



Technological Competencies of Pre-School Principals¹

Pınar Yengin Sarpkaya, Nazlı Sıla Öner², Hasan Ulvi Evren³

Abstract

In this case study, it is aimed to obtain the experiences and opinions of school principals working in pre-schools and academicians working in the early childhood education department regarding the technological competencies of school principals. In this study, phenomenology, one of the qualitative research methods, was used. The data were obtained through interviews with 3 school principals and 5 academicians, determined by criterion sampling, through interview forms developed by the researchers. After the content analysis, the findings were gathered under seven themes. In the theme of development, it was revealed that the principals should support the technological development of the employees at the school. In the theme of safe use, it was stated that technology should be used in accordance with the age development of preschool children. In the communication and promotion theme, it has been determined that WhatsApp and e-mail are preferred for communication. In the theme of common vision, the use of technology for educational purposes is underlined. In the must-have features theme, it was revealed that the school principal should have a good command of the use of up-to-date software and hardware. In the theme of technical equipment, it was emphasized that school principals should have a good command of the use of equipment in the school. Finally, in the theme of databases, it was stated that information about students, parents and school should be stored in digital environment. In this study, it is suggested that school principals and academicians working in the pre-school teaching department should cooperate with each other.

Keywords: Technological competencies, preschool, school principals

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INTRODUCTION

In the literature, pre-school education is identified as an education level that provides the physical, cognitive and social development of children in a planned environment and it prepares children for primary school. This stage, which is the foundation of primary education, secondary education and even higher education, makes the child start on which he will build his education life, awaken the desire and desire for learning and prepare him for mental activity (Özyılmaz, 2021). It has been revealed that children participating in preschool programs have a wide variety of experiences (Barnett, 2008). It is claimed that preschool education positively affects motivation to be successful in school or some other emotional variables related to school success and increases cognitive abilities in ways that cannot be measured satisfactorily by IQ tests (Barnett, 1992). The most important responsibility for the pre-school education to reveal its desired function and achieve its goals belongs to the school principal, who will organize the teachers and other personnel and ensure that they act in harmony and coordination (Metin & Yavaşdemir, 2006).

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Pre-schools differ from other educational institutions in terms of their structures. Among these differences, there are absence of attendance requirement, the organizational hierarchy being flat rather than vertical, the age of the students and their primary school experience, and the lack of a strictly defined educational program. In addition, it can be difficult for preschool students to adapt to an environment outside the home and living as a group due to their age and specific developmental needs. For this reason, it is expected that the principals of pre-schools have competencies in line with these differences (Larkin, 1999).

A school principal with the necessary competencies is seen as the key to success for any school. It is thought that there is an effective school principal in the best schools (Meador, 2017). It is stated that the school principal should be an education leader and a leader in the society he lives in. Many things are expected from them; being a manager at the same time, preparing budgets and staying within these budgets, managing people, bringing parents closer to the school, but preventing them from being close enough to intervene (Drucker, 1964). School principals face unique situations every day (Meador, 2017). The school principal is the person who both directs the actions of other individuals in the school and is responsible for these actions to reach the predetermined goals of the school (Katz, 1974). In addition, the school principal working in the preschool is expected to have a closer understanding of working with both teachers and families and to work in a widespread hierarchical order. In this context, principals in pre-schools need to be competent in pre-school education in order to fulfill their roles (Larkin, 1999). Competence is the body of knowledge that an individual must have in order to fulfill a certain role or task. First, the competencies that the managers determined by Katz (1974) should have; it has been discussed under three headings as technical, humanistic and conceptual. Afterwards, technological competencies were added as the fourth among these competencies. Technical competencies, which are the first of the managerial competencies; they mean an understanding and competence about a particular type of activity that includes methods, processes, procedures or techniques (Katz, 1974). Technical competencies require to expertise in teaching processes and procedures, as well as teaching methods and techniques. In other words, they are the knowledge and skills that individuals can do concretely according to their field of study and that depend on their expertise (Töremen & Kolay, 2003). It is stated that technical competence is seen as a prerequisite for a person to come to a managerial position (Stumpf & London, 1981; Peterson & Van Fleet, 2004). Another topic is humanistic competencies. Humanistic competencies are the ability of the school principal to both works effectively as a member of the organization and to ensure that the team he leads works cooperatively (Katz, 1974). Humanistic competencies are the same for managers at all levels, and it is an accepted competence to be at the level of approximately 50% among all managerial knowledge and skills. The fact that management is also called "human engineering" reveals the importance of this competence (Açıklan, 2016). An effective school principal sees the core relationship as the most critical activity in education and recognizes that its development and reinforcement is his or her greatest responsibility. Since the primary elements in education are people, he knows that he should focus on people rather than "things" (Benben, 1962). Although humanistic competences are basically related to humans, Analoui (1999) stated that concepts such as teamwork, conflict, communication and organizational climate are also related to humanistic competences. Third, conceptual competences include the ability to see the school as a whole (Peterson & Van Fleet, 2004). In other words, it is defined as the school principal's ability to see his school within the society, within the education system and even within the universal dimensions, to be aware of the interactions of all parts that complete the school, to follow and comprehend the theoretical developments related to education, to evaluate the problems he encounters from this theoretical framework and to seek solutions (Töremen & Kolay, 2003). While technical competences focus on objects, humanistic competences focus on people, conceptual competences focus on ideas and concepts (Yukl, 2009).

