Perceived Effectiveness of Teacher Education Programs on the Professional Competencies of Beginning Teachers

Jungmei Su, Higher Education Sprout Project Office, National Taiwan Normal University, Taiwan*

ABSTRACT

This study sought to determine the usefulness of teacher education programs by surveying beginning teachers with up to five years of experience about their perception of the applicability of teacher education programs to actual classroom teaching. A questionnaire survey with a stratified random sampling of 1,909 senior high schools/vocational schools, junior high schools, and primary schools in Taiwan yielded 1,314 valid responses. The results showed that teacher education courses that relate to teaching techniques are more effective for actual teaching, but beginning teachers still need more opportunities for teaching practice to improve their teaching skills.

KEYWORDS

Beginning Teacher, Effectiveness, Professional Competence

INTRODUCTION

A country's education system's quality is closely related to its teachers' quality. In many countries, preservice teacher education is seen as an important development field, and professionally trained teachers are expected to demonstrate superior knowledge and teaching skills (Czerniawski et al., 2018). One of the main reasons for focusing on the quality of teachers is that this can significantly influence student learning outcomes, including improving student learning of mathematics and languages, helping students to interact and achieve academically, and creating an attractive learning environment and enhancing student motivation (Bruns & Luque, 2015; Hill & Chin, 2018; Koedel et al., 2015). The positive correlation between the quality of teaching and student learning has resulted in producing high-quality teachers. It is becoming a core research and policy focus for improving and maintaining learning outcomes.

Changes to the social environment, such as the declining birth rate, aging society, internationalization, and environmental issues, have provided the planners of teacher education programs with many new challenges. In that context, it is worthwhile to determine whether beginning teachers in primary and junior/senior high schools are able to acquire sufficient professional competencies within the current teacher education process. Professional competencies are skills, knowledge, and attributes specifically valued in teaching. The abundant literature includes in-depth

DOI: 10.4018/IJTEPD.326761 *Corresponding Author

studies of the classroom performance of beginning teachers and how they meet teaching challenges (Heikonen et al., 2017; Jokikokko et al., 2017; Simmie et al., 2017). Nevertheless, some scholars have called for further investigations and discussions of the impact of teacher education programs on the professional competencies and teaching ability of beginning teachers (Culp & Salvador, 2021; Lynch, Krause & Douglas, 2021).

Effective teacher education programs have clear teaching objectives, with curriculum structure and content closely related to teaching practice. In other words, a good teacher education program exhibits consistency in terms of curriculum, practice, and objectives and will strengthen the link between course content and classroom experience to improve the learning outcomes of beginning teachers (Bahtaji, 2023; Sugiharto et al., 2019). However, many researchers have found that the biggest challenge facing beginning teachers is an inability to apply what they have learned in the classroom, such as failing to make connections between their knowledge and classroom teaching (Zulkifli et al., 2019), or courses being too theoretical and lacking specific teaching strategies, with the result that what is learned in teacher education programs does not help actual teaching (Buzdar et al., 2018).

A study by the International Association for the Evaluation of Educational Achievement that focused on the preparedness of teachers to teach mathematics in primary and secondary schools found that while preservice teachers in Taiwan were ahead of their counterparts in the other participating countries in terms of mathematics knowledge, they were not as good in terms of teacher training, such as in the arrangement of teacher training courses, and the relevance of the teacher training courses to the needs of primary- and secondary-school students (Tatto, 2013). After the publication of the research results, many scholars have discussed whether the training content of pre-service teachers meets the actual teaching needs (Guler & Celik, 2021; Unsworth et al., 2021). However, most of the research on beginning teachers discusses their performance in teaching and school support (Morettini, Luet & Vernon-Dotson, 2020; Aarts, Kools & Schildwacht, 2020); it needs to look back at how teacher education programs help them develop the required abilities.

Thus, the aim of the present study was to determine the effectiveness of teacher education programs from the perspective of the beginning teacher. The definition of effective teacher education as structured professional learning was taken to be learning that can produce changes in the knowledge and practice of beginning teachers, thereby improving student learning outcomes (Goodwin & Low, 2021; Marco, 2021). Beginning teachers in Taiwan who had taught for less than 5years were asked to participate in a questionnaire survey to determine whether Taiwanese preservice teacher education programs equip beginning teachers with professional competencies that are sufficient to enable them to cope with their entry into teaching. It was hoped that focusing on the perspective of beginning teachers would provide a critical approach to teacher education and identify possible improvements in teacher education policies. The specific questions addressed in this study were as follows:

1. What do beginning teachers think are the courses in the teacher education program that are most helpful for practical teaching?
2. How can teacher education programs be adapted to help beginning teachers improve their teaching abilities?

