacles and difficulties experienced by students during the learning process at Teacher Professional Education.
Feeling	<ol style="list-style-type: none"> Students' feelings during learning at Teacher Professional Education. Things that make students have these feelings. Teaching lecturers and administrative staff at Teacher Professional Education contribute to creating that feeling.
Finding	<ol style="list-style-type: none"> Course material in Teacher Professional Education that students can learn from the learning process that has been carried out. The elaboration of student stories in learning at Teacher Professional Education is the most impressive. Students get new things as prospective teachers after the learning process at Teacher Professional Education.
Future	<ol style="list-style-type: none"> The benefits of learning at Teacher Professional Education have been implemented for students' future roles in school. Improvements can be made if several deficiencies are found during the learning process at Teacher Professional Education. Actual actions students take after gaining experience from the learning process at Teacher Professional Education.

Result and Discussion

The results and discussion of this research were divided into four parts based on the Fact, Feeling, Finding, and Future (4F) Reflective Model, as follows.

Facts

In this section, an analysis of the questions have been carried out: (1) The students' experiences during the implementation of learning in Teacher Professional Education (Q1), (2) the atmosphere during learning activities in the Teacher Professional Education class (Q2), (3) the students' understanding of the material courses at Teacher Professional Education which were taught for one semester (Q3), (4) the good things that students have experienced in the learning process at Teacher Professional Education (Q4), and (5) Obstacles and difficulties experienced by students during the learning process at Teacher Professional Education (Q5).

Student experiences during the implementation of learning at Teacher Professional Education

The implementation of learning in Teacher Professional Education proceeds effectively and seamlessly, enabling students to enhance their abilities and skills to become proficient teachers. It was well encapsulated by the following comments made by the students:

BI 3: 'The learning process at the Teacher Professional Education was excellent, we get adequate facilities supported by its good educational staff.'

BING 1: the institution employs a student-centered approach, so we can improve our abilities and skills to become professional teachers.

MAT 1: The learning was very good with a blended learning system so that there was synergy between theory courses and internship practice.

In line with them MAT 2 and MAT 3 said that: *The implementation of learning at Teacher Professional Education runs smoothly, has a reasonably tight schedule of activities and assignments, is very good, and students can deliver their opinions using a lecture model that suits their wishes.*

Students discover many new theories in learning, new understandings regarding the education and learning process, and knowledge of how to become a professional teacher. This was as emphasized:

Providing positive construction for my personal and professional dimensions as a prospective teacher (BI 1), being able to absorb knowledge from various sources, managing myself, training professionalism (BI 2), gaining new knowledge related to education and learning (BING 4). I was able to immediately apply the theory I learned while studying on campus into practice during PPL (MAT 1), I learned many new things that I had never realized before (MAT 4).

Atmosphere During Learning Activities in the Teacher Professional Education Class

The learning environment was excellent and conducive, focused on students, enjoyable, presented numerous challenges, fostered cohesion, and was vibrant. This was possible through engaging in group discussion activities, allowing for the exchange of ideas about each other's experiences. Some students' responses justify the excellent learning atmosphere:

The learning environment was delightful as it provided an opportunity for us to share ideas through group discussion activities

(BI 1), it was very conducive and enjoyable so that learning became comfortable and effective (BI 2). In line with this, BI 3 said: it was very active, we can exchange ideas from each other's experiences. Respectively, the learning atmosphere was very conducive, and students in our class were very active in discussions (BI 4). Learning activities were carried out in groups of students. By employing a student-centered approach, the atmosphere of my professional teacher education class was very positive (BING 3). The atmosphere of learning activities was very good (BING 4), the atmosphere when learning activities took place in an integrated manner was exciting (MAT 1), lots of challenges (MAT 2), outstanding and conducive, fellow students and lecturers were also very supportive (MAT 3). The learning environment was favourable for the exchange of thoughts and opinions (MAT 4).

Lecturers deliver material clearly and provide guidance, providing presentation opportunities so that students' public speaking skills improve. Students convey their views, make presentations in class individually or independently, and actualize them in real action. Presented below are examples of student opinions that showed their satisfaction of lecturers' class management.

BING 2: This is emphasized: Lecturers always ask for opinions, make presentations in class separately or independently, and actualize them in real action.

BING 3: At every meeting, we are allowed to make presentations to improve our public speaking skills.

MAT 1: The lecturer delivered the material clearly and guides students when they experience difficulties.

Student understanding of the course material in Teacher Professional Education in one semester

Students' understanding of the course material in the Teacher Professional Education taught for one semester was very good, relatively easy to understand, and inspiring. This was as emphasized as follows:

The material can be understood well because it was appropriate or can be applied directly in the internship (BI 1).