Finally, how computers and information technologies can be used effectively in school management and in the classroom, how to evaluate software programs used in school, the role of computers and information technologies in increasing productivity at both school and individual level, rapid and new developments in technology and the reflections of these developments on school forced to have some qualifications in the field (Turan, 2002). Technology is thought to change almost every aspect of our lives. Thanks to technology, the collection, organization and distribution of data has become so efficient that the way we live, and work today appears to differ significantly from when we lived and

worked a few years ago (Weber, 2006). For this reason, technological competencies have been added as the fourth to the three main competencies that school principals should have. These competencies are related to data management. Necessary actions for the effective management of the school, such as keeping records of students, staff or all kinds of documents in the school, informing students regularly, following contracts and insurances, can be provided by a technologically competent school principal (Arslan, 2016). To integrate technology into the school and to ensure success, it must be well executed and managed (Weber, 2006).

School principals are at the forefront of the people who are responsible for the transfer of computers and related technologies to the school and their active and effective use (Turan, 2002). School principals need to use information and communication technologies to perceive, make sense of, organize if necessary and convey to the relevant people all kinds of information coming from outside or produced within the school (Sincar and Arslan, 2011). The technological competencies expected from school administrators can be listed as follows (Sevinç, 2017; Menzi, Çalışkan, & Çetin, 2012; Attaran & Vanlaar, 2001):

- The principal's self-development: Using technology effectively, following up-to-date information, applying various ways (in-service training, etc.) to improve himself, being a model in technology use.
- The principal's role at development of employees: Supporting the development of technological competencies of the employees in various ways (courses, seminars, etc.), increasing motivation by appreciating the technology use of the employees.
- Creating a common vision: Making applications integrated with technology or preparing an environment for it, using technological resources effectively in achieving the school's goals.
- Communication and promotion: Using technological resources as a means of communication with parents, teachers and other schools, using virtual platforms to share information and promote the school.
- Databases: Using digital media for storing and sharing students' demographic and academic information when necessary, storing and archiving school information in digital media and sharing when necessary
- Technical Equipment: Providing the technological infrastructure in the school, preparing the environments where the effective use of technology can be ensured in school activities, having the infrastructure where the school principal and employees can use technology effectively.
- Legal, ethical and safe use: Paying attention to the safe use of technology for students, using technology within ethical frameworks, staying within the ethical framework in information storage and sharing.

School principals are expected to fulfill their leading role in the integration of technology into schools. In cases where technology cannot be effectively integrated into schools, principals are seen as responsible for this situation (Bynom & Bingham, 2001). That is why the competence and effectiveness of the school principal is very important (Drucker, 1964). The widespread use of technology and especially computers in today's world makes educators question how and where this tool can be used, especially in the pre-school period, and how digital environments can be made suitable for pre-school education (Sayan, 2016). There is pressure on school principals to adapt to this. Information technologies increase access to information and facilitate organizational coordination, and it is a powerful tool to introduce a new arrangement in terms of organizational management (Attaran & Vanlaar, 2001). When the reasons such as the presence of children from younger age groups in pre-schools, the necessity of establishing a close communication between parents and school management, the quality of the education given at this level will directly affect the whole life of their children, and the fact that preschool education institutions have different characteristics and needs from other institutions, come together. On the other hand, keeping up with the rapidly advancing technology and being able to use this technology effectively at school is both important and under the leadership of the school principal. The integration of technology into pre-school institutions is directly proportional to the technological competencies of school principals. Regarding such an important position, the opinions of the academicians who work in the preschool teaching department and who have theoretical knowledge in this field, and the principals of the preschools that are on the practical side of the work, are of particular importance.

In the literature, it has been determined that there are many different studies on the technological competencies of teachers (İşman, 2002; Kara,2011; Menzi, Çalışkan, & Çetin, 2012; Dağ,2016; Karataş & Akgün, 2018). In addition, there are many studies on the technology leadership of school principals (Sincar & Aslan, 2011; Sezer & Deryakulu, 2012; Görgülü, Küçükali & Ada, 2013; Çalık, Çoban & Özdemir, 2018; Demiracan, 2019). Technology leadership is defined as a type of activity that supports the implementation of technological opportunities and the environments surrounding these opportunities in order to facilitate students' learning in the classroom (Kesim, 2020). Technological competencies of school principals include knowing the basic concepts of information technologies, using certain hardware and software, developing technology at school and ensuring that it is used in all service areas offered at school (Ergişi, 2005). Similarly, studies on managerial competencies are also available in the literature (Karakuş & Töremen, 2006; Peker & Selçuk, 2011; Ağaoğlu, Altinkurt, Yılmaz, & Karaköse, 2012; Sevinç, 2017; Yılmaz, 2021). However, the number of studies on the technological competence of school principals is quite limited (Ergişi, 2005; Baycan, 2018). A study on the technological competencies of principals working in pre-school institutions could not be found in the literature. This situation reveals that this research will fill an important gap in the literature and therefore its importance.

It is thought that the results to be obtained from this research will contribute to the field in terms of the technological competencies expected of the principals working in pre-schools. The purpose of this research is to determine the similar and different aspects by taking the opinions of academicians working in the field of preschool teaching and school principals working in pre-school education institutions about the technological competencies of the administrators. In this context, the problem sentence of the study is "What are the technological competencies that school principals working in pre-schools should have?" expressed as.