LITERATURE REVIEW

Professional Competencies of Beginning Teachers and the Challenges They Face

Providing appropriate preservice teacher education is important for producing effective teachers (Sawyer,2022). The preservice education stage can help beginning teachers to understand a variety of teaching environments and then reflect on their own teaching, and to use teaching strategies to create a good learning environment themselves. This teacher education methodology increases the preparedness and adaptability of beginning teachers before they enter the workplace (Wakefield et

al., 2022). This means that preservice teacher education must utilize the teaching practice process to help beginning teachers connect with domain knowledge and implement it in their teaching. Huey-Ling & Jeffrey Gorrell (2001) finds that, compared with the beginning points of teacher education programs, the ending pre-service teachers in Taiwan have confidence that they have adequate training and know effective strategies for promoting student learning. The findings confirm that effective pre-service teacher education can help beginning teachers build professional competence. However, to the consternation of many scholars, recent research on the teaching challenges faced by beginning teachers has highlighted a gap between education theory and practice. Researchers pointed out that a long-standing problem for teacher education is the gap between theory-based knowledge and experience-based knowledge. However, strategies for bridging this gap have been discussed at length by many scholars of teacher education (Ginsberg, 2023; Suyatno et al., 2023).

Teacher education models have long been influenced by the concept of "technical rationality", which was formulated at modern Western universities. At the beginning of the 19th century, modern Western universities began to adhere to the Humboldtian model of university education, which is based on highly rationalistic scientific research and the unity of research and teaching. Through this model, university teachers continue to carry out academic research and use their research results as a direct source of teaching materials. This approach means that teaching is based on the latest scientifically validated knowledge, which acts as the epistemological basis for that teaching. This is known as the "epistemology of technical rationality", which has long dominated the direction of academic research (Schön, 1987, 1995).

In this historical context, teacher education models are naturally influenced by technical rationality's epistemology. At the end of the 19th century and the beginning of the 20th century, sociology, psychology and pedagogy were being influenced by the research methods used in the natural sciences, which were also being applied to academic research, and this enabled the rapid development of scientific knowledge and provided for teacher education with a solid epistemological base. Moreover, the concept of the unity of research and teaching meant that teacher educators took the results of scientific research and used them directly as materials to train student teachers. This epistemology of technical rationality heralded the professionalisation of teaching, and was gradually implemented in teacher education programs during the second half of the 20th century. This is now widely practiced in many countries around the world, where it is often the dominant teacher education model (Nolan, Tupper & Mark, 2019).

This traditional "technical rationality" model of teacher education has been widely criticised by academics. Universities transmit to student teachers' knowledge that has been scientifically verified and is considered unproblematic; however, this knowledge is often found to be inapplicable and highly problematic when it is applied in the context of classroom teaching. The lack of consistency and coherence between teacher education programs and actual teaching has created a huge gap between theory and practice when teachers enter the real classroom setting (Canrinus et al., 2017), which may also become one of the main challenges for beginning teachers. If teacher education aims to produce critically engaged teachers, then beginning teachers should be trained to be reflexive and context-sensitive on educational theory rather than unthinkingly follow theory to help bridge the gap between teaching theory and practice (Jang, 2023).

Professional Courses in Preservice Teacher Education in Taiwan

Preservice teacher education is defined as the courses that student teachers must complete before they can become qualified and begin teaching (Solbrekke & Sugrue, 2014). Paragraph 3 of article 3 in the Teacher Education Act of Taiwan defines preservice teacher education courses as "…all related courses acceptable in accordance with this Act that must be completed before taking a teacher qualification examination. These include general courses, professional education courses, and area of specialisation courses". Paragraph 5 of the same article defines professional education courses as "…education credit courses to equip teachers with the teaching knowledge and skills needed by

a qualified teacher in their subject area(s)". In Taiwan, teachers of all subjects are required to take professional education courses, which are divided into several compulsory and elective courses on basic education, education methodology, teaching practice and teaching methods. After being reviewed by the Teacher Education Review Committee, these courses must be approved by the Central Competent Authority. General courses and specialised courses for preservice teachers must meet the specific course comparison tables for the various disciplines set by each school. Thus, professional education courses are the main topic addressed in research analyses.

In 2002, the Taiwanese government announced the revised Teacher Education Act, which clarifies the credits earned for the various professional education courses. For example, junior and senior high-school student teachers must earn 26 credits, while primary-school student teachers must earn 40 credits, kindergarten student teachers must earn 26 credits, and special education student teachers must earn 40 credits. For example, to work in state primary schools, student teachers must earn at least 10 credits in four basic education subjects, at least 4 credits in two foundation education subjects, and at least 10 credits in five education methodology courses. In addition, there are compulsory courses on Mandarin language teaching, mathematics for primary schools and specialised education topics.