I had a thorough understanding of the teacher professional education lecture material in semester 1 (BI 2), The content was clear and comprehensible, providing practical theories that I could directly apply during my internship at school (BI 4).

My understanding of the teacher professional education material in this semester was relatively easy to understand because of the lecturer's clear explanations (BING 3), the teacher professional education course material was relatively easy to understand and inspiring.

Numerous interactive learning videos were available to enhance our comprehension of each topic in the course (BING 4), we were able to absorb almost 90% of all the material presented (MAT 1).

Some materials are difficult to understand due to the limited learning resources and the use of language that is difficult to understand, for example, courses from a socio-cultural perspective. Additionally, within the modules provided on the Learning Management System (LMS), there is an abundance of material and topics that require thorough study. Therefore, students are encouraged to review them repeatedly. Those condition was depicted as follows.

BING 1: Some courses are challenging to understand.

BING 2: Certain materials pose challenges in understanding, such as the module on socio-cultural perspectives, where the language used is difficult to comprehend.

MAT 1: A lot of material and topics were discussed, so we must learn the material in the LMS repeatedly. Some material was not understood due to the limited learning resources and the high level of language use in the modules attached to the LMS.

Positive Experiences Encountered by Students in the Teacher Professional Education Learning Process

Students' positive experiences in the learning process in Teacher Professional Education include learning to collaborate, discussing, understanding learning theory, getting used to making class presentations, and creating interesting infographics, PowerPoint, and video designs. Those experiences were essentially aimed to develop skills as a professional teacher. It was depicted as follows: This is evident and elucidated by the experiences disclosed throughout the teaching and learning process in Teacher Professional Education.

These include the enhancement of knowledge and experience (BI 1), learning collaboration with colleagues and engaging in various beneficial practices (BI 3), fostering teamwork during discussions and gaining insights into the characteristics of an effective educator (BI 4), demonstrating proficiency to acquire valuable experience or knowledge (BING 1), deepening comprehension of learning theory (BING 2), adapting to class presentations, sharing opinions, and even practicing the creation of engaging infographics, PowerPoint, and video designs (MAT 3), as well as advancing knowledge about professional teaching (MAT 4).

Challenges Faced by Students in the Learning Process at Teacher Professional Education

One of the challenges experienced by students during the learning process at Teacher Professional Education was the abundance of assignments with limited time. This was showed by the deadline for LMS assignments in semester one was submitted earlier, causing a slight sense of nervousness among us (BING 2), too many assignments that had to be done (BING 3), there were an excessive number of LMS assignments in the Curriculum of Freedom Learning (MAT 2). Additionally, a busy schedule coupled with a substantial workload contributed to the challenges encountered (MAT 4).

Additional challenges associated with teaching modules included complexity in understanding and unclear instructions within the LMS. This was manifested in teaching material modules that posed difficulties in comprehension. There were several LMS tasks with unclear instructions (BI 1), confusion arising from the use of many editorials in the LMS (BI 3), modules in the LMS that were challenging to understand due to direct translations from English (BI 4), difficulty understanding certain materials (BING 1), and confusion caused by the text in the Socio-Cultural Perspectives in Education course, likely originating from an international journal and translated (BING 3).

In summary, the 4F Model reveals the following key points in the Facts section: (1) The implementation of learning in teacher professional education enhances students' abilities and skills, providing insights into new theories and the journey to becoming professional teachers. As it is said by Artino & Konopasky, (2018) that comprehending learning theory is a critical element of good teaching. (2) The learning atmosphere is excellent, student-centered, entertaining, and lively, fostering collaboration through group discussions. Lecturers deliver clear material, provide guidance, and encourage presentations, improving students' public speaking skills. This

corroborates with the previous study by Ahmed et al (2020) showing that environmental factors give contribution to students' learning outcome. (3) Students' understanding of the course material in teacher professional education is generally excellent, with some challenges due to limited resources and complex language, such as socio-cultural perspective courses. The LMS modules require repeated learning. (4) Positive experiences include performing well, collaborating, building cooperation, gaining a better understanding of learning theory, and developing practical skills like making presentations and creative designs. (5) Obstacles during the learning process include numerous tasks with limited time, challenging teaching modules, and unclear LMS instructions. It was also stated that by Mtani, (2022) that while institutions benefit from having Learning Management Systems (LMS), their effective utilization remains a challenging issue.

Feelings

In this section, analyses have been conducted on the following questions: (1) Students' feelings during the teaching-learning process at Teacher Professional Education (Q6), (2) Factors influencing students' feelings (Q7), and (3) Contribution of teaching lecturers and administrative staff at Teacher Professional Education in shaping those feelings (Q8).

