

Bilişim Teknolojileri Öğretmenlerinin Perspektifinden Okullarda İnovasyon: Okul Müdürlerine İlişkin Bir İnceleme¹

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Öz

Bu çalışmanın temel amacı, bilişim teknolojileri öğretmenlerinin görüşleri doğrultusunda okul yöneticilerinin inovasyon kavramına ilişkin algılarını incelemektir. Araştırmanın çalışma grubunun belirlenmesinde amaçlı örnekleme yöntemlerinden ölçüt örnekleme tekniği kullanılmıştır. Çalışma grubunu, Artvin İl Millî Eğitim Müdürlüğüne bağlı okullarda görev yapan yirmi iki bilişim teknolojileri öğretmeni oluşturmaktadır. Araştırma, nitel araştırma yaklaşımı kapsamında betimsel fenomenoloji deseni temel alınarak yürütülmüştür. Veriler görüşme tekniği aracılığıyla toplanmış; araştırmacı tarafından geliştirilen “Okul Yöneticilerinin İnovasyon Yeterlilikleri” başlıklı yarı yapılandırılmış görüşme formu kullanılarak yirmi iki bilişim teknolojileri öğretmeni ile görüşmeler gerçekleştirilmiştir. Araştırmanın sonuçlarına göre katılımcılar inovasyonu; değişim, geliştirme süreci, çağın gerekliliklerine uyum sağlama ve daha verimli öğrenme ortamları oluşturma olarak tanımlamaktadır. İnovasyonun temel amacının, teknoloji kullanımı ve entegrasyonu yoluyla eğitim kalitesini artırmak ve yenilikçi öğrenme ortamları oluşturmak olduğu belirtilmiştir. Ayrıca, okul yöneticilerinin inovasyonun gelişimine katkı sağlama sürecinde inovasyonu destekledikleri ve inovasyon kültürü oluşturmaya çalıştıkları; ancak bazı yöneticilerin geleneksel yönetim anlayışını sürdürdüğü, bazılarında ise bütçe ve kaynak yetersizliği nedeniyle okullarda inovatif anlayışın yeterince baskın olmadığı vurgulanmıştır. Bu doğrultuda, okul yöneticilerinin okullarında inovasyonu uygulayabilmeleri için yeterli düzeyde bütçe sağlanması ve inovatif bir okul kültürünün oluşturulabilmesi için kararların tüm paydaşlarla birlikte alınması önerilmektedir.

Anahtar kelimeler: İnovasyon, Okul yöneticileri, Bilişim teknolojileri öğretmeni

Innovation in Schools from the Perspective of Information and Communication Technology Teachers: A Study on School Principals

Abstract

The main objective of this study is to examine the perceptions of school administrators regarding the concept of innovation, based on the opinions of information and communication technology. The criterion sampling technique, a type of purposeful sampling, was used to determine the study group. The study group consisted of twenty-two information and communication technology teachers working in schools affiliated with the Artvin Provincial Directorate of National Education. The research was conducted using a qualitative research approach based on the phenomenological design. Data were collected through interviews; interviews were conducted with twenty-two information and communication technology teachers using a semi-structured interview form titled "Innovation Competencies of School Administrators," developed by the researcher. According to the results of the research, innovation is defined as change, a development process, adaptation to the requirements of the age, and more efficient learning environments. The study emphasizes that the main purpose of innovation is to improve the quality of education through the use and integration of technology and to create innovative learning environments. While some school administrators support innovation and foster an innovation culture, others maintain a more traditional management approach. In addition, limited budgets and resources in some schools hinder the development of an innovative mindset. It can be suggested that school administrators should be provided with sufficient budgets to implement innovation in their schools, and that decision-making should be done jointly with all stakeholders to create an innovative school culture.

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Introduction

In today's information age, rapid technological change and innovation are reshaping how people learn and behave (Yılmaz & Beşkaya, 2018). Therefore, technology has a significant impact on human learning and behaviour today. The rapid increase in the quantity and variety of information and communication technologies (ICT) and their integration into daily life further enhances their importance (Safa & Arabacıoğlu, 2021; Şad & Nalçacı, 2015).

Technological advancements are transforming all aspects of social life (Akgün, 2019; Alaca & Yılmaz, 2016; Cüre & Özdener, 2008; Temiz, 2023). Among these, the education system stands out as especially impacted (Cüre & Özdener, 2008; Göktaş et al., 2008). Consequently, the restructuring process in education is centred on the growing importance and value of innovation (Taş, 2017).