The professional performance of beginning teachers represents the learning outcomes of the teacher education program. Su, Sung & Yu (2021) discussed the teacher training courses in Taiwan, the study found that the courses related to teaching practice need to be revised, so it is impossible to improve beginning teachers' teaching experience and ability. Lo & Chen (2020) found that the challenges beginning teachers in Taiwan face in teaching are mainly that the lack of teaching ability cannot promote students' learning, and the work troubles of beginning teachers can predict their professional performance. It can be found from the literature that teacher education in Taiwan still needs to add more teaching-related courses to help beginner teachers improve their teaching skills effectively.

METHODOLOGY

Study Design

This study used questionnaires to collect data from the following six municipalities: Taipei City, New Taipei City, Taoyuan City, Taichung City, Tainan City, and Kaohsiung City. A sample of beginning teachers was first obtained, and the numbers of samples taken from senior high schools/vocational schools, junior high schools and primary schools were allocated using stratified random sampling. The survey was performed online, with an open response time covering approximately 2 months, from 2 October to 24 November, 2017. A total of 1,909 questionnaires was distributed, of which 1,314 valid completed questionnaires were returned, corresponding to an effective recovery rate of 68.83%.

In order to better understand the thoughts of beginning teachers, 20 participants were randomly selected from the pool of questionnaire survey responders for interview: 7 from primary schools, 6 from junior high schools, and 7 from senior high schools. The selection of interviewees is divided according to the type of school, and those willing to be interviewed are selected from them. Conduct individual interviews with 20 interviewees in a face-to-face manner. The interview questions mainly concerned the 13 professional education courses mandated by the Ministry of Education. Which course do they think is the most helpful for their actual teaching? And why? Everyone's interviews took between 30 to 40 minutes, were audio-recorded, and later transcribed verbatim.

Participants

The study participants were all qualified teachers who had been teaching for no more than 5 years. The goal of the research was to understand how beginning teachers view their preservice teacher education after having actually taught in the classroom. The participants' data were

classified by sex, type of school, current status and number of years teaching as a full-time member of staff (Table 1).

Research Tools

The teacher education questionnaire used in this study was formulated based on an analysis of the literature, and included basic personal information (e.g. sex, school type, current status and length of service) and teaching competencies. Before the official questionnaire survey, 50 questionnaires were randomly pre-tested, and the participants were asked to provide feedback to confirm whether they could understand the questionnaire questions. After collection, valid questionnaire responses were consolidated and a descriptive statistical analysis was applied to sort them and to calculate the number of respondents for each item. The questionnaire used a 4-point Likert-type scale to measure the degree of assent: strongly agree (3 points), agree (2 points), disagree (1 point), and strongly disagree (0 points).

This study uses Cronbach's α value as the discriminant index of reliability. The Cronbach's α value of each facet is above 0.8, in line with Hee's (2014) suggestion of above 0.7, which shows that the internal consistency of the research tool is good. It can be used as a questionnaire for beginning teachers.

DATA ANALYSIS

Creswell (2013) identifies six steps followed in the process of qualitative data analysis: organizing and preparing the data; reading or looking at all the data; coding the data; coming up with a description for analysis; advancing the manner in which themes and descriptions will be represented in the qualitative narrative; making an interpretation of the findings or the results. In this study, the researchers first read the entire interview and transformed the qualitative data into a form that facilitated analysis to identify the meaning and significance of the information.

Table 1. Sociodemographic characteristics of the study participants

Variable	Category	Value
Sex	Male	308 (23.44%)
	Female	1006 (76.56%)
School type	Primary school	787 (59.89%)
	Junior high school	221 (16.82%)
	Senior high school	275 (20.93%)
	Other	31 (2.36%)
Current status	Teaching staff	1214 (92.39%)
	Substitute teacher	100 (7.61%)
Duration of teaching experience	Less than 1 year	339 (27.92%)
	1–2 years	268 (22.08%)
	2–3 years	209 (17.22%)
	3–4 years	199 (16.39%)
	4–5 years	199 (16.39%)

Note: Data are *n* (%) values

The researchers then attempted to extract and analyze beginning teachers' perceptions of teacher education from the qualitative data.