Students' Feelings During the Teaching-Learning Process at Teacher Professional Education

Students experience positive emotions such as happiness, excitement, comfort, and enthusiasm during the lecturing process, fostering motivation for further learning. This is evident in their active participation and expressed enjoyment in the Teacher Professional Education class (BI 1, BI 2). Personal feelings during the learning process include happiness and enthusiasm (BI 4), comfort (BING 1), heightened excitement and motivation to learn more (BING 3), great enthusiasm (MAT 2), and a sense of thrill (MAT 4).

Things That Make Students Have These Feelings

What brings about happiness, enthusiasm, and comfort for students is the invaluable opportunity to learn to become a teacher, interact with friendly, knowledgeable lecturers, receive assistance from helpful administrative staff, form friendships with individuals from diverse backgrounds, and experience a comfortable and supportive classroom environment. This is reflected in a supportive academic environment and collaborative classmates. Throughout the professional teacher education learning process, I've evolved into a more open individual capable of effective socialization (BI 3). The experience includes interactions with exceptional lecturers and brilliant fellow professional teacher candidates, benefiting from an opportunity to learn the teaching profession (BING 1), receiving clear explanations from competent lecturers (BING 4), discovering new perspectives from friends with diverse backgrounds (MAT 1), experiencing thoughtful and supportive lecturers (MAT 2), comprehensible material delivery, kind and helpful classmates, a comfortable class environment (MAT 3), friendly lecturers, and helpful administrative staff (MAT 4).

Conversely, factors contributing to students' feelings of worry, sadness, and depression include fatigue from completing numerous assignments, challenges in understanding certain topics, particularly related to the Freedom Learning Curriculum, the repetitive nature of working with the Freedom Learning government polic, and the infrequent presence of lecturers who fail to provide explanations even for demanding tasks. This is accentuated by personal experiences, such as feeling too tired to complete assignments (BING 1), encountering difficulties in understanding, especially with the new Freedom Learning Curriculum (BING 2), and observing infrequent lecturer engagement and explanations, except for challenging assignments (BING 4).

Contribution of Lecturers and Administrative Staff at Teacher Professional Education in Creating the Feeling

The lecturers contribute to the positive feelings of joy, enthusiasm, and comfort by serving as facilitators who offer direction and guidance. They provide positive support, assist students whenever difficulties arise, offer clarification and advice on topics and learning, and foster a pleasant learning atmosphere.

This was explained by giving positive and constructive support in dealing with student problems (BI 1), as a facilitator, they provides appropriate direction and guidance (BI 2), and help the students if they have difficulty in understanding the material (BI 3), understanding students' shortcomings and encourage them to make improvements (BING 1), provide clarification and direction regarding the topic

and the learning process (BING 4), ensure the effective implementation of the learning process (MAT 1), establish a pleasant learning atmosphere. providing stories as a supplementary to refresh our enthusiasm and focus (MAT 2), and they were very enthusiastic in delivering the material and guiding us with patience (MAT 3).

Meanwhile, the administrative staff contributed by delivering information services, aiding students in LMS-related issues, and serving as an effective communication bridge between the management and the learning implementation with lecturers. This can be explained by

They are always being responsive and up-to-date in providing information services (BI 1), being helpful when students have difficulties (BI 2), assisting the students if they experience problems related to the LMS (BI 3), providing the up to date information regarding to the course so that it slightly reduces my feelings of despair and pressure due to the large number of assignments (BI 4), when students experience problems, they are immediately responded well (BING 1), helping to explain rules or other things during the process (BING 3), being an effective communication bridge regarding to management and implementation of the learning process (BING 4), avoiding misconceptions and irregular schedules (MAT 1), and accommodating many of our aspirations well (2).

From the above elaboration, it can be concluded from Model 4F in the Feelings section: *Students feel happy, excited, comfortable, and enthusiastic, so they feel motivated to learn more. But some feel worried, sad, and stressed by the many tasks on the LMS. Students feel positive when learning to become teachers, interacting with friendly and competent lecturers, having helpful admin, making diverse friendships, and experiencing a supportive classroom. Conversely, feelings of worry and sadness arise from fatigue during assignments, challenges in understanding, monotony in certain projects, and infrequent lecturer engagement despite challenging tasks. The lecturers contribute by guiding, supporting, assisting students, offering clarification and advice, and fostering a positive learning atmosphere. Educational staff provide information services, aid students with LMS issues, and act as effective communication links between the management and the learning implementation. It echoes the same finding with Ferguson, (2021) saying that factors contributing to the student's success include better faculty staff.*

Findings

In this section, analyses have been conducted on the following questions: (1) The course material for Teacher Professional Education that students can learn from the implemented learning process (Q9), (2) Elaboration of student stories that were most impressive during learning at Teacher Professional Education (Q10), and (3) New insights gained by students as prospective teachers after completing the learning process at Teacher Professional Education (Q11).