For this purpose, answers to the following questions are sought:

1. What are the academicians' views on the technological competencies expected of school principals in pre-school institutions?
2. What is the experience of academicians regarding the technological competencies of school principals in pre-school institutions?
3. What are the opinions of school principals on the technological competencies that school principals in pre-school institutions should have?
4. What is the experience of school principals regarding the technological competencies of school principals in pre-school institutions?

METHOD

Research Pattern

This research was conducted in a qualitative perspective. Phenomenology was used as a research method. Phenomenology explores the common meaning of people's experiences with a concept (Creswell, 2021). Within the scope of this research, it is thought that this research design is appropriate in order to reveal in detail the views and experiences of the academicians working in the early childhood education department and the principals working in pre-schools about the managerial competencies that the administrators working in pre-schools should have.

Study Group

The study group consists of 5 academicians working in the early childhood education department of different universities in Turkey and 3 principals working in different preschools. Criterion sampling was used in the selection of the study group. In criterion sampling, the criterion is created by the researcher (Marshall & Rossman, 2014), the researcher lists the features that are important for the study and aims that the criterion chosen directly reflects the purpose of the study (Merriam, 2013). The criterion used in this research is that the participants are an academician who works in the preschool teaching department and has conducted a school experience course, or a principal working in a pre-school education institution. These criteria were determined because it was thought that the



participants who met these criteria had experience and necessary knowledge about the research subject.

Data Collection Tool and Data Collection

The data were obtained through semi-structured interviews with the participants in the study group. Semi-structured interview technique was used as it provides flexibility to the research. For this, the 10-question "Interview Form on the Technological Competencies of Pre-School Principals" was developed by the researchers. The draft form, which was created after the literature review, was presented to a research assistant, an associate professor and a professor working in Aydin Adnan Menderes University Education Faculty Early Childhood Education and Educational Administration departments, and two teachers working in a private and a public preschool for expert opinion. In line with the expert suggestions, the interview form was finalized. Below the 10 questions in the form, there are questions at the end to ask the participants if necessary. As an example of the questions in the form, "What can you say about school principals' use of virtual platforms (e-mail, WhatsApp, social media accounts) based on your observations?" and "Are there any studies by principals on teachers' use of technology in teaching? What can you say from your observations and experiences?" questions can be given.

The interviews were held in the form of video chat due to the pandemic conditions by making an appointment with the participants, and the interviews were recorded with the permission of the participants. The interviews lasted between 30 minutes and 45 minutes. After the interview questions, in the second part, some personal information such as age and professional seniority were asked to the participants. Some demographic information on participants can be seen in Table 1:

Table 1

Demographic Information on Participants

Participants	Gender	Duty	Age	Seniority (years)	Marital status
Aysel	Female	Principal	29	6	Single
Kemal	Male	Principal	65	42	Married
Birsen	Female	Principal	28	5	Single
Kamile	Female	Academician	32	2	Single
Ebru	Female	Academician	41	18	Married
Can	Male	Academician	37	11	Single
Selim	Male	Academician	43	20	Married
Eyşan	Female	Academician	28	5	Married

Analysis of Data

During the interviews with the participants, a total of 315 minutes of data was obtained and these data were converted into Word documents on the computer. Voice typing feature of Google Documents program was used while transferring audio files to Word document. 72 pages of data were obtained, written with one and a half line spacing and 11 points. Findings were created by content analysis of the data. Content analysis is the examination of the content by referring to the meanings, contexts and intentions contained in the messages (Prasad, 2008). In order to reach concepts which can explain the collected data, similar data are first conceptualized, the emerging concepts are organized logically, and then the themes that explain the data are determined (Yıldırım & Şimşek, 2013). In this way, it is possible to divide the words into less categories related to the content (Elo & Kyngäs, 2008). For this purpose, the three-interview data read by all researchers were coded separately, and then they came together to reach a consensus on the codes and a code list was created. The researchers then coded all the data separately and finally the coding was evaluated together. In consequence of the analysis, 7 themes were reached. Different categories were created under these themes.

Credibility, Transferability, Consistency, and Verifiability

In the research, to collect data; a semi-structured interview form was prepared by the researchers by scanning similar qualitative studies in the literature. While the form was in the draft stage, it was

presented to 1 Professor, 1 Associate Professor, and 1 Research Assistant from the field of educational administration to get expert opinion. Finally, an interview form containing 10 main questions, including probes, emerged.

To ensure reliability in a qualitative research, credibility, transferability, consistency and verifiability criteria are needed (Arastaman, Fidan, & Fidan, 2018). Credibility indicates the extent to which the findings are compatible with reality (Patton, 1999), while transferability reveals the extent to which the findings are applicable to theory, practice and future research (Lincoln & Guba, 1986). To ensure the credibility of this research, from the beginning to the end of the research process, the research design, the data obtained, the analysis of the data and the writing of the findings and results were consulted, and corrections were made regarding the feedback received. In order to ensure transferability, detailed explanations about each step taken during the research process were tried to be given. In this sense, the research model, data collection tool and data analysis were tried to be presented comprehensively by the researchers (Miles, Huberman, & Saldana, 2014). Consistency means that other researchers can reach similar findings, interpretations and conclusions about the data. Confirmability, on the other hand, is to reveal that the findings are not caused by the researcher, but by the experiences and thoughts of the participants (Shenton, 2004). In order to ensure consistency in this study, the findings were presented directly and without comment, more than one researcher was included in the research, and similar data collection processes and methods were used by these researchers. In order to ensure verifiability, the research process was presented in detail, detailed explanations were made about data collection and analysis methods, and the documents related to the research were kept by the researchers.