RESULTS

How Teacher Education is Applied in Practice by Beginning Teachers

Aspects of Professional Education Courses

Among the 13 professional education courses mandated by the Ministry of Education, which were required in teacher programs for all teacher participants, education psychology was considered by 595 respondents as the most helpful course, followed by teaching practice (464 respondents), classroom management (458 respondents), teaching methods (439 respondents) and principles and practice of counselling (295 respondents) (Table 2).

There were multiple reasons why education psychology was selected by the respondents as the most useful subject for actual teaching (Table 3), including that it helped them to understand the physical, psychological and cognitive development of students. It also helped them to understand the theory and facts behind all stages of the learning process and to adopt appropriate teaching methods. Ranked second was teaching practice; the reasons for selection included that it helped the respondents to understand how things actually work and to gain teaching practice. Moreover, actual experience in the classroom helped them to adapt and prepare for their first teaching position. Ranked third was classroom management, which the respondents selected because it would definitely be used in practice, and helped them to learn to use skills and establish a classroom management model, and to implement teaching activities. Overall, the respondents considered that the intrinsically most helpful subjects were those that can be applied directly in the classroom to aid teaching.

Most respondents considered the philosophy of education to be the least helpful course for actual teaching (705 respondents), followed by introduction to education (289 respondents), education sociology (237 respondents), education specialised topics (166 respondents) and using teaching media (158 respondents) (Table 4).

Table 2. Professional education courses considered by the respondents to be the most helpful for actual teaching

Type	Course title	Number of respondents	Rank
Foundation education courses	Introduction to education	41	12
	Education psychology	595	1
	Philosophy of education	49	10
	Education sociology	44	11
Education methodology courses	Principles of teaching	54	9
	Curriculum design and development	236	6
	Learning assessment	64	8
	Principles and practice of counselling	295	5
	Classroom management	458	3
	Using teaching media	84	7
Teaching methods and teaching practice	Teaching practice	464	2
	Teaching methods	439	4
Elective courses	Education specialised topics	19	13

Table 3. Reasons why professional education courses were selected as being the most useful for actual teaching

Subject title	Reason	Number of respondents
Education psychology	Understanding the physical, psychological, and cognitive development of students	333
	Understanding the theory and facts behind all stages of the learning process and adopting appropriate teaching methods	160
	Understanding behavioural motivations and patterns of students	60
	Useful for classroom management and mentoring	30
	Fundamental to many education theories	12
Teaching practice	Accumulating experience, aiding understanding of how things actually work in teaching practice	283
	Actual experience in the classroom to help adapt and prepare for the first teaching position	139
	Helps to combine theory and practice	42
Classroom management	The most practical; will definitely use this skill	293
	Learn to work with classes and establish a classroom management model	110
	Conducive to teaching activities and creating a positive classroom atmosphere	55

Table 4. Professional education courses considered by the respondents as being the least helpful for actual teaching

Type	Subject title	Number of respondents	Rank
Foundation education courses	Introduction to education	289	2
	Education psychology	30	11
	Philosophy of education	705	1
	Education sociology	237	3
Education methodology courses	Principles of teaching	92	6
	Curriculum design and development	43	10
	Learning assessment	60	7
	Principles and practice of counselling	19	12
	Classroom management	49	9
	Using teaching media	158	5
Teaching methods and teaching practice	Teaching practice	17	13
	Teaching methods	51	8
Elective courses	Education specialised topics	166	4

Exploring further, philosophy of education was selected as the least helpful to actual teaching because, among other reasons, it was too far removed from actual teaching, not related to lesson content and not practical. Philosophy of education is an important subject admired by many scholars because educators must be able to explore the fundamental issues of why, what and how to teach. However, time is restricted in a goal-oriented classroom, which makes the philosophy of education difficult to

implement. Introduction to education was seen as the second least helpful course for actual teaching, for reasons that included being too theoretical, not directly related to teaching, not knowing how to apply it and too broad and abstract. Education sociology was ranked as the third least helpful, because it is not practical to actually use in teaching and while it helped the respondents to understand things, it did not provide strategies to change them (Table 5).

Teaching Practice

There was a considerable amount of feedback from the participants on the effectiveness of the teaching practice course. The rate of agreement was highest for "Helped me to understand what teaching is like" (96.65%), followed by "Helped me to improve my mastery of teaching skills" (96.57%) and "Helped me grasp my teaching materials" (95.66%) (Table 6). Thus, teaching practice helped preservice teachers to understand how teaching works before they actually stepped into a classroom, and improved their mastery of materials and techniques. However, once preservice teachers have actually entered the classroom, they are more able to examine their own ideas about teaching and their abilities, and to adjust their career plans, which might not increase their willingness to work as teachers.