The Material in Teacher Professional Education

Course material in the Teacher Professional Education includes Indonesian Educational Philosophy Courses, Teaching and Student Understanding Courses, Principles of Teaching and Assessment in Secondary Schools Courses, Internship Program, New Technology in Learning Courses, and Socio-Cultural Perspective Courses. All these courses provide new provisions and knowledge for students. Indonesian Educational Philosophy Courses provides an understanding about the true nature of education and the ability of learners, and Teaching Courses offer a sense of theories of development and learning as well as profiling of students (BI 1), in this course I studied about learning theory and developmental theory. In Principles of Teaching and Assessment courses in secondary school course, I learned to design learning tools and assessments (BI 2) and in the internship program, I tried to implement various materials from other courses (BI 3). Two courses could be integrated with the internship program, namely Understanding the Principles of Effective Learning and Assessment, as well as Indonesian educational philosophy course, New Technology In Learning, And Socio-Cultural Perspectives (BING 4). Additionally, I got material about Differentiated Learning, new Paradigm Learning, The Basics of Education by Ki Hajar Dewantara (among system, education that liberates students, and character education), the influence of socio-cultural factors, student background, ethnicity, culture that can influence student success in the learning process (MAT 3).

Noteworthy Narratives of Students' Learning Experiences at Teacher Professional Education

For many students at Teacher Professional Education, the most memorable experience was during the internship practice. This involved directly teaching in a classroom, applying designed learning tools and assessments. The effectiveness of internship practice activities is enhanced

when students conduct profiling activities before creating learning plans. Students express their experiences as follows: "I can directly engage in teaching by applying designed learning tools and assessments" (BI 3). "The teaching and learning process during PPL becomes more effective when we conduct profiling activities before creating learning plans" (BI 4). "The most memorable experience was during internship practice. After acquiring theory in lectures and applying it at partner schools (BING 3), the internship practice was highly impactful as I could immediately apply the obtained material. I encountered special and active students, presenting challenges (MAT 1)." "The most impressive moment was during internship practice 1, where I could apply the knowledge gained on campus and interact directly with students (MAT 2)."

New Insights Gained by Students as Prospective Teachers after Completing Teacher Professional Education

After completing the teacher professional education learning process, students gain insights into becoming proficient, enjoyable, inspiring, and outstanding teachers. They enhance their skills in mastering the four essential teacher competencies, specifically professional, pedagogical, social, and personality competencies. This includes the ability to prepare classroom management tools and the realization that educators serve as guides for students' development according to their potential. Additionally, educators must act as role models in behavior and create learning tailored to student needs. Students expressed their awareness of these aspects through their understanding of the preparation and management required before conducting learning activities in class (BI 2), the aspiration to be a good, enjoyable, inspiring, and exemplary teacher (BI 4), the mastery of new skills in mastering the four essential competencies (BING 3), the acknowledgment of educators' roles in classroom management and professionalism (MAT 2), and the recognition of educators' responsibilities in guiding student development and creating student-centered learning (MAT 4)

From the 4F Model in the Findings section: *The course material at Teacher Professional Education*, encompassing Indonesian educational philosophy, understanding students and their teaching, principles of teaching and assessment in secondary schools, internship experience practices, new technology in learning, and socio-cultural perspective courses, provides students with valuable knowledge. *During teacher professional education*, most students found the internship practice to be the most memorable activity. Engaging directly in teaching using designed learning tools and assessments, students enhance the effectiveness of internship practice through prior profiling activities. As Cook & Artino, (2016) points out that Teachers can create a sense of connection by inviting learners to join a professional group and providing opportunities to engage in real professional tasks suited to their skill level. *After completing teacher professional education*, students gain insights into becoming proficient, enjoyable, inspiring, and exemplary teachers. This involves improving their skills in mastering the four essential teacher competencies and preparing classroom management tools. Encouragement, enthusiasm for teaching professional education students, and the support received, especially from mentors and positive feedback from students during the two teaching practicum sessions, greatly contribute to building confidence in one's teaching abilities (Mikulec, 2018).

Future

In this section, an analysis of the following questions has been conducted: (1) The benefits of learning at teacher professional education for students' future roles in school (Q12), (2) Potential improvements to address deficiencies identified during the learning process at Teacher Professional Education (Q13), and (3) Practical actions taken by students after gaining experience from the learning process at teacher professional education (Q14).