Role of the Researcher

The first of the researchers is an academician who has conducted research and thesis and is an expert in both qualitative research and educational administration. The second researcher has been working as a lecturer at the university for 14 years and is a doctoral student in educational administration. The third researcher has been working as a preschool teacher since 2015 and is a doctoral student in educational administration. Researchers think that school principals working in pre-school institutions should have technological competencies. Researchers share the same ideas about the fact that the person who will prepare and manage the school environment is the school principal for technology to find its place in schools. The fact that one of the researchers is both an expert in the field and has experience strengthened the technical infrastructure of the research. The fact that another researcher worked at the university facilitated the research process since there were academics in the study group of the research. Finally, the third researcher's teaching in a pre-school institution facilitated the work on both getting to know the field better and identifying the problems closely, as well as reaching the pre-school principals in the study group. In addition to these, the fact that the researchers formed the study group from different pre-schools and universities enabled different perspectives to be reached.

FINDINGS

The findings of the study were first analyzed separately and then compared with each other in order to reveal the experiences and opinions of school principals and academicians on the technological competencies of principals working in pre-schools. At the beginning of the research, the researchers aimed to reveal both the experiences and opinions of school principals and academicians on the research subject. However, as a result of the fact that during the interviews, the school principals brought their experiences to the fore and did not give much opinions about the practices that should be done, and the academicians emphasized their ideas about the practices that should be done because they did not have enough experience, the research was updated to reveal the findings about the experiences of the school principals and the views of the academicians.

The findings regarding the experiences of the school principals and the views of the academicians are presented below by tabulating and evaluating comparatively under each theme.



1. Development Theme

The comparison of the experiences of the school principals and the opinions of the academicians regarding the technological competencies of the school principals working in pre-school education institutions according to the "Development Theme" is summarized in Table 2:

Table 2

Comparison of School Principals' Experiences and Academicians' Views According to the Development Theme

	School Principals' Experiences	Academicians' Opinions
Teacher Development	- Enabling - In-Service Training - Posting - Being a Role Model	- Keeping Up to Date - In-Service Training - Networking - Guidance and Encouragement
Development of Other Personnel	- In-Service Training - Getting Expert Support	- In-Service Training - Incentivize Employees
Development of Managers	- Keeping Up-to-Date - In- Service Training - Getting Expert Support	- Keeping Up-to-Date - In- Service Training - Getting Expert Support

When Table 2 is examined, it is seen that there are great similarities between the experiences of school principals and the views of academicians in the three categories under the "Development Theme". In addition to the practices of school principals in terms of the development of teachers, academicians stated that it is necessary for principals to establish a communication network with other school principals and to follow current developments. The only additional suggestion from academicians for the development of other personnel in the school is to encourage employees to use technological equipment with various practices. It is understood that the experiences of the school principals and the views of the academicians are common in terms of providing in-service training. In the category of development of school principals, it is seen that the same answers were received from both principals and academicians.

Selim, one of the academic participants, stated the things that school principals should do in order to develop teachers in their schools in terms of technology as follows:

"If the teacher realizes that there is such a deficiency, he is expected to provide guidance. It is expected to encourage him to receive the necessary training, or if most of the teachers feel such a problem or if he can see some deficiencies, he should make an extra effort to provide those competencies." (Guidance and Encouragement)

2. Safe Use Theme

In the "Safe Use Theme" created regarding the technological competencies of the school principals working in pre-school education institutions, the points that the principals stated that they paid attention to and the points that should be considered according to the academicians are summarized in Table 3:

Table 3

Comparison of School Principals' Experiences and Academicians' Views According to the Theme of Safe Use

Points paid attention by school principals	Points should be paid attention according to academicians
- Balanced use	- Student's needs
- Control of use	- Communication with teachers
- Content of the material	- Content of the material

When Table 3 is examined, it is understood that in the "Safe Use Theme", school principals pay attention to the balanced use of technology in their schools, supervise the teachers who use technology and consider the suitability of the content of the material used for students. The principal of the school, Birsen, stated the points that he paid attention to for the safe use of technology at school as follows:

"We don't expose kids to a screen for too long. Another thing that should not be left is that we integrate an event not only from watching a technology, but also with a music and a video sandwiched between the events, in order to provide the continuation or the beginning of an event for a short time." (Balanced Use)

There are two points that draw attention, which are put forward differently by academics. These are to consider the needs of the students by the principals and to be in constant communication with the teachers and to provide them with the necessary information.

3. Communication and Promotion Theme

The Communication and Promotion Theme was handled by the researchers in the categories of "Use of Virtual Platforms" and "The Role of Use of Social Media". In Table 4.1, information on the category of "Use of Virtual Platforms" and in 4.2, information on the category of "The Role of Use of Social Media" is presented:

Table 4.1

Comparison of School Principals' Experiences and Academicians' Opinions by Category of Use of Virtual Platforms

Use of Virtual Platforms			
	School Principals' Experiences	Academicians' Opinions	
Effective Use	- Using WhatsApp	- WhatsApp and E-mail	
Problems	- Parents have no internet	- -----	
Requirement	- Required	- E-mail for official correspondence	
		- WhatsApp for fast communication	

When Table 4.1 is examined, it is understood that the most preferred method for communication by school principals in the "Use of Virtual Platforms" category of "Communication and Promotion Theme" is the WhatsApp application, and the use of WhatsApp is deemed necessary by the principals. It is seen that the most common problem faced by school principals in this regard is reaching the parents who do not use the internet or who cannot use it due to any interruption at that time.