The word innovation originates from the Latin word *innovatus* (Yılmaz Öztürk & Summak, 2014), and the term has also been adopted into Turkish from English. In the Webster Dictionary, innovation is defined as "a new and different output." Likewise, the Oslo Manual, published by the OECD, defines innovation as a new or improved product, process, or a combination of both that differs significantly from previous versions and is offered to potential users (OECD, 2018). While innovation is often described in Turkish using the concepts of novelty or renewal, it encompasses a broader, more multifaceted meaning than these terms (Haydaroğlu & Temiz, 2025). Especially in the 21st century, innovation is frequently discussed within a framework of novelty, change, and regeneration (Sağlam, 2018). Furthermore, examining the definitions of innovation reveals that it is not merely an activity limited to the rare implementation of great ideas that arise by chance; rather, it is a holistic process built on conscious, planned, and systematic steps, managed with a strategic approach (Şahin et al., 2015). This strategic innovation approach is indispensable for any field aiming to adapt to changing conditions and continue developing (Zerenler et al., 2007). Accordingly, the development of education systems also requires a planned, strategic approach to innovation (Özdemir, 2000).

Innovation in education refers to approaches that enhance teaching methods, curricula, and learning processes (Çiftçi et al., 2024). There is a reciprocal and dynamic relationship between education and innovation (Şahin et al., 2015). Through education, students, employees, and individuals can develop innovative thinking skills and positive attitudes towards innovation, while innovation can lead to more effective teaching methods, technological applications, and pedagogical approaches (Yılmaz Öztürk & Summak, 2014). It is clear that, instead of uniform, routine practices in structuring the educational process, innovation-based teaching practices need to be planned and implemented (Dursun, 2015). Learning environments have also gained importance in these education systems (Özel, 2013). In increasingly important educational settings, many tools based on technological innovations are used effectively (Pekdağ, 2005). These learning environments are being reshaped by the continuous evolution of technology (Özel, 2013). Developing innovative thinking skills in education requires possessing critical thinking competence, understanding innovative methods, techniques and strategies, and mastering different perspectives (Şanlı & Demirkaya, 2021). In other words, innovation in education means creating a higher-quality learning environment, raising individuals who can adapt to current developments and possess creative thinking skills, and at the same time making the educational process more effective and goal-oriented (Serdyukov, 2017). In this context, steps to restructure education systems in an innovative way must be planned with an inclusive, participatory approach that involves all stakeholders in the process (Karip, 1997; Özdemir, 2000). Teachers, who are among the most important stakeholders in educational innovation, are the key actors responsible for implementing these innovations at the classroom level (Bocconi et al., 2012). However, when examining the planning and implementation of educational changes, it is evident that teachers are not adequately involved (Boydak & Karabatak, 2013).

Purpose and Significance of the Research

Research indicates that teachers are key implementers in the education system. However, they have limited involvement in planning changes and are not informed about these changes in a timely manner (İncebacak et al. 2018). The aim of innovation, like the fundamental goals of education, is to cultivate individuals who can keep up with current developments. Such individuals should think originally and freely, value continuous improvement, communicate effectively, possess self-confidence, and have a high sense of responsibility. They should also be adept at teamwork, unafraid to make mistakes, willing to take risks, and able to act in harmony with their environment. A high level of awareness is important as well (Dursun, 2015). Achieving this goal depends on building a culture of innovation in schools and ensuring active participation from all stakeholders (Pietsch et al., 2024). School principals play a key role in this process. They hold managerial positions in educational institutions and are responsible for implementing top-down policies and responding to bottom-up needs. For this reason, it is important to determine school principals' views, perceptions, and expectations regarding innovation in education. Understanding these can help spread a culture of innovation in the education system. There are many studies in the literature on school and educational innovation (Bellibaş et al., 2026; Çelik & Baturay, 2024; Gonzales et al., 2024; Haydaroğlu & Temiz, 2025; Serdyukov, 2017; Yenice & Yavaşoğlu, 2018). Abbak and Erdamar (2024) studied the relationship between teachers' levels of innovation and their perceptions of innovative schools. Cakir (2021) examined school principals' innovation competencies and schools' innovation levels. Riveras-León et al. (2020) studied the relationships among school culture, school principals' innovation competencies, and leadership and innovation management competencies. Most studies in this field use a quantitative research approach. Titrek (2015) conducted a study examining the innovation management levels of school principals in Türkiye based on teacher opinions. However, there is a gap in the literature regarding qualitative studies of school principals' innovation competencies from the perspective of information and communication technology (ICT) teachers. This study aims to fill that gap by examining the innovation competencies of school principals in Türkiye from the perspective of ICT teachers. To this end, the following questions were addressed:

- What are ICT teachers' views on innovation?
- How do ICT teachers view administrators' approaches to innovation?
- What support do school administrators give teachers for innovation?
- What support do ICT teachers expect from principals for innovation?
- What are principals' ideal roles in fostering innovation, according to ICT teachers?