Positive Outcomes of Learning at Teacher Professional Education for Future School Roles

Positive outcomes of learning at Teacher Professional Education include (1) the ability to profile students, create student-centered learning, and design effective learning with appropriate assessment; (2) a comprehensive understanding of the philosophical foundation of Indonesian education, knowledge of student characteristics, proficiency in technology for learning, and understanding the socio-cultural background of students—crucial for a teacher's role as an educator; and (3) enhanced readiness to respond to existing diversity and challenges by finding the best strategies for organizing learning. Those are depicted as follows.

Proficiency in profiling students, creating student-centered learning, and designing effective learning and assessment (BI 1), along with the ability to design and implement learning tools and assessments (BI 2), are crucial skills emphasized by students. Teachers are expected to understand the philosophical basis of Indonesian education, know student characteristics, prepare learning plans and assessments, comprehend technology in learning, and understand students' socio-cultural backgrounds (BING 1). Improved readiness to address diversity, obstacles, and challenges is expressed, aiming to find optimal solutions in designing effective learning (BING 4). Students highlight their capacity to tailor learning to students' needs, benefiting from managing a safe, comfortable, and enjoyable learning environment that supports differentiated learning processes (MAT 3).

Potential Improvements to Address Deficiencies Identified During the Learning Process at Teacher Professional Education

Potential improvements in the event of identified deficiencies during the learning process at Teacher Professional Education encompass (1) enhancements to the Learning Management System (LMS), (2) addressing issues related to lecturers, (3) refining lecture materials, and (4) optimizing the roles of teacher-professional education administrators.

Concerning improvements to the Learning Management System (LMS), respondents provided input such as eliminating additional assignments not in the LMS (BI 1), refining the LMS further, addressing issues with lecturers assigning tasks outside the LMS and not adhering to its flow (BI 3), seeking better understanding from lecturers regarding LMS assignments (BING 1), requesting clearer language and detailed explanations for assignments in the LMS (BING 2), expressing a desire for deeper LMS content compared to undergraduate studies (MAT 2), and emphasizing alignment between LMS assignments and lecturer expectations to prevent confusion among students (MAT 3).

Addressing issues related to lecturers, respondents provided input, including the expectation for teaching lecturers to better understand the flow of lectures and the implemented learning agenda (BI 2), the need for improved lecturer discipline (BI 4), concerns about some lecturers being unable to provide clear and frequent communication, leading to misunderstandings between students and lecturers (MAT 3). Suggestions were made to enhance the reinforcement of material by lecturers to ensure a more comprehensive understanding (MAT 3) and to align lecturers' understanding of assignments with instructions in the Learning Management System (LMS) (MAT 2).

Addressing issues related to course materials, respondents provided input, including the suggestion for modules in the Learning Management System (LMS) to be presented in a clear and comprehensible manner, avoiding rough translations (BING 1). Concerns were raised about the difficulty in understanding texts in the Socio-Cultural Perspectives in Education courses (BING 4). Specifically, in the socio-cultural perspectives courses, it was noted that learning materials seemed to be originally in English and then translated into Indonesian using Google Translate, resulting in challenging language comprehension (MAT 1).

Regarding teacher professional education management, respondents provided input, including the suggestion to strengthen the campus WiFi network because the internet is crucial for in-class learning (BI 2). There were also requests to tailor assignments to students' abilities (BING 1) and improve the Educational Personnel Education Institute for better flexibility and ease of learning for Teacher Professional Education students (BING 3). Concerns were expressed about avoiding the compression of learning in semester two to ensure optimal knowledge absorption (MAT 3). Additionally, it was suggested that internship practice opportunities should be uniform for all subjects without differentiation (MAT 4).

Concrete Steps Taken by Students Post-Teacher Professional Education Experience

The concrete actions taken by students after gaining experience from the learning process at teacher professional education include becoming professional teachers who implement theory, apply knowledge, organize learning according to students' character, and creatively use sophisticated technology. They apply all positive knowledge and experience gained during Teacher Professional Education, consistently aiming to become better educators through continuous self-reflection. This is exemplified by arranging learning according to students' character (BI 1), applying positive knowledge and experience gained (BI 2), implementing liberating learning at school (BI 3), and striving to meet the criteria for teacher professional education graduates (BING 4). Students

express a commitment to becoming better in the teaching process, aspiring to be professional teachers (BING 2), always remaining in the process of becoming good educators (BING 3), and implementing the theory taught in the school environment (MAT 1). Self-reflection and the application of acquired theory as teachers are emphasized in their ongoing professional development (MAT 3).