How Beginning Teachers View Their Own Learning Experience

In the interview, most of the respondents considered education psychology to be an important theoretical course, mostly because it helped them to understand the physical and psychological development of students, as well as the characteristics of different learning stages. They also noted that it was an important basis for subsequent individual counselling, classroom management and curriculum design. This is illustrated by the following extracts from the interviews:

Education psychology can help us understand the cognitive development stages of students, and use this as a basis for designing courses and adopting appropriate teaching strategies. (first interview with respondent A on 26 November, 2017)

It can be used as a reference for student guidance and curriculum design, and almost useful. (first interview with respondent B on 27 November, 2017)

Table 5. Reasons why professional education courses were selected as being the least useful for actual teaching

Subject title	Reason for selection	No. of times selected
Philosophy of education	Too far removed from actual teaching, so it's very hard to use in the classroom	423
	Doesn't relate to lesson contents	162
	I wouldn't really use it. It's not practical	120
Introduction to education	Too theoretical	127
	No direct relationship with teaching, so wouldn't know how to apply it	93
	Too broad and abstract	70
Education sociology	Not much that can actually be used in teaching; not practical	187
	Helps you understand things but not change them	50

Table 6. Teaching practice and its effects

Opinion	Strongly agree	Agree	Disagree	Strongly disagree
	No.	No.	No.	No.
1. Helped improve my mastery of teaching materials	535 (40.71%)	722 (54.95%)	54 (4.11%)	3 (0.23%)
2. Helped improve my mastery of teaching skills	554 (42.16%)	715 (54.41%)	42 (3.2%)	3 (0.23%)
3. Helped improve my classroom management skills	513 (39.04%)	683 (51.98%)	110 (8.37%)	8 (0.61%)
4. Helped verify my teaching skills	504 (38.36%)	728 (55.4%)	78 (5.94%)	4 (0.3%)
5. Helped me to understand my suitability for teaching	522 (39.73%)	699 (53.2%)	87 (6.62%)	6 (0.45%)
6. Helped me to understand what teaching is like	577 (43.91%)	693 (52.74%)	40 (3.05%)	4 (0.3%)
7. Made you more willing to actually start teaching	415 (31.58%)	739 (56.24%)	153 (11.65%)	7 (0.53%)

It can help use to understand the motivation behind students' psychology and behaviour, enabling us to cope with on-site events and deal with various student problems in the classroom. (first interview with respondent D on 26 November, 2017)

As far as theoretical courses are concerned, education psychology is undoubtedly the most practical course for beginning teachers. The theory learned from the course is not only easier to verify in the classroom, but can also be used in conjunction with teaching methods. Teachers of all grades and subject areas need basic knowledge. On the other hand, teaching practice courses are recognised as the most practical technical courses for beginning teachers. Some examples from interviews that addressed this theme are as follows:

The most impressive course is group teaching practice, because it can help me to think and practice, and allows us to have real on-site internship experience, so that we can better understand the school's operation and classroom management. (first interview with respondent F on 27 November, 2017)

Some professors would invite teachers to share experiences, and can see how front-line teachers take classes. This effect is faster than reading any books, but I think the current practice of teaching is not enough. I don't think I am ready. (first interview with respondent H on 28 November, 2017)

I can find my own shortcomings in teaching practice course and improve them, directly learning class management skills and about emergency situations. These experiences are important and practical when I became a beginning teacher. (first interview with respondent K on 27 November, 2017)

These interviews indicated that beginning teachers were most concerned about their own curriculum design and teaching, perhaps because the effectiveness of teaching is most closely related to teacher ability and provides the most direct feedback to the beginning teachers. A teaching practice course should be comprehensive, with teachers needing abilities in curriculum design, teaching techniques and classroom management in addition to subject knowledge.

DISCUSSION

The results of this study suggest that beginning teachers perceived that the education they received is only partially effective, being somewhat lacking with respect to their actual needs.

Teacher education courses that relate to teaching techniques are more effective for actual teaching, but teacher education institutions still need to strengthen the links in courses between theory and practice.

Regarding research question 1, table 6 shows that more than 80% of the participants believed the teacher education they received effectively improved actual teaching. The most effective courses they receive in teacher education programs are educational psychology, teaching practice, and teaching methods because these allow them to put what they have learned directly into practice. As Hartzler-Miller (2002) showed, when beginning teachers start teaching they tend to focus most on the teaching process, student learning outcomes and classroom management issues. This means that teacher education institutions will better meet the needs of beginning teachers if they provide more content related to these aspects. However, beginning teachers think that theoretical subjects such as philosophy of education, introduction to education and education sociology are the least useful in teacher education programs, mainly because of their difficulty. Moreover, these subjects relate mainly to the overall teaching environment, which a single teacher cannot influence over a short time period. Sjølie (2014) considered teacher education programs to be too theoretical, with most of the theory taught being irrelevant to actual teaching. Thus, designers of teacher education programs should consider the links between theoretical courses and classroom teaching, and how the former can be applied to the latter. Program designers should promote the connections between theory and teaching practice, and reduce the resistance of beginning teachers to learning about and applying education theory.