Aysel expressed the problems she experienced in communicating via WhatsApp or e-mail as follows:

"Our students' fathers usually work outside, their mothers are at home, and mothers may not have WhatsApp, but when the fathers come home in the evening, it is late, and we have some time problems in communication." (Problems Encountered)

According to the opinions of academicians, it is understood that the use of WhatsApp application is wrong especially for official correspondence, WhatsApp should only be used in situations that require fast communication, and e-mail should be preferred for official affairs. It is seen that academicians do not have enough ideas about the problems that school principals experience in this context.

Table 4.2

A Comparison of the Experiences of School Principals and the Views of Academicians by Category on the Role of the Use of Social Media

The Role of the Use of Social Media			
Experiences of School Principals		Opinions of Academicians	
- Making Posts		- Making Posts	
- Control of Sharing		- Control of Sharing	
- Informing Supervisors			

According to Table 4.2, in the category of "The Role of the Use of Social Media" of the "Communication and Promotion Theme", the roles of sharing about the school in social environments and controlling the sharing are similar in terms of school principals' experiences and academicians' opinions, besides, it is understood that school principals use social media to inform their supervisors.

4. Common Vision Theme

The comparison of the experiences of the school principals and the opinions of the academicians according to the "Common Vision Theme" is presented in Table 5:

Table 5

Comparison of School Principals' Experiences and Academicians' Opinions According to the Common Vision Theme

Use for School Goals	
School Principals' Experiences	Academicians' Opinions
- Support to Education	- Support to Education
- Posting	- Promotion
- Encouraging and Supervising Teachers	
- Technology Education for Students	

As can be seen from Table 5, the necessity of using the technology that academicians think school principals should do to support education and promote the school is realized by school principals. In addition, it is seen that school principals encourage teachers to use technology effectively to make the school achieve its goals, and they try to train students on the use of technology.

5. Must-Have Features Theme

The comparison of the experiences of the school principals and the opinions of the academicians according to the "Theme of Required Qualifications" is summarized in Table 6:

Table 6

Comparison of the Experiences of School Principals and the Opinions of Academicians According to the Theme of Required Qualifications

Must-Have Features	
According to School Principals The Competencies They Have	According to Academicians The Competencies That School Principals Should Have
- Being able to use the equipment in the school	- Being able to use the equipment in the school
- Using School Programs	- Using School Programs
- Archiving	- Ability to Encourage Teachers
- Current Tracking	
- Solving Technological Problems	

According to Table 6, the experiences of the school principals and the opinions of the academicians show a commonality in terms of the use of hardware and software (programs) in schools. In addition, it is seen that school principals can use technology for archiving, follow current developments closely and find solutions to technology-related problems they encounter in their schools. It is understood that academicians think that in addition to being able to use the equipment and programs in the school, school principals should have the knowledge to encourage teachers to use technology. Kamile states that school principals should encourage teachers to use technology as follows:



"Obviously, I entrust the principal with the task of encouraging teachers to use the devices. In other words, if there is a teacher in the classroom who does not use a smart board, the principal should encourage that teacher to use that teacher." (Ability to Encouraging Teachers)

6. Technical Equipment Theme

In line with the interviews, the technological equipment found in the rooms of the school principals working in the pre-school education institutions, or thought to be present, was discussed by the researchers under the "Technical Equipment Theme" and presented in Table 7:

Table 7

Experiences of School Principals and Technical Equipment of Academicians' Opinions Comparison by Theme

	Technical Equipment		
	Experiences of Principals	of School	Opinions of Academicians
Owned/ Must Have	- Computer (3)		- Computer
	- Printer (1)		- Printer (Common)
	- Phone (1)		- Phone (Common)
			- Scanner (Common)
			- Projection (Common)
Requirements	- Computer Required		- Computer Required
Purposes of Using	- Archiving		- Archiving
	- Communication		- Official Correspondence

When Table 7 is examined, it is seen that all school principals have computers as technological equipment in their rooms, but only one of them has a printer and a telephone in their room. According to school principals, the computer comes to the forefront as the most necessary equipment for them. On the other hand, the academicians stated that the computer must be in the principals' rooms, and equipment such as printer, scanner, projector and telephone would be sufficient in the common areas, but if there are extra, they can also be placed in the principals' rooms. According to Table 7, it is understood that school principals and academicians agree on the necessity of having computers in principals' rooms. In Table 7, it is also seen that the experiences of school principals and the opinions of academicians on the use of computers for archiving are in common, and telephones are frequently used for communication purposes. It is understood that for the purposes of use, the academicians stated that computers should be preferred more in official correspondence.