Method

Research Design

This study employed a transcendental phenomenological design within the qualitative research paradigm. Phenomenological inquiry centres not on the phenomenon itself, but on individuals' subjective lived experiences and their unique perceptions of self and the external world. Its core aim is to uncover and interpret the personal meanings embedded in those experiences (Yıldırım & Şimşek, 2021). Drawing on Moustakas (1994), this study employed a transcendental phenomenological approach, which emphasises describing participants lived experiences as they are perceived, while systematically setting aside the researcher's preconceptions and theoretical assumptions to focus on the essential structures of the phenomenon. Accordingly, the study explored ICT teachers' conceptualisations of innovation and their perceptions of school principals' roles in supporting it, prioritising rich, descriptive accounts to distil the essence of innovation from teachers' viewpoints.

Participants/Study Group

The sample included 22 ICT teachers, selected using criteria-based sampling from all schools under the Artvin Provincial Directorate of National Education in the 2023-2024 academic year. Participants had worked at the same school and with the same principal for at least 2 years. Teachers in primary schools

were excluded because information technology courses are taught only at the high school and middle school levels.

Table 1

Working group demographic information

S.N.	Gender	School Level	Branch
1	Female	Middle school	Subject Teacher
2	Male	High school	Technical Teacher
3	Female	High school	Technical Teacher
4	Female	High school	Technical Teacher
5	Female	Middle school	Technical Teacher
6	Male	High school	Technical Teacher
7	Female	Middle school	Subject Teacher
8	Male	High school	Technical Teacher
9	Female	Middle school	Subject Teacher
10	Male	High school	Technical Teacher
11	Male	Middle school	Subject Teacher
12	Male	High school	Technical Teacher
13	Female	Middle school	Subject Teacher
14	Male	High school	Subject Teacher
15	Female	Lifelong learning centres	Subject Teacher
16	Male	High school	Subject Teacher
17	Male	Lifelong learning centres	Subject Teacher
18	Male	High school	Subject Teacher
19	Female	Middle school	Subject Teacher
20	Female	Public Education	Subject Teacher
21	Male	Public Education	Subject Teacher
22	Male	Public Education	Subject Teacher

Data Collection Tools and Processes

The researchers' semi-structured interview form was used as a data collection tool in the study. The form was first developed through a comprehensive literature review, and its final form was determined based on the findings and expert opinions. During this process, appropriate open-ended questions were prepared, drawing on relevant literature, to support the validity and reliability of the measurement instrument. The study titled "Innovation Competencies of School Administrators According to the Views of Information Technology Teachers" adhered to scientific, ethical, and citation rules during its writing process; no falsification was made to the collected data, and ethical approval was obtained from the Yozgat Bozok University Ethics Committee on October 18, 2023, with approval number 07/41, prior to data collection.

Data Analysis

Descriptive and content analysis techniques were used to analyse the data. In this context, audio recordings were first digitised and transcribed. Then, the resulting qualitative data were analysed using questions from a semi-structured interview form prepared by the researchers, and main themes were established within this framework. Codes were created from interview data for content analysis. Subsequently, categories were created from these codes within the data examined using the content analysis method.

Rigor-Credibility

Credibility refers to the extent to which study findings accurately reflect the subjective and intersubjective worlds of the participants (Arslan, 2022; Gunbayi, 2024). To meet the credibility criterion, semi-structured interviews were conducted with 22 teachers. Interviews with participants who permitted audio recording were recorded and subsequently transcribed into written reports, which were shared with the relevant teachers for member checking. Requests for additions or deletions to the reports were investigated, and the necessary adjustments were made to ensure the data reflected participants' actual perspectives. Participants' opinions are presented in the findings section as direct quotations to

support referential adequacy. During the preparation of the interview form, a conceptual framework was developed through a review of the relevant literature. Feedback was obtained via email from six subject matter experts at different universities; five responded. Based on expert evaluations, four questions were revised, one new question was added, and two questions remained unchanged. Subsequently, the questions were reviewed by two IT teachers and one Turkish language and literature teacher to assess clarity; evaluations confirmed that the questions were understandable. This process reflects peer debriefing aimed at ensuring the integrity of the data collection instrument. Regarding ethical considerations, all participants were informed of the research's purpose prior to data collection. Interviews were conducted only with participants who voluntarily agreed to take part. Those who permitted audio recording signed a consent form confirming that the recorded data would be used solely for scientific purposes and kept confidential. The opinions of teachers who did not grant permission to record were documented in written notes by the researcher. This mutual trust, established through informed consent, ensured that the collected data reflected the real situation, thereby strengthening the study's credibility.

Transferability

Transferability refers to the degree to which study findings can be applied across contexts through a systematic and detailed description of the research process (Arslan, 2022; Gunbayi, 2024). In qualitative research, the sample selection process, participant characteristics, and research environment should be clearly and explicitly stated to ensure transferability (Başkale, 2016). Accordingly, the sample was determined using the purposive sampling method based on voluntarism, which allows for the in-depth exploration of events and phenomena and their varying characteristics. Detailed information regarding participant characteristics is presented in Table 1. Of the 22 interviewees, 10 are women, and 12 are men; 7 work in middle schools, 10 in high schools, and 5 in lifelong education centres.