Scholars have argued that pedagogical theories can be learned via experience, while pedagogy without experience is meaningless (Lynch, 2013; Scales et al., 2018). In addition to learning professional education knowledge from textbooks, it is even more important for beginning teachers to apply and validate theory and teaching techniques through actual teaching. This may narrow the gap between theory and teaching practice and lessen any impressions that theoretical teacher education courses are useless.

Beginning teachers need more opportunities for teaching practice in order to improve their teaching skills.

Regarding research question 2, the results of this study indicated that beginning teachers believed that the process of teaching practice could help them become more familiar with teaching techniques and observe the teaching of experienced teachers. However, as far as the current system is concerned, the time for teaching practice is only half a year, which is not enough for them. They hope to increase the time and opportunities to practice and teach to different grades.

Teacher education institutions should therefore focus on both the teaching practice of student teachers and practical teaching strategies, rather than simply discussing how to teach. It was also found that beginning teachers considered that the time allowed for teaching practice to be insufficient, with insufficient practice at multiple grades. Similar conclusions were drawn by Beyer and Davis (2012), who found that the ability of most preservice teachers to analyse the curriculum was poor, which may restrict their ability to make decisions regarding teaching content and methods. Having sufficient subject knowledge does not guarantee that teachers can effectively teach their subjects—they also require teaching skills and the ability to adjust their teaching strategies to suit different students.

Beginning teachers are unlikely to have reached their potential regarding their teaching strategies or their ability to assess and improve student learning (Gökkurt Özdemir et al., 2017). Cheng et al. (2010) found that the best teaching strategies as perceived by beginning teachers were inconsistent with common teaching strategies found in books. If they start teaching in the classroom without having experienced actual practice, the immaturity of their teaching competencies will make it difficult for beginning teachers to understand the meaning of and how to use teaching strategies. Therefore,

during the teacher training course, it is necessary to strengthen the arrangement of practical teaching opportunities and improve the process of preparing, watching and discussing, in order to improve the suitability of new teachers and develop their professional competencies.

CONCLUSION

Teacher education is a perennial issue in many countries worldwide, and numerous studies have focused on the professional learning and support programs available for beginning teachers. However, these programs are not always sufficient to address shortfalls in the pedagogical knowledge and professional practices of teachers. One major contribution of the present study is identifying how beginning teachers view the effectiveness of teacher education programs towards enhancing their professional competence and fortifying them for the challenges they face. The results support the idea that teacher education is not a static process—many aspects of professional knowledge, teaching techniques and attitudes must be developed, and teacher education programs must include sufficient teaching practice to assist the development of the knowledge and teaching ability of the student teachers. This study only conducts questionnaires and interviews with beginning teachers. Future research should be suggested to further explore different groups, such as high school, middle school, and elementary school teachers, about the impact of teacher education on their teaching in the field to give teacher education institutions insight into the thinking of novice teachers.

REFERENCES

Aarts, R., Kools, Q., & Schildwacht, R. (2020). Providing a good start. Concerns of beginning secondary school teachers and support provided. *European Journal of Teacher Education*, *43*(2), 277–295. doi:10.1080/02619768.2019.1693992

Bahtaji, M. A. A. (2023). Pre-service science teachers' emphases and views about science education curriculum. *International Journal of Instruction*, *16*(1), 919–932. doi:10.29333/iji.2023.16151a

Beyer, C. J., & Davis, E. A. (2012). Developing preservice elementary teachers' pedagogical design capacity for reform-based curriculum design. *Curriculum Inquiry*, *42*(3), 386–413. doi:10.1111/j.1467-873X.2012.00599.x

Brianne, M., Kathryn, L., & Lisa, V.-D. (2020). Building beginning teacher resilience: Exploring the relationship between mentoring and contextual acceptance. *The Educational Forum*, *84*(1), 48–62. doi:10.1080/00131725.2020.1679933

Bruns, B., & Luque, J. (2015). *Great teachers: how to raise student learning in Latin America and the Caribbean*. World Bank Publications.

Buzdar, M. A., Jalal, H., & Mohsin, M. N. (2018). Gaps between acquired and required teacher education graduate attributes: Does accreditation influence in Pakistan? *Eurasian Journal of Educational Research*, *76*, 113–124.