From the 4F model in the Future (Application) section: Benefits of learning at teacher professional education for students' future roles in school include proficiency in profiling students, creating student-centered learning, designing effective learning and assessment, understanding the philosophical foundation of Indonesian education, knowing student characteristics, and grasping technology in learning. Additionally, students become better prepared to address diversity, obstacles, and challenges in organizing learning. It is in line with previous research indicating a significance influence of technology literacy and technology integration on students' teaching competencies (Santoso & Lestari, 2019). Potential improvements if deficiencies found during the learning process at teacher professional education encompass enhancements to the Learning Management System (LMS), addressing issues related to lecturers, refining lecture materials, and optimizing teacher professional education management.

Students, post-learning experience at teacher professional education, actively become professional teachers by implementing theory, applying knowledge, and organizing student-centered learning. They creatively use sophisticated technology, continually applying what they've learned, and remain in the process of becoming better educators through ongoing self-reflection. This finding is similar to what has been found out by (Riyanti, 2021) regarding the impact of reflective teaching on their professionalism, respondents generally believed that engaging in reflection activities helped them identify their teaching strengths and weaknesses. This awareness motivated them to strive for improvement as educators.

Conclusion

In this study, we explored the efficacy of the 4F Model Learning Reflection in fostering professionalism among prospective teachers. Our qualitative approach, underpinned by interviews with twelve students across diverse educational disciplines, provided a comprehensive understanding of the model's impact. This research provides several findings and implications. The adoption of the 4F Model in teacher education was effective in imparting theoretical knowledge and professional competencies in fact dimension. A student-centered learning environment was notably successful, indicating the importance of such an approach in teacher training. Positive emotional responses were prevalent among students, signaling an engaging and motivating learning atmosphere in feeling dimension. However, the stress associated with high workloads underscores the need for balanced academic demands. The program significantly enhanced students' knowledge in key educational areas, including educational philosophy and teaching methodologies in finding dimension. The integration of practical experiences through internships was particularly beneficial, solidifying theoretical understanding through real-world application. The study highlights the potential of the program in equipping future teachers with essential skills for student profiling, creating student-centric lessons, and designing effective assessments in future dimension. Recommendations for program enhancement include optimizing the Learning Management System (LMS), addressing faculty-related challenges, and improving lecture materials. This research contributes to the growing body of knowledge on reflective practices in teacher education. It emphasizes the importance of holistic, student-centered, and reflective methodologies in developing professional competencies among teacher candidates. While our findings are promising, the study's limitation to a single institution suggests a need for broader research to validate these results across different educational contexts. Future research should thus aim to explore the applicability and long-term efficacy of the 4F model in varied educational settings. Overall, our findings affirm the value of the 4F model as a reflective practice tool in teacher professional education, offering a framework that can be adapted and implemented in similar educational programs globally.

