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Application of Fuzzy Hierarchy Analysis method to identify factors on the professional development of newly graduated teachers from Farhangian University

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Abstract

The purpose of this research is to use the fuzzy hierarchy analysis method to identify the effective factors on the professional development of newly graduated teachers from Farhangian University. The research method is applicable in terms of purpose, and descriptive-survey based on the method of data collection. The statistical population of the research includes 15 experts, academic specialists, professors, elites and educational science experts who are proficient in the subject of the research, and sampling was done in a targeted manner. The information and data needed for the research were collected through a questionnaire. To analyze the data, two methods of factor analysis and analysis hierarchy technique (AHP) were used for ranking. The results showed: each of the identified effective factors had different weight and importance. The first factor is knowledge acquisition and creation (A), the second factor is knowledge organization (B), the third factor is knowledge exchange and sharing (C), the fourth factor is knowledge application (D), the fifth factor is staying up-to-date (E), and the sixth factor is experience orientation and reflective action (F), the seventh factor of change in the way of doing work (G), the eighth factor of learner and learning (H), the ninth factor of content knowledge (I), the tenth factor of educational practice (J), and the eleventh factor of professional responsibility (K).

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Extended abstract

Introduction

Educational systems are the most effective institutions on the state of national growth and development. They refer to it as the key to the growth and development of modern society, and the success and failure in international competitions and the difference in the level of national development of countries are related to the strength and weakness of the educational system; and one of the most important and influential organizations of the country is the Education Organization. In the new era, this organization is more than ever considered as the main pillar of the social, cultural and economic development of the society, and it is the most powerful tool for shaping the future and a way to understand and master the changes, stability, and continuity of history and culture; which has a central role in increasing the capacity and productive power of society (Navasir & Navasir, 2022). This issue is well accepted for dynamic societies that want fundamental changes. But in examining and looking at the educational system, while having a systematic attitude, the role of the teacher can be considered important (Diodel et al, 2021).

The requirement for continuous professional development of teachers is to have professional qualifications. Teacher competencies are a set of knowledge, tendencies and skills that a teacher can acquire to help the physical, mental, emotional, social and spiritual growth of learners during education. Teacher competencies can be classified in three areas: cognitive, emotional, and skill (Kumar et al, 2020). Cognitive skills are a set of knowledge and mental skills that enable a teacher to recognize and analyze issues related to education. Emotional competencies are the set of tendencies and interests of the teacher towards issues and topics related to education and training, and skill competencies are related to the teacher's scientific skills and abilities in the learning process. From the set of three competencies, a competency is obtained that affects the student (Park et al, 2020). Based on this, the current research is looking for an answer to this question: How is the use of the fuzzy hierarchy analysis method to identify factors affecting the professional development of new teachers graduated from Farhangian University?

Theoretical Framework

Professional development

Professional development is formal and informal support and activities designed to help teachers, and includes school-based training and education and activities such as coaching, consulting, self-study, and research (Coldwell, 2017). Professional development includes intellectual and personal efforts that lead to collaborative interaction and the creation of new ideas in education (Girvan et al, 2016).

New Teachers

A new teacher is a teacher who has less than five years of teaching experience. The beginning of the teaching period is usually challenging for teachers of different subjects. Teachers play an important role in the lives of their students; they become a role model and lead in improving the quality of education of their students because they directly interact with them in the classroom. In the literature related to the subject of new teachers, the first years of teaching are usually interpreted as drowning or swimming (Irannezhad et al, 2020).

Salmerón Aroca (2023) also in his book titled "Professional development of teachers and smart ways to deal with it" found a systematic review in primary and secondary education and a qualitative approach in Switzerland: majority of research is focused on beginning teachers, and the qualitative methodology is dominant, although this is limited to some countries and specialized publications. However, generational differences were observed. While younger teachers are more trained in ICT, older teachers have a higher level of process and relational

competence in the classroom. In conclusion, it should be noted that teacher training related to professional development has an impact on school improvement, especially if it is done from the perspective of intergenerational collaboration and acquisition of new skills.

Sims (2023), under the title of effective teacher professional development, conducted according to the new theory and meta-analytical test. The result was: researchers are not in the way of advice for those tasked with designing or implementing better PD. The research aims to solve this problem by creating a new theory of effective PD based on a combination of active causal components that aims to develop teachers' insights, goals, techniques, and practice.

Research Methodology

The research method is applicable in terms of purpose, and descriptive-survey based on the method of data collection. The statistical population of the research includes 15 experts, academic specialists, professors, elites and educational science experts who are proficient in the subject of the research, and sampling was done in a targeted manner. The information and data needed for the research were collected through a questionnaire.

Research findings

To analyze the data, two methods of factor analysis and analysis hierarchy technique (AHP) were used for ranking. The results showed: each of the identified effective factors had different weight and importance. The first factor is knowledge acquisition and creation (A), the second factor is knowledge organization (B), the third factor is knowledge exchange and sharing (C), the fourth factor is knowledge application (D), the fifth factor is staying up-to-date (E), and the sixth factor is experience orientation and reflective action (F), the seventh factor of change in the way of doing work (G), the eighth factor of learner and learning (H), the ninth factor of content knowledge (I), the tenth factor of educational practice (J), and the eleventh factor of professional responsibility (K).

Conclusion

The present research was conducted with the purpose of applying the fuzzy hierarchy analysis method to identify the effective factors on the professional development of newly graduated teachers from Farhangian University. The results of this research are aligned with the results of Salmerón Aroca (2023), Sims (2023), Singha Kumar (2022), Taheri (2022), Jalali Bostanabad et al, (2021), Ghasemi (2022), Esmaili Mahani et al., (2022), Shirbagi & Nasiri Nia (2020), and Fazali (2019). Taheri (2022), stated: Lesson research is one of the most effective processes of empowering teachers to help themselves and their colleagues to "learn by doing", overcome the fear of change, promote creativity and critical thinking, and test mental assumptions. Hence, it can be said that lesson study has an irreplaceable role in creating a learning organization and building its culture; because teachers are constantly learning, making hypotheses, and testing hypotheses. What is very important here is the professional growth and development of the teacher as a result of the activity in the study groups and the effort to rebuild and improve. Professional development is a process for deepening the teacher's awareness, skills and attitude; done formally or informally, which is one of the effects of the economic and social cooperation development organization.

According to the research results, the following suggestions were made:

Pre-service training for new teachers; tension and anxiety at the beginning of service, lack of support and feeling of isolation, how to adapt to colleagues; professional challenges include classroom management, content mastery and effective teaching, student evaluation, meeting students' needs, gaining trust and compatibility with parents; and organizational challenges include getting to know the school, getting to know the school's procedures natural in the early



career of new teachers; therefore, with pre-service training, these challenges and anxieties are reduced.

Participation in study groups; participating in study groups creates a desire to negotiate and cooperate in the teacher. Following these, the teacher gets inner satisfaction and his interest and motivation increases. This is why it is recommended to all teachers to participate in these groups to achieve professional development.