Regarding the requirements of these equipment, Eysan said:

"The phone and computer, yes, I don't know how the school works, but everything is probably going online now. If the records of the children are the information of the parents and so on, I think they are on the computer. Therefore, it may be beneficial for the principal to have this information on his computer without going to the assistant principal and teachers easily. They communicate on the phone all the time anyway, so I think both may be necessary." (Requirements)

7. Databases Theme

The experiences of the school principals and the opinions of the academicians are "Databases". The comparison according to the "Theme" is summarized in Table 8:



Table 8

Databases of School Principals' Experiences and Academicians' Opinions Comparison by Theme

Databases					
	Experiences of Principals	of School	Opinions of Academicians		
Registered/ Need to be registered Information	- Academic (Student)	Information	- Demographic Information		
	- Progress (Student)	Reports	- Progress Reports		
	- Special Cases (Student)		- Exceptions		
	- Health (Student)	History	- Studies at School		
	- Meeting (School)	Minutes			
	- Contact (Parent)	Information			

As can be seen from Table 8, while the academicians stated that the students' demographic information, progress reports and special circumstances, as well as the studies carried out at the school should be recorded on digital platforms, school principals recorded the academic information, progress reports, health history and special conditions of the students on digital platforms, they are under. In addition, the principals keep the minutes of the meetings held in their schools and the contact information of the students' parents.

The principal of the school, Aysel, emphasized the continuity in education and talked about recording the progress reports as follows:

"First of all, I don't say the developmental report of children only for kindergarten because they are all connected like a link in a chain, so I keep a record of at least one child's development file, which includes the opinions of the teacher so that the information obtained from the teacher in the kindergarten can be used by the first-grade teacher." (Progress Reports)

DISCUSSION, CONCLUSION, RECOMMENDATIONS

Three school principals and five academicians were interviewed in this research, which aims to get the opinions of academicians and school principals on the technological competencies of school principals working in pre-school institutions. The findings obtained in the research were divided into two as the opinions of academicians and the experiences of school principals, and seven themes emerged in both titles. The first theme to emerge is the development theme. In the findings of this theme, it has been determined that school principals working in pre-school institutions provide the necessary support to improve the technological competencies of teachers and other personnel, direct both education personnel and other personnel to in-service training and play a guiding and encouraging role in the use of technology. Likewise, the opinions of academicians are that school principals keep up to date, provide teachers with the necessary opportunities to participate in trainings, cooperate with other schools to share useful practices, and act as role models for teachers. The role of the school principal is undeniable in ensuring that both teachers and other personnel have the technological competencies required by today's conditions. In this sense, the school principal's encouraging and guiding attitude is considered important in terms of supporting the technological competencies of the school as a whole. A similar finding was reached in the study of Sezer & Deryakulu (2012), and it was determined that school principals offered solutions to the problems related to the use of technology in their schools. On the other hand, in Banođlu's (2011) study, school principals evaluated themselves as very good in terms of technological competencies, while teachers evaluated principals as having lower competencies. From this, it can be concluded that school principals are not always objective when evaluating themselves.



According to the findings under the second theme, safe use, it was found that school principals pay attention to the content of the material used, its suitability for the age and development of children, and its duration compared to other activities in the use of technology in preschool institutions. Similarly, academicians underlined the need to pay attention to material selection, students' needs and communication with teachers in technology use. Although the preschool period is considered a sensitive period in terms of age group, it is very necessary for school principals to show the necessary importance in the use of technology in their children in this period. According to the findings of the communication and promotion theme, school principals prefer the WhatsApp application for communication purposes, followed by the use of e-mail. On the other hand, academics do not find it official to prefer WhatsApp by principals, they think that WhatsApp should be used only for fast communication and e-mail should be preferred for official correspondence. For promotional purposes, two roles of school principals have been identified as sharing or checking the content before it is shared. Similarly, according to the opinions of academics, school principals have two roles in publicity: sharing and supervising. It is very important for school principals to communicate with parents, teachers, supervisors or other staff. In this sense, it is thought that the use of technological competencies facilitates and accelerates this communication process. However, while the use of WhatsApp is more suitable for daily conversations, the use of e-mail can be more convenient for official correspondence. In addition, the promotion of the school is very important in terms of understanding the functioning of the school for the parents and the society who will be newly enrolled in the school. The posts to be used in this promotion should be carefully selected, the personal lives of children and teachers should be respected, and ethical rules should be followed. For this reason, it is thought that it is important for the effectiveness of the promotion that the school principals personally share or control the sharing.

Another theme is the common vision theme. According to the findings under this theme, school principals ensure that technology is used to achieve the goals of schools. To achieve this, the development of students is prioritized, and teachers are supervised. The opinions of the academicians were similar, and they stated that technology should be used to support education. For the school to be technologically competent, a common vision created by the school principal and maintained by including the whole school is considered very important. Similarly, in the study conducted by Görgülü, Küçükali, & Ada (2013), it was concluded that school administrators consider themselves competent in the professional application of technology. However, in another study, Banoğlu (2011) revealed in the findings that school principals have partial competence in sharing the technology vision of school principals at school, developing long-term technology plans and researching technological needs, and that they should be developed in this area.

According to the findings obtained under the other theme, "must-haves", the characteristics that school principals should have are listed as archiving information in digital environment, accessing up-to-date information on technology, effective use of technological hardware and software, and solving emerging technological problems. According to the opinions of academicians, school principals should be able to use Office programs and be able to master the use of all equipment in the school. It is thought that the school principal's having these characteristics is important both in terms of making the use of technology in the school effective and supporting other employees in the use of technology. Although these findings of the research were supported by Incel (2021), it was concluded in the research that school principals' level of use of technology was good.