Dependability

Dependability refers to the consistency of the research process and the extent to which findings can be replicated under similar conditions (Arslan, 2022; Gunbayi, 2024; Gürdil, 2025). To increase dependability, all findings are presented at the descriptive level through direct quotations from interview transcripts, without interpretive commentary, to ensure the data are presented verbatim. The date, time, and participant information were recorded at the beginning of each recording to maintain a systematic, auditable research trail. Furthermore, inter-coder consistency was ensured during the analysis process: the data were coded separately by the researcher and an independent researcher experienced in qualitative analysis, and the results were compared to confirm agreement.

Confirmability

Confirmability refers to the degree to which the study findings are grounded in participants' perspectives rather than shaped by the researcher's personal biases or assumptions (Gunbayi, 2024; Gürdil et al., 2025). To enhance confirmability, all data collection tools, raw data, codes generated during analysis, and the researcher's notes and inferences were made available for external audit upon request, ensuring that the findings can be traced back to the original data. Interviews were conducted with participants' audio recording consent, where applicable, and written documentation was kept for those who declined recording, so that all data sources remained accessible and verifiable.

Findings

This section of the research presents the findings related to determining the views of ICT teachers on school administrators' views on innovation.

1. Findings regarding ICT teachers' views on innovation.

The first research question of the study aimed to determine the opinions of ICT teachers about innovation. In this context, the teachers' answers were analysed, and the results are presented in Table 1.

Table 1

ICT Teachers' Perceptions of School Principals' Approach to Innovation.

Theme	Category	Codes	Frequency
Views on the concept of innovation	Definition of Innovation	Defining it as a process of change and development	8
		Viewing it as a tool for improvement and development	6
		Adapting to the requirements of the age	6
	The definition of innovation in education	Creating a more efficient learning environment	10
		Developing new teaching methods	6
		Integration of technology	3
	Definition of innovation related to real life.	Individual and social development	8
		Bringing creative ideas to life.	3
		Making daily life easier	1

In response to the question "(Q1): What does the concept of innovation mean to you?" posed to the teachers, three categories emerged from their views: Definition of Innovation, Definition of Innovation in Education, and Definition of Innovation in Real Life. Under the Definition of Innovation category, the following codes were created: defining it as a process of change and development (f: 8), viewing it as a tool for improvement and development (f: 6), and adapting to the requirements of the age (f: 6). Under the Definition of Innovation in Education category, the following codes were created: creating a more efficient learning environment (f: 10), developing new teaching methods (f: 6), and integrating technology (f: 3). Under the Definition of Innovation in Real Life category, the following codes were created: individual and social development (f: 8), bringing creative ideas to life (f: 3), and providing convenience in daily life (f: 1). The IT teachers interviewed expressed the following regarding the question "What does the concept of innovation mean to you?":

Teacher-3: "For me, innovation means solving a problem in a creative way that is different from methods applied before. In other words, it means setting aside past methods and seeking more effective and efficient alternatives. In education, for me, innovation means using new methods, tools, and technologies to make lessons more engaging, understandable, and productive. For example, when we have difficulty engaging students while conveying a traditional topic, a new teaching technique or technological tool can make the lesson more enjoyable and effective, making a big difference. Furthermore, innovation is not limited to technology; sometimes changing a classroom management technique, approaching a topic from a different angle, or designing a new activity to increase student participation can also be considered part of innovation. What is important for me is to constantly question the current situation and always think, 'How can we do it better?' This is crucial for both improving students' learning experiences and our own professional development as teachers. Innovation is about constantly seeking novelty and improvement in education, and I believe this approach will create a more meaningful learning environment for both students and teachers."

Teacher-10: "For me, the concept of innovation is about making the existing process more effective. This means improving the methods currently in use to make them more effective and introducing appropriate innovations as needs change. In other words, in education, it means re-evaluating old methods and continuously refining and improving them to achieve better results. This process contributes to providing our students with a better learning experience."

Teacher-11: "For me, innovation is the process of creating and implementing new, original, and creative ideas, products, or processes."

2. ICT teachers' findings on school administrators' views on innovation.

The second objective of the research was to examine the approach of school administrators to innovation according to the opinions of ICT teachers. The teachers' answers to the questions were analysed and the results are shown in Table 2.