References

- Alharbi, A. M. (2023). Implementation of Education 5.0 in Developed and Developing Countries: A Comparative Study. *Creative Education*, 14(05), 914–942. <https://doi.org/10.4236/ce.2023.145059>
- Artino, A. R., & Konopasky, A. (2018). The Practical Value of Educational Theory for Learning and Teaching in Graduate Medical Education. In *Journal of graduate medical education* (Vol. 10, Issue 6, pp. 609–613). NLM (Medline). <https://doi.org/10.4300/JGME-D-18-00825.1>
- Cenqiz, C. (2020). The Effect of Structured Journals on Reflection Levels: With or Without Question Prompts? *Australian Journal of Teacher Education*, 45(2), 23–43. <https://doi.org/10.14221/ajte.2020v45n2.2>
- Cirocki, A., & Widodo, H. P. (2019). Reflective practice in English language teaching in Indonesia: Shared practices from two teacher educators. *Iranian Journal of Language Teaching Research*, 7(3), 15–35.
- Coman, C., Țiru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective. *Sustainability*, 12(24), 10367. <https://doi.org/10.3390/su122410367>
- Cook, D. A., & Artino, A. R. (2016). Motivation to learn: an overview of contemporary theories. *Medical Education*, 50(10), 997–1014. <https://doi.org/10.1111/medu.13074>
- Cordero, J. M., & Gil-Izquierdo, M. (2018). The effect of teaching strategies on student achievement: An analysis using TALIS-PISA-link. *Journal of Policy Modeling*, 40(6), 1313–1331. <https://doi.org/10.1016/j.jpolmod.2018.04.003>
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140. <https://doi.org/10.1080/10888691.2018.1537791>
- Doyle, L., McCabe, C., Keogh, B., Brady, A., & McCann, M. (2020). An overview of the qualitative descriptive design within nursing research. *Journal of Research in Nursing*, 25(5), 443–455. <https://doi.org/10.1177/1744987119880234>
- Ferguson, S. N. (2021). Effects of Faculty and Staff Connectedness on Student Self-Efficacy. *Journal of the Scholarship of Teaching and Learning*, 21(2). <https://doi.org/10.14434/josotl.v21i2.28597>
- Flores, M. A. (2020). Preparing teachers to teach in complex settings: opportunities for professional learning and development. *European Journal of Teacher Education*, 43(3), 297–300. <https://doi.org/10.1080/02619768.2020.1771895>
- Gordijn, F., Eernstman, N., Helder, J., & Brouwer, H. (2018). *Reflection methods : practical guide for trainers and facilitators : Tools to make learning more meaningful*. <https://doi.org/10.18174/439461>
- Keiler, L. S. (2018). Teachers' roles and identities in student-centered classrooms. *International Journal of STEM Education*, 5(1), 34. <https://doi.org/10.1186/s40594-018-0131-6>
- Khozaei, S. A., Zare, N. V., Moneghi, H. K., Sadeghi, T., & Taraghdar, M. M. (2022). Effects of quantum-learning and conventional teaching methods on learning achievement, motivation to learn, and retention among nursing students during critical care nursing education. *Smart Learning Environments*, 9(1), 18. <https://doi.org/10.1186/s40561-022-00198-7>
- Kim, S., Raza, M., & Seidman, E. (2019). Improving 21st-century teaching skills: The key to effective 21st-century learners. *Research in Comparative and International Education*, 14(1), 99–117. <https://doi.org/10.1177/1745499919829214>
- Körkkö, M. (2021). Towards Meaningful Reflection and a Holistic Approach: Creating a Reflection Framework in Teacher Education. *Scandinavian Journal of Educational Research*, 65(2), 258–275. <https://doi.org/10.1080/00313831.2019.1676306>
- Körkkö, M., Kyrö-Ämmälä, O., & Turunen, T. (2016). Professional development through reflection in teacher education. *Teaching and Teacher Education*, 55, 198–206. <https://doi.org/10.1016/j.tate.2016.01.014>
- Lam, S. K. K., Kwong, E. W. Y., Hung, M. S. Y., Pang, S. M. C., & Chien, W. T. (2019). A qualitative descriptive study of the contextual factors influencing the practice of emergency nurses in managing emerging infectious diseases. *International Journal of Qualitative Studies on Health and Well-Being*, 14(1), 1626179. <https://doi.org/10.1080/17482631.2019.1626179>
- Li, Y., & Walsh, S. (2023). Technology-enhanced Reflection and Teacher Development: A Student Teacher's Journey. *RELJ Journal*, 54(2), 356–375. <https://doi.org/10.1177/00336882231161153>