Canrinus, E. T., Bergem, O. K., Klette, K., & Hammerness, K. (2017). Coherent teacher education programmes: Taking a student perspective. *Journal of Curriculum Studies*, *49*(3), 313–333. doi:10.1080/00220272.2015.1124145

Cheng, M. M. H., Cheng, A. Y. N., & Tang, S. Y. F. (2010). Closing the gap between the theory and practice of teaching: Implications for teacher education programmes in Hong Kong. *Journal of Education for Teaching*, *36*(1), 91–104. doi:10.1080/02607470903462222

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications, Inc.

Culp, M. E., & Salvador, K. (2021). Music teacher education program practices: Preparing teachers to work with diverse learners. *Journal of Music Teacher Education*, *30*(2), 51–64. doi:10.1177/1057083720984365

Czerniawski, G., Gray, D., MacPhail, A., Bain, Y., Conway, P., & Guberman, A. (2018). The professional learning needs and priorities of higher-education-based teacher educators in England, Ireland and Scotland. *Journal of Education for Teaching*, *44*(2), 133–148. doi:10.1080/02607476.2017.1422590

Deng, Z. (2004). The role of theory in teacher preparation: An analysis of the concept of theory application. *Asia-Pacific Journal of Teacher Education*, *32*(2), 143–157. doi:10.1080/1359866042000234232

Ginsberg, R. (2023). Preservice teacher action research: Making meaning and generating knowledge through inquiry. *Journal of Efficiency & Responsibility in Education & Science*, *16*(1), 1–11. doi:10.7160/eriesj.2023.160101

Gökkurt Özdemir, B., Şahin, O., Başibüyük, K., Erdem, E., & Soylu, Y. (2017). Development of pedagogical content knowledge of classroom teachers on the numbers in terms of two components. *International Journal of Research in Education and Science*, *3*(2), 409–423. doi:10.21890/ijres.327899

Goodwin, A. L., & Low, E. L. (2021). Rethinking conceptualisations of teacher quality in Singapore and Hong Kong: A comparative analysis. *European Journal of Teacher Education*, *44*(3), 365–382. doi:10.1080/02619768.2021.1913117

Guler, M., & Celik, D. (2021). The effect of an elective algebra teaching course on prospective mathematics teachers' pedagogical content knowledge. *International Electronic Journal of Mathematics Education, 16*(2).

Hartzler-Miller, C. (2002). Teaching for social change: the interplay of social knowledge, content knowledge and personal biography. *The International Social Studies Forum, 2*(2), 141–155.

Hee, O. C. (2014). Validity and Reliability of the Customer-Oriented Behaviour Scale in the Health Tourism Hospitals in Malaysia. *International Journal of Caring Sciences*, *7*(3), 771–775.

Heikonen, L., Pietarinen, J., Pyhältö, K., Toom, A., & Soini, T. (2017). Early career teachers' sense of professional agency in the classroom: Associations with turnover intentions and perceived inadequacy in teacher–student interaction. *Asia-Pacific Journal of Teacher Education*, *45*(3), 250–266. doi:10.1080/1359866X.2016.1169505

Hill, H. C., & Chin, M. (2018). Connections between teachers' knowledge of students, instruction, and achievement outcomes. *American Educational Research Journal*, *55*(5), 1076–1112. doi:10.3102/0002831218769614

Jang, H. (2023). The Practicum and its Effects on the Development of Korean Pre-service English Teachers' Perceptions of Teaching Speaking. *TESL-EJ*, *27*(1), 1–29. doi:10.55593/ej.27105a6

Jokikokko, K., Uitto, M., Deketelaere, A., & Estola, E. (2017). A beginning teacher in emotionally intensive micropolitical situations. *International Journal of Educational Research*, *81*, 61–70. doi:10.1016/j.ijer.2016.11.001

Koedel, C., Mihaly, K., & Rockoff, J. E. (2015). Value-added modeling: A review. *Economics of Education Review*, *47*, 180–195. doi:10.1016/j.econedurev.2015.01.006

Lin, H.-L., & Gorrell, J. (2001). Exploratory analysis of pre-service teacher efficacy in Taiwan. *Teaching and Teacher Education*, *17*(5), 623–635. doi:10.1016/S0742-051X(01)00018-X

Lo, P.-F., & Chen, Q. (2020). Beginning Teachers' Job Problems, Teaching Effectiveness, and Professional Performance. *Journal of Research in Education Sciences*, *65*(2), 37–71.