Table 2

ICT Teachers' Perceptions of School Principals' Views on Innovation

Theme	Category	Codes	Frequency
Innovation in School Management	Managerial Approaches to the Goals of Innovation	Use and integration of technology	10
		Adapting to the times	9
		Improving the quality and efficiency of education	9
		Creating innovative teaching methods	6
		Supporting the professional development of teachers	6
		Creating student-centered learning environments	5
		Improving school and student success	5
		Equipping students with 21st-century skills	4
		Increasing teacher and student motivation	2
		Critique of the traditional approach	1
	Managerial Attitudes Toward Innovation	Management that supports innovation.	13
		A willing and positive attitude towards innovation	11
		Future-oriented and innovative approaches	5
		Support for technology and digitalization	4
		Adherence to the traditional approach	3
		Inadequacies and shortcomings in implementation	3
	Perceived Knowledge and Competence of School Principals in Innovation	Abstention due to limited resources	3
		Innovative and development-oriented management	14
		The need for holistic development and cooperation	8
		Efforts to improve school performance	5
		Lack of knowledge regarding innovation	4
		Traditional management approach	3
		Management indifferent to innovation	3
		Lack of resources and support	2
		Work that is highly expected of teachers	1

To examine ICT teachers' perceptions of school principals' approaches to innovation, the findings were organised into three categories: managerial approaches to innovation goals, principals' attitudes toward innovation, and principals' knowledge and competence regarding innovation. Within the category of managerial approaches to the goals of innovation, the following codes were identified: use and integration of technology (f = 10), adapting to the requirements of the age (f = 9), improving the quality and efficiency of education (f = 9), creating innovative teaching methods (f = 6), supporting teachers' professional development (f = 6), creating student-centred learning environments (f = 5), equipping students with 21st-century skills (f = 4), improving school and student success (f = 4), increasing teacher and student motivation (f = 2), and criticism of traditional approaches (f = 1). Within the category of principals' attitudes toward innovation, the following codes were identified: support for innovation (f = 13), a positive and willing attitude toward innovation (f = 11), future-oriented and innovative approaches (f = 5), support for technology and digitalization (f = 4), adherence to traditional approaches (f = 3), inadequacies in implementation (f = 3), and hesitancy due to limited resources (f = 3). Within the category of principals' knowledge and competence regarding innovation, the following codes were identified: innovative and development-oriented management (f = 14), the need for holistic development and collaboration (f = 8), efforts to improve school performance (f = 5), lack of knowledge about innovation (f = 4), a traditional management approach (f = 3), management indifferent to innovation (f = 3), lack of resources and support (f = 2), and excessive expectations placed on teachers (f = 1). Direct quotations from participants are included to support these findings.

Teacher-1: "I believe that the relevant aim of school administrators regarding innovation should be to improve the quality of education and create student-centred learning environments. This aim is a critical step toward helping students have a more creative and effective learning experience. Furthermore, encouraging and supporting our teachers' professional development is a primary goal of school administration. By offering continuous training and development

opportunities, they equip us teachers with innovative teaching methods. Using technology and innovative teaching methods to make educational processes more effective is a strong approach to both increasing student success and improving our school's overall performance. Technology makes a significant difference in education; it makes teaching processes more efficient and allows students to learn in a more active and interactive way. Such efforts both make our jobs as teachers easier and enrich students' learning experiences. Students learning in a more engaging and motivating environment directly affects their academic success. In conclusion, these kinds of innovative methods of school administration greatly contribute to improving the quality of education and raising the overall success of our school."

Teacher-5: "In my opinion, the primary goal of a school administrator regarding innovation in the school is to adapt to the evolving and changing times and to continuously update the educational process accordingly. I believe this process should be shaped by the needs of both students and teachers. The innovations should be integrated into the school's overall structure so that everyone can adapt to them. I think the administration should help students, teachers, and the school adapt to evolving conditions by embracing technology and innovative teaching methods. In this way, the aim is to increase the quality of education and to make the school suitable for a contemporary understanding of education."

3. Findings regarding school administrators' support for teachers in innovation.

The responses obtained from interviews conducted to examine the support school administrators provide to ICT teachers regarding innovation, in line with the third objective of the research, are analysed and presented in Table 3.

Table 3

ICT teachers' Support for School Administrators on Innovation

Theme	Category	Codes	Frequency
Contributions of School Administration to the Development of Innovation	Supporting innovation	Encouraging innovative and creative projects.	11
		Creating a culture of innovation and a collaborative environment	10
		Technology and digitalization support	8
		Supporting the professional development of teachers	7
		Creating innovative learning environments	5
	Stifling innovation	Reporting innovation ideas to the higher authority	1
		The dominance of traditional management approaches	4
		Innovation remains limited due to lack of budget and resources	3
		Innovation being procedural and superficial	1
		Having insufficient knowledge and understanding	1
		Lack of support for innovation	1

According to ICT teachers' opinions, the contributions of school administration to innovation development have been categorised into two groups: supporting and hindering innovation. Under the "supporting innovation" category, the following codes were created: encouraging innovative and creative projects (f: 11), creating an innovation culture and collaborative environment (f: 10), supporting technology and digitalization (f: 8), supporting teachers' professional development (f: 7), creating innovative learning environments (f: 5), and reporting innovation ideas to higher authorities (f: 1). Under the "hindering innovation" category, the following codes were created: the dominance of traditional management approaches (f: 4), limited innovation due to budget and resource deficiencies (f: 3), innovation being procedural and superficial (f: 1), insufficient knowledge and thinking (f: 1), and lack of support for innovation (f: 1). Direct quotations from the responses given within this scope are as follows.