- Lindfors, M., & Olofsson, A. D. (2023). The search for professional digital competence in Swedish teacher education policy—A content analysis of the prerequisites for teacher educators' dual didactic task. *Cogent Education*, 10(2). <https://doi.org/10.1080/2331186X.2023.2272994>
- Machost, H., & Stains, M. (2023). Reflective Practices in Education: A Primer for Practitioners. *CBE—Life Sciences Education*, 22(2). <https://doi.org/10.1187/cbe.22-07-0148>
- Marrero Galván, J. J., Negrín Medina, M. Á., Bernárdez-Gómez, A., & Portela Pruaño, A. (2023). The impact of the first millennial teachers on education: views held by different generations of teachers. *Education and Information Technologies*. <https://doi.org/10.1007/s10639-023-11768-8>
- Metekohy, L. M., Daliman, M., Metekohy, B., & Ming, D. (2022). The impact of teaching and learning quality process to school and university education for sustainable future. *JPPi (Jurnal Penelitian Pendidikan Indonesia)*, 8(1), 143. <https://doi.org/10.29210/020221203>
- Mikulec, K. (2018). Student Reflections on Teacher Identity Development in a Year-long Secondary Teacher Preparation Program. In *Australian Journal of Teacher Education* (Vol. 43, Issue 12).
- Mtani, H. (2022). Factors affecting Learning Management Systems Usage in Higher Learning Institutions in Tanzania: A Case of University of Dodoma. In *International Journal of Education and Development using Information and Communication Technology (IJEDICT)* (Vol. 18).
- Musthofa, M., Nasikhin, Junaedi, M., & Hasanah, S. (2023). The influence of online learning on student professionalism Teacher professional Education Program: Studies in Islamic higher Education in Indonesia. *Cogent Education*, 10(2). <https://doi.org/10.1080/2331186X.2023.2276025>
- Nassaji, H. (2015). Qualitative and descriptive research: Data type versus data analysis. *Language Teaching Research*, 19(2), 129–132. <https://doi.org/10.1177/1362168815572747>
- Nuraini, N. L. S., Cholifah, P. S., Mahanani, P., & Meidina, A. M. (2020). Critical Thinking and Reflective Thinking Skills in Elementary School Learning. *Proceedings of the 2nd Early Childhood and Primary Childhood Education (ECPE 2020)*. <https://doi.org/10.2991/assehr.k.201112.001>
- Pang(彭新强), N. S.-K. (2022). Teachers' Reflective Practices in Implementing Assessment for Learning Skills in Classroom Teaching. *ECNU Review of Education*, 5(3), 470–490. <https://doi.org/10.1177/2096531120936290>
- Persada, S. F., Prasetyo, Y. T., Suryananda, X. V., Apriyansyah, B., Ong, A. K. S., Nadlifatin, R., Setiyati, E. A., Putra, R. A. K., Purnomo, A., Triangga, B., Siregar, N. J., Carolina, D., Maulana, F. I., & Ardiansyahmiraja, B. (2022). How the Education Industries React to Synchronous and Asynchronous Learning in COVID-19: Multigroup Analysis Insights for Future Online Education. *Sustainability*, 14(22), 15288. <https://doi.org/10.3390/su142215288>
- Ploj Vrtič, M., Dolenc, K., & Šorgo, A. (2023). What is worth retaining from the COVID-19 experience on remote online education in the prospective teacher education? *Cogent Education*, 10(2). <https://doi.org/10.1080/2331186X.2023.2282308>
- Purnomo, A., Sari, Y. K. P., Firdaus, M., Anam, F., Royidah, E., & Rosyidah, E. (2020). Digital Literacy Research: A Scientometric Mapping over the Past 22 Years. *2020 International Conference on Information Management and Technology (ICIMTech)*, 108–113. <https://doi.org/10.1109/ICIMTech50083.2020.9211267>
- Purnomo, A., Septianto, A., Anam, F., Christanti, A., & Zamahsari, G. K. (2021). A Bibliometric Overview and Visualization of The Digital Education Publication. *2021 International Conference on Information Management and Technology (ICIMTech)*, 819–824. <https://doi.org/10.1109/ICIMTech53080.2021.9535037>
- Riyanti, D. (2021). Teacher Professional Development through Reflective Teaching. *Journal of English Teaching and Research*, VI(2).
- Rohmah, E., & Mukhlis, M. (2022). The Relationship Between Emotional Intelligence and Students Learning Achievement. *Thinking Skills and Creativity Journal*, 4(2), 57–61. <https://doi.org/10.23887/tscj.v4i2.35908>
- Sakmurzaeva, N. (2018). *The Role of Education in Economic Development: A Comparison of South Korea and Kyrgyzstan*. 29–33. <https://doi.org/10.36880/C10.02040>
- Santoso, A., & Lestari, S. (2019). The Roles of Technology Literacy and Technology Integration to Improve Students' Teaching Competencies. *KnE Social Sciences*, 3(11), 243. <https://doi.org/10.18502/kss.v3i11.4010>
- Sciberras, M., & Dingli, A. (2023). Research Analysis—Triangulation Approach. In *Investigating AI Readiness in the Maltese Public Administration* (pp. 31–32). https://doi.org/10.1007/978-3-031-19900-4_9

- Sun, Y. (2021). The Effect of Teacher Caring Behavior and Teacher Praise on Students' Engagement in EFL Classrooms. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.746871>
- Suphasri, P., & Chinokul, S. (2021). Reflective Practice in Teacher Education: Issues, Challenges, and Considerations. *Pasaa*, 62(December), 236–264.
- The University of Edinburgh. (2018a). *The four F's of active reviewing*. The University Of Edinburgh.
- The University of Edinburgh. (2018b). *The four F's of active reviewing*. The University Of Edinburgh.
- Veine, S., Anderson, M. K., Andersen, N. H., Espenes, T. C., Søyland, T. B., Wallin, P., & Reams, J. (2020). Reflection as a core student learning activity in higher education - Insights from nearly two decades of academic development. *International Journal for Academic Development*, 25(2), 147–161. <https://doi.org/10.1080/1360144X.2019.1659797>
- Ziberi, B. F., Rexha, D., Ibraimi, X., & Avdiaj, B. (2022). Empirical Analysis of the Impact of Education on Economic Growth. *Economies*, 10(4), 89. <https://doi.org/10.3390/economies10040089>