According to the findings obtained from the next theme, technical equipment, all school principals have computers. In addition, it has been determined that they have different equipment such as telephone, printer, and radio. According to the opinions of the academicians, although the computer is an equipment that should definitely be in the principal's office, printer, scanner, projector and telephone are among the equipment that should be. It is thought that the use of computers, in which most operations are carried out, is very important for school principals to reveal and develop their technological competencies.

The last theme is databases. According to the findings under this theme, school principals record information about the school, information about students and information about parents. Academicians also expressed their opinions and said that demographic information, progress reports, special situations of students and work carried out at school should be kept. It is very important because of the convenience it provides when it comes to keeping the information in digital

environment and its long-lasting storage feature. It is very important to have databases for the school, as the school principal develops new methods by using the information from the past period and provides preliminary information to the teachers by taking the stored information while the students are passing to a higher institution.

As a result, in this study, it has been revealed that the technological competencies of school principals working in pre-school institutions can be examined under the titles of development, safe use, communication and promotion, creating a common vision, required features, technical equipment and databases. When the experiences of the school principals are examined, it is seen that they generally agree with the opinions of the academicians stating what should be. On the other hand, while school principals prefer communication over WhatsApp, academics stated that communication via e-mail should be preferred more because it is more formal.

In this study, criterion sampling was used. In this context, school principals and academicians were interviewed. Generalizable results can be achieved with a quantitative study in which a larger group is considered as the study group. In addition, mixed-method studies can be planned to address the views of school principals and academicians separately and in depth. Similar studies can also be carried out on technical competencies, humanistic competencies and conceptual competencies, which are other managerial competencies.

In the research, the experiences of the school principals working in pre-school institutions and the theoretical knowledge of the academicians working in the pre-school teaching department come to the fore. School principals and academicians working in the pre-school teaching department should cooperate with each other. School principals can improve their managerial competencies by supporting their experiences in the field with the opinions of academicians. Academicians working in the pre-school teaching department can also have an idea about the experiences of school principals and organize their curricula according to the needs in the field. School principals can set an example for teachers working in their schools by participating in in-service trainings in order to increase their technological competencies.

References

- Açıklan, A. (2016). *School management with its social, institutional and technical aspects*. Ankara: Pegem Academy.
- Ağaoğlu, E., Altinkurt, Y., Yılmaz, Y., & Karaköse, K. (2012). Opinions of school administrators and teachers about the competencies of school administrators (Kütahya). *Education and Science*, 37(164), 161-175.
- Analoui, F. (1999). Eight parameters of managerial effectiveness: A study of senior managers in Ghana. *Journal of Management Development*, 362-389.
- Arastaman, G., Fidan, İ. Ö., & Fidan, T. (2018). Validity and reliability in qualitative research: A theoretical review. *Centennial University Journal of the Faculty of Education*, 15(1), 37-75.
- Arslan, H. (2016). Management of the school business. Ed. (R. Sarpkaya). *In Turkish Education System and School Management* (pp.352-375). Ankara: Anı Publications.
- Attaran, M., & VanLaar, I. (2001). Managing the use of school technology: an eight-step guide for administrators. *Journal of management development*, 20(5), 393-401.
- Banoğlu, K. (2011). Technology leadership competencies of school principals and technology coordinatorship. *Educational Sciences in Theory and Practice*, 11(1), 199-213.
- Barnett, W. S. (1992). Benefits of compensatory preschool education. *Journal of Human resources*, 279-312.
- Barnett, W. S. (2008). *Preschool education and its lasting effects: Research and policy implications*. Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit.
- Baycan, Ş. (2018). *The relationship between the technological competencies of school administrators and their communication skills according to teachers' opinions* [Unpublished master's thesis]. Istanbul Sabahattin Zaim University, Institute of Social Sciences, Department of Educational Sciences: İstanbul.
- Benben, J. S. (1962). The effective educational administrator. *The Journal of Educational Sociology*, 36(3), 139-142.