Teacher-3: "Our school administrators provide teachers with the necessary environment to use technology more effectively in education. They continuously support this by organising training

sessions for both students and teachers to familiarise them with online platforms and technological tools. In addition, they are making improvements to provide the necessary infrastructure and resources at the school to create project-based, innovative learning environments. The contributions of our administrators in this regard can be considered an important step in enabling the development of innovation in the school.”

Teacher-10: “I do not find the contributions of our school administrators regarding the development of innovation to be sufficient. I think more support, effort, and resources should be devoted to implementing innovative ideas and encouraging innovation in education. The current contributions are generally aimed at maintaining the status quo, which hinders the development of innovation.”

Teacher-21: “The administrators at our school are making various contributions to the development of innovation in education. In particular, they aim to make the educational process more efficient by making innovations in the programs and teaching methods they use. These innovative approaches allow teachers to conduct their lessons in a more modern and effective way, while also helping students learn more effectively. Our administrators also strive to continuously improve the educational environment by supporting the use of educational materials and digital tools. These efforts are of great importance in increasing the quality of education at the school.”

4. Findings regarding the support expected from school administrators for innovation.

The data obtained from interviews conducted to examine the expected support of school administrators regarding innovation, according to the opinions of ICT teachers, in line with the fourth objective of the research, were analysed and are shown in Table 4.

Table 4
Support Expected from School Administrators

Theme	Category	Codes	Frequency
Support Expected from School Administrators	Leadership and guidance	Managers need to be open to innovation and provide leadership	12
		Encouraging innovative ideas	7
	Resource and infrastructure support	Procurement of technological equipment	11
		Financial and logistical support for innovative projects	2
	Professional development support	Increasing in-service training	7
		Training on innovative teaching methods.	4
		Time support and workload reduction for projects	2
	Communication and collaboration	Student-teacher-administrator collaboration	6
		Establishing cooperation among teachers	2

Based on teachers’ opinions, four categories of support for innovation were established: Leadership and guidance, resource and infrastructure, professional development, and communication and collaboration. Leadership and guidance codes were open, leadership and encouragement for innovation (f: 12, 7). Resource and infrastructure codes addressed providing technological tools and equipment (f: 11) and financial or logistical project support (f: 2). Professional development codes focused on increasing in-service training, innovative teaching methods, and providing time or reduced workload for projects (f:

7, 4, 2). Communication and collaboration codes included collaboration between students, teachers, and administrators (f: 6) and among teachers (f: 2). Sample interview answers are as follows:

Teacher-9: “We especially expect more help in diversifying the use of materials and teaching methods. This is crucial for making educational processes more effective. Also, as an ICT teacher, having a laboratory and coding workshop at the school is of great importance. Such spaces increase students' interest in technology and offer them opportunities to practice. The active role of administrators in implementing such projects provides us with significant support. In this way, both teachers and students can learn in a more efficient and modern educational environment.”

Teacher-18: “We request more help from our administrators in making use of technology. Thanks to the services provided, our lessons become more effective. This helps students benefit more from the lessons. Ultimately, student achievement also increases as a result of this support. The continued support of our administrators in this regard is extremely important for improving the quality of education and maximising student development.”

5. Findings on Ideal Managerial Roles from an Innovation Perspective

The data obtained from interviews conducted to examine the ideal managerial roles of school administrators in terms of innovation, according to the opinions of ICT teachers, in line with the fifth objective of the research, were analysed and are shown in Table 5.

Table 5
Ideal Managerial Roles from an Innovation Perspective

Theme	Category	Codes	Frequency
Ideal Managerial Roles from an Innovation Perspective	Innovative management approach	Being open to and encouraging innovation and change	16
		Creating an effective learning process	9
		Improving educational processes and incorporating technology	6
		Creating an environment and culture of innovation	4
		Improving the quality of education	3
	Establishing communication and cooperation	Motivation and encouragement	9
		Cooperation and participation	9
		Open and effective communication	7
	Leadership	Supportive leadership	9
		Visionary leadership	5
		Strategic leadership	2