Lynch, B. M., Krause, J. M., & Douglas, S. (2021). Student Teachers' Perceptions of Traditional Observation Versus Virtual Observation. *Physical Educator*, *78*(2), 138–162. doi:10.18666/TPE-2021-V78-I2-10187

Lynch, P. (2013). *After pedagogy: the experience of teaching*. National Council of Teachers of English.

Marco, S. (2021). Educating quality teachers: How teacher quality is understood in the Netherlands and its implications for teacher education. *European Journal of Teacher Education*, *44*(3), 309–327. doi:10.1080/02619768.2021.1931111

McIntyre, D. (2005). Bridging the gap between research and practice. *Cambridge Journal of Education*, *35*(3), 357–382. doi:10.1080/03057640500319065

Nolan, K., Tupper, J., & Mark, M. (2019). *Social theory for teacher education research: Beyond the technical-rational*. Bloomsbury.

Sawyer, A. G. (2022). The Delayed Influence of a Teacher Education Program: A Longitudinal Study of Elementary Mathematics Teachers' Belief Development. *Teacher Education Quarterly*, *49*(4), 72–94.

Scales, R. Q., Wolsey, T. D., Lenski, S., Smetana, L., Yoder, K. K., Dobler, E., Grisham, D. L., & Young, J. R. (2018). Are we preparing or training teachers? Developing professional judgment in and beyond teacher preparation programs. *Journal of Teacher Education*, *69*(1), 7–21. doi:10.1177/0022487117702584

Schön, D. A. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in the profession*. Jossey-Bass.

Schön, D. A. (1995). Knowing-in-action: The new scholarship requires a new epistemology. *Change*, *27*(6), 27–34. doi:10.1080/00091383.1995.10544673

Simmie, G. M., de Paor, C., Liston, J., & O'Shea, J. (2017). Discursive positioning of beginning teachers' professional learning during induction: A critical literature review from 2004 to 2014. *Asia-Pacific Journal of Teacher Education*, *45*(5), 505–519. doi:10.1080/1359866X.2017.1280598

Sjølie, E. (2014). The role of theory in teacher education: Reconsidered from a student teacher perspective. *Journal of Curriculum Studies*, *46*(6), 729–750. doi:10.1080/00220272.2013.871754

Solbrekke, T. D., & Sugrue, C. (2014). Professional accreditation of initial teacher education programmes: Teacher educators' strategies—between 'accountability' and 'professional responsibility'? *Teaching and Teacher Education*, *37*, 11–20. doi:10.1016/j.tate.2013.07.015

Su, J.-M., Sung, Y.-T., & Yu, W.-C. (2021). Accreditation of primary school pre-service teacher education curriculums in the United States, Australia, and Singapore and the implications to Taiwan. *Journal of Research in Education Sciences*, *66*(2), 35–74.

Sugiharto, B., Corebima, A. D., Susilo, H., & Ibrohim, I. (2019). The pre-service biology teacher readiness in blended collaborative problem based learning (BCPBL). *International Journal of Instruction*, *12*(4), 113–130. doi:10.29333/iji.2019.1248a

Suyatno, S., Wantini, W., Pambudi, D. I., Muqowim, M., Tinus, A., & Patimah, L. (2023). Developing pre-service teachers' professionalism by sharing and receiving experiences in the Kampus Mengajar Program. *Education Sciences*, *13*(2), 143. doi:10.3390/educsci13020143

Tatto, M. T. (2013). The teacher education and development study in mathematics (TEDS-M): Policy, practice, and readiness to teach primary and secondary mathematics in 17 countries. Amsterdam: International Association for the Evaluation of Student Achievement.

Unsworth, L. A., Namukasa, I. K., Aryee, K. L., & Kotsopoulos, D. (2021). Mathematics education of pre-service teachers: As reflected in methods course syllabus. *Transnational Curriculum Inquiry*, *17*(2), 23–56.

Wakefield, W., Weinberg, A. E., Pretti, E., Merritt, E. G., & Trott, C. (2022). "When I act consciously, I can see a brighter world around me": Preservice teacher readiness to support transformative sustainability learning. *Environmental Education Research*, *28*(11), 1672–1690. doi:10.1080/13504622.2022.2085246

Zulkifli, A., Sulaiman, N., & Mohamed, S. (2019). Pre-service teachers knowledge of classroom management. *Creative Education*, *10*(12), 2548–2554. doi:10.4236/ce.2019.1012182

Jungmei Su received her Dr in Educational Entrepreneurship & Management from the National University of Tainan in 2015. She is currently the Coordinator for the Higher Education Sprout Project Office of National Taiwan Normal University and is responsible for managing office affairs and implementing Ministry of Education programs. She writes and presents widely on issues of beginning teacher training.