- Byrom, E. & Bingham, M. (2001). *Factors influencing the effective use of technology for teaching and learning*. Lessons learned from the SEIR-TEC intensive site schools.
- Collins, J. C. & Porras, J. I. (1996). Building your company's vision. *Harvard business review*, 74(5), 65.
- Creswell, J. W. (2021). *Qualitative research methods: Qualitative research according to five approaches and research pattern*. (Trans. Ed. M. Bütün & S. B. Demir). Ankara: Siyasal Bookstore
- Çalık, T., Çoban, Ö., & Özdemir, N. (2019). Examining the relationship between school administrators' technological leadership self-efficacy and personality traits. *Journal of Ankara University Faculty of Educational Sciences*, 52(1), 83-106.
- Dağ, F. (2016). An examination of professional development studies for the development of teachers' technological competencies in Turkey in the context of lifelong learning. *International Journal of Human Sciences*, 13(1), 90-111.
- Demiraçan, A. (2019). *Examining the relationship between school administrators' technology leadership strategies and innovation management efficacy beliefs* [Unpublished master's thesis]. Trakya University, Institute of Social Sciences: Edirne.
- Drucker, P. F. (1964). The effective administrator. *The bulletin of the National Association of Secondary School Principals*, 48(291), 157-166.
- Elo, S. & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of advanced nursing*, 62(1), 107-115.
- Görgülü, D., Küçükali, R. & Ada, Ş. (2013). Technological leadership self-efficacy of school administrators. *Educational Technology Theory and Practice*, 3(2), 53-71.
- İncel, C. (2021). *Perceptions of school administrators on technology use proficiency* [Unpublished master's project without thesis]. Pamukkale University Institute of Educational Sciences: Denizli.
- İşman, A. (2002). The competencies of teachers in Sakarya province in the direction of educational technologies. *Journal of Sakarya University Faculty of Education*, (3), 9-40
- Kara, S. (2011). *Determination of information and communication technology competencies of teachers working in primary schools, Istanbul example* [Unpublished doctoral dissertation]. Bahçeşehir University Institute of Science and Technology: İstanbul.
- Karakuş, M., & Töremen, F. (2006). Managerial competencies from the supervisor's perspective: A research on primary school administrators. *Journal of Atatürk University Kazım Karabekir Faculty of Education*, (13), 175-189.
- Karataş, A., & Akgün, Ö. E. (2018). Examining the technological pedagogical content knowledge competencies of high school teachers to implement the FATİH Project. *Journal of Civilization Educational Research*, 1(4), 10-30.
- Katz, R. L. (1974). *Skills of an effective administrator*. U.S.A: Harvard Business School Publishing Corporations.
- Kesim, (2020). Technology leadership. Ed. K. Yılmaz (in) *Leadership: theory-research-practice* (pp. 741-758). Ankara: Pegem Academy
- Larkin, E. (1999). The transition from direct caregiver to administrator in early childhood education. *Child and Youth Care Forum*, 28(1), 21-32. Kluwer Academic Publishers-Plenum Publishers.
- Lincoln, Y. S. & Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New directions for program evaluation*, (30), 73-84.
- Mackinnon, J. (1984). Futuring, the new managerial skill. *Canadian Manager*, Vol. 9 No. 1, pp. 9-10.
- Marshall, C. & Rossman, G. B. (2014). *Designing qualitative research (6th Ed.)*. New York: Sage.
- Meador, D. (2017). What makes a school administrator an effective school leader? Retrieved from <https://www.thoughtco.com>
- Menzi, N., Çalışkan, E. & Çetin, O. (2012). Technology of teacher candidates examining their competencies in terms of various variables. *Anadolu Journal of Educational Sciences International*, 2(1), 1-18.
- Merriam, S. B. (2013). *Qualitative research: A guide to design and application (Trans. S. Turan)*. Ankara: Nobel Publishing House.
- Metin, E. N., & Çalışandemir, F. (2006). A study on teachers' perceptions of administrators in pre-school education institutions. *Journal of Child Development and Education*, 3(1-2), 21-32.

- Miles, M. B., Huberman, A. M. & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd Ed.). Thousand Oaks: SAGE Publications.
- Mintzberg, H. (1973). *The nature of managerial work*. Prentice-Hall, Englewood Cliffs, NJ.
- Özyılmaz, Ö. (2021). *The problems of the Turkish national education system and the search for solutions*. Ankara: Pegem Academy.
- Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health services research*, 34(5 Pt 2), 1189.
- Peker, S., & Selçuk, Ö. G. (2011). The effect of school principals' competencies on the educational process. *Manisa Celal Bayar University Journal of Social Sciences*, 9(2), 472-480.
- Peterson, T. O. & Van Fleet, D. D. (2004). The ongoing legacy of RL Katz: An updated typology of management skills. *Management decision*, 1297-1308.
- Prasad, B. D. (2008). Content analysis. *Research methods for social work*, (5), 1-20.
- Sayan H. (2016). The Use of technology in preschool education. *Journal of Education and Society in the 21st Century, Educational Sciences and Social Research*, 5(13), 67-83
- Senge, P.M. (1990). *The fifth discipline: The art and practice of the learning organization*. Doubleday/Currency, New York, NY.
- Sevinç, N. (2017). *The effect of school administrators' managerial experiences on their competencies and intellectual leadership* [Unpublished doctoral dissertation]. Çanakkale Onsekiz Mart University, Çanakkale.
- Sezer B., & Deryakulu, D. (2012). Competencies of primary school administrators regarding technology leadership roles. *Educational Technology Theory and Practice*, 2(2), 74-92.
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, 22(2), 63-75.
- Sincar, M., & Aslan, B. (2011). Teachers' views on technology leadership roles of primary school administrators. *Gaziantep University-Journal of Social Sciences*, 10(1), 571-595.
- Stumpf, S. A. & London, M. (1981). Management promotions: Individual and organizational factors influencing the decision process. *Academy of Management Review*, 6(4), 539-549.
- Töremen, F & Kolay Y. (2003). Competencies that primary school administrators should have. *Journal of National Education*, 160.
- Turan, S. (2002). The role of the education administrator in the effective use of technology in school management. *Educational Management in Theory and Practice*, 30(30), 271-281.
- Weber, M. J. (2006). *A study of computer technology use and technology leadership of Texas elementary public-school principals*. University of North Texas.
- Yıldırım, A. & Şimşek, H. (2013). *Qualitative research methods in the social sciences (9th Ed)*. Ankara: Seçkin Publishing.
- Yılmaz, K. (2021). *21st century skills of school principals according to teachers' opinions* [Unpublished master's thesis]. Aydın Adnan Menderes University Institute of Social Sciences, Aydın
- Yukl, G. (2009). *Leadership in organizations, (7th Ed)*. Pearson Prentice-Hall, Upper Saddle River, NJ.