According to teachers' opinions, three categories were identified under the theme of Ideal Managerial Roles in Terms of Innovation: Innovative Management Approach, Communication and Collaboration, and Leadership. Within the Innovative Management Approach category, the following codes were identified: openness to and encouragement of innovation and change (f = 16), creating an efficient learning process (f = 9), improving educational processes and integrating technology (f = 6), fostering an innovation environment and culture (f = 4), and enhancing the quality of education (f = 3). Within the Communication and Collaboration category, the identified codes included motivation and

encouragement (f = 9), collaboration and participation (f = 9), and open and effective communication (f = 7). Within the Leadership category, the identified codes were being supportive (f = 9), being visionary (f = 5), and being strategic (f = 2). Selected participant quotations are presented below:

Teacher-8: “First, school principals should have a clear vision that focuses on improving the success of teachers, students, staff, and the institution as a whole. Rather than making rigid and definitive decisions, they should establish a structure that enables flexible and adaptive decision-making. School principals should recognize that success is not solely the responsibility of management, but rather a collective effort. They should be open to new ideas and avoid using accusatory language in cases of failure; instead, they should focus on identifying and solving problems. It is also important that school principals establish effective communication with teachers, students, and staff within the institution.”

Teacher-11: “In my opinion, the field of education needs leaders who can foresee the future, collaborate, and encourage innovation. I also believe that the number of managers who are open to change, responsive, and possess leadership qualities should be increased. Such managers can inspire both teachers and students, create an innovative educational environment, and move the school forward.”

Teacher-16: “In my opinion, the most suitable managerial roles in terms of innovation in education should be those that are not limited to classical approaches, but that consider creative thinking and ideas, and possess the ability to implement these ideas. Managers who exhibit a sincere and genuine attitude, free from pretence, gain the trust of both teachers and students. Using innovative methods and techniques significantly contributes to the school's development. Furthermore, avoiding mobbing and creating an environment where teachers and students can freely express their opinions is extremely important. A manager with these qualities should establish and continuously nurture an infrastructure that supports individual and collective development in the school. Such managers improve not only innovation but also the overall culture of the school.”

Results and Discussion

This study examines the innovation competencies of school administrators based on the perspectives of ICT teachers. The first research question focuses on ICT teachers' conceptualizations of innovation. Three categories were identified from the data: “definition of innovation,” “innovation in education,” and “innovation in relation to real life.” Within the category of innovation definition, the most frequently mentioned expression was the process of change and development. Similarly, Koçak (2023) reported that teachers conceptualized innovation as a process of transformation and development. Karolčík and Marková (2025) also defined innovation as an orientation toward practical skills and the application of digital technologies. In the category of innovation in education, the most frequently mentioned expression was the creation of efficient learning environments. Supporting this finding, Prestridge (2012) found that teachers perceive innovation in education as developing new teaching methods and adapting to the demands of the contemporary era. In the category of innovation in relation to real life, the most frequently mentioned expression was individual and social development. In addition, previous studies have defined innovation in terms of technology use, adaptation, and keeping up with current trends (Kocasaraç & Karataş, 2017), as well as productivity, profit, development, and differentiation (İncebacak et al., 2018).

The second research question concerns school administrators' approach to innovation, as perceived by ICT teachers. In this context, three categories were created: “school administrators' level of knowledge and approaches to innovation”, “school administrators' perspective on innovation”, and “the main objectives of school administration in innovation”. In the main objectives of school administration in innovation, the most frequently mentioned expressions were the use and integration of technology, adapting to the times, improving the quality and efficiency of education, developing innovative teaching methods, and supporting the professional development of teachers. Similarly, in the literature, Yazıcı-

Er and Erdoğan (2025) identified the approaches of school principals to innovation in the categories of innovative approaches, aesthetic studies, project production, and teaching application areas, findings consistent with those of the current research. In the category of school administrators' perspective on innovation, positive aspects included management that supports innovation, a willing and positive attitude towards innovations, future-oriented and innovative approaches, and support for technology and digitalisation, while negative aspects included adherence to traditional approaches, inadequacies and deficiencies in implementation, and hesitancy due to limited resources. In the category of school administrators' knowledge level and approaches to innovation, the most frequently repeated positive indicators were innovative and development-oriented management, holistic development, and the need for collaboration. Petersen (2014), in his research investigating the school principal's responsibility for innovation, states that they are responsible for developing the local curriculum and providing teaching materials and technical equipment.

The third question of the research focuses on determining the support school administrators provide for ICT innovation, as reported by their opinions. In this context, two categories were created: "supporting innovation" and "hindering innovation." In the category of supporting innovation, the following codes were identified: encouraging innovative and creative projects; creating an innovation culture and collaborative environment; supporting technology and digitalisation; supporting teachers' professional development; creating innovative learning environments; and reporting innovation ideas to higher authorities. In the category of hindering innovation, the findings included the dominance of traditional management approaches, limited innovation due to budget and resource deficiencies, procedural and superficial innovation, the presence of irrelevant information and ideas, and, to some extent, a lack of support for innovation. In this context, Boydak and Karabatak's (2013) findings in the existing literature, which identified employee mindsets or resistance to change, rigid bureaucratic rules, resource and financial deficiencies, and inadequate physical facilities, support this research's findings. Akpan's (2016) research findings indicate that insufficient training in innovation management among school administrators and teachers, inadequate funding, and employees' resistance to change hinder innovation. Similarly, Arabacı and Namlı (2016) found that the most important factors hindering innovation in schools are the lack of technological infrastructure, insufficient financial resources, and inadequate physical conditions. Kurtuluş (2012), on the other hand, lists the obstacles to innovation observed by teachers and requested to be removed as: inadequate curriculum, rigid bureaucratic practices, the administration's strict attitude and inability to take initiative, and lack of time for additional activities.

The fourth research question aims to determine the types of support that ICT teachers expect from school principals regarding innovation. In this context, four categories were identified: "leadership and guidance," "resource and infrastructure support," "professional development support," and "communication and collaboration." Within the leadership and guidance category, ICT teachers expect school principals to be open to innovation, take a leading role in innovation processes, and encourage innovative ideas. Within the resource and infrastructure support category, teachers expect principals to provide technological tools and equipment, as well as financial and logistical support for innovative projects. Within the professional development support category, teachers expect principals to support in-service training, offer training on innovative teaching methods, provide time for project work, and reduce workload. Within the communication and collaboration category, teachers expect support in fostering collaboration among students, teachers, and administrators. Similarly, Hayak et al. (2025) reported that teachers expect school principals to allocate sufficient resources, foster collaborative teams, reduce administrative workload, and alleviate the teaching burden of those engaged in projects. Petersen (2014) highlighted a form of collective leadership in which the principal collaborates with other educators, each contributing their expertise to the development of information technologies, thereby supporting the present findings. As Tondeur et al. (2008) noted, a principal's negative attitude toward technology can influence teachers' perspectives on its use, potentially reducing their willingness to integrate it into their practices.

The fifth research question aimed to determine the characteristics of an ideal manager within the context of innovation in education, as perceived by ICT teachers. In this regard, three categories were identified: "innovative management approach," "communication and collaboration," and "leadership." Within the

innovative management approach category, the identified codes included openness to and encouragement of innovation and change, creating efficient learning processes, improving educational practices and integrating technology, fostering an innovation-oriented environment and culture, and enhancing the quality of education. Supporting these findings, Kao-Ian (2025) reported that innovative leadership characteristics encompass management knowledge and skills, technological competence, personality traits, and awareness of global societal changes. Within the communication and collaboration category, the identified codes included motivation and encouragement, collaboration and participation, and open and effective communication. Serdyukov (2017) describes an interactive relationship model in which school leaders frequently engage with all staff members. This shared interaction can promote trust, distributed leadership, risk-taking, and a shared vision among stakeholders. Similarly, Hayak et al. (2025) emphasize that school principals should promote a culture that values innovation, risk-taking, and continuous improvement, while recognizing teachers' contributions to successful initiatives. In addition, school leaders are expected to explicitly encourage learning and effort toward innovation and to foster a collaborative culture and organizational structure (Göl & Bülbül, 2012; Tubin, 2009). Sánchez and Gutiérrez-Esteban (2023) further describe innovative leaders as facilitators who provide support and guidance, ensure access to resources, and effectively design and manage learning environments. Within the leadership category, the codes of being supportive, visionary, and strategic were identified based on teachers' statements. Constantinides (2025) characterizes innovative school leaders as facilitators, capacity builders, and boundary-spanning mediators between schools and local authorities. Overall, the findings suggest that an ideal leader for innovation supports teachers, fosters a culture of innovation and shared ownership, and acts as a key resource within the school.

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Etik Beyan: “Bilişim Teknolojileri Öğretmenlerinin Görüşleri Doğrultusunda Okul Yöneticilerin İnovasyon Yeterlilikleri” başlıklı çalışmanın yazım sürecinde bilimsel, etik ve alıntı kurallarına uyulmuş; toplanan veriler üzerinde herhangi bir tahrifat yapılmamıştır ve veriler toplanmadan önce Yozgat Bozok Üniversitesi Etik Kurulu’ndan 18.10.2023 tarih ve 07/41 sayılı etik izin alınmıştır. Karşılaşılabilecek tüm etik ihlallerde Çağdaş Yönetim Bilimleri Dergisi Yayın Kurulu’nun hiçbir sorumluluğunun olmadığını, tüm sorumluluğun Sorumlu Yazara ait olduğunu ve bu çalışmanın herhangi başka bir akademik yayın ortamına değerlendirme için gönderilmemiş olduğunu taahhüt ederim.