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Factors Affecting Innovative Work Behaviors of Teachers from the Perspective of Organizational Intelligence

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Abstract: This study aims at revealing the individual and organizational factors that affect teachers' innovative behaviors and examining and evaluating the results of organizational intelligence in these factors. The study group of the research included 20 teachers with different levels of education and different branches working in public schools affiliated with the Turkish Ministry of National Education (MoNE) in Ankara during the 2020-2021 school year. This study was designed in the basic qualitative research design, one of the qualitative research methods. The data collection tool was an open-ended questionnaire. Descriptive analysis and content analysis techniques were used to analyze the obtained data. In addition, direct quotations were included in this study to enable participant teachers to reveal their opinions more clearly. In line with the participants' opinions, it was determined that organizational intelligence produced results stimulating and strengthening individual and organizational factors that were effective in teachers' innovative practices. Therefore, it can be concluded that organizational intelligence with all its dimensions positively affects teachers' innovative work behaviors.

Keywords: Innovative work behavior, organizational intelligence, operational sub-dimensions of organizational intelligence, individual factors, organizational factors

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Introduction

In the information age, where sudden changes, contradictions, and dilemmas in social, cultural, and political fields have become a fact of life, education is heavily affected by globalization and digitalization's change and transformation waves. The reforms and transformations required for several education systems around the world to be ready to meet the demands of a globalized world are the main agenda of many national governments worldwide. Transformation in education means bringing new structures and ways of functioning to educational organizations to grow individuals who will find ways to access information in the face of an ever-growing, changing, and renewed mass of information with the advent of the Internet and the digital world; who will learn how to learn; who will analyze, synthesize and use knowledge to solve problems and turn them into useful products; and who will play an important role in creating the intelligent societies of the future.

What is expected from educational organizations today is the responsibility of noticing, following, pioneering, and implementing innovations to realize the transformation in education, that is, to provide innovation in education. Innovation, whose importance is frequently mentioned, brings a quality increase and success in education and is also developed and spread through education. It is important to bring the culture of innovation to societies through education to increase social welfare and gain advantages in local and international competition. This is only possible by training a high-quality labor force with innovative skills. Education and innovation have a characteristic that mutually affects each other. Therefore, shaping education systems in a structure that develops innovative thinking and innovation awareness is necessary to create societies that can almost enjoy surfing instead of drowning in the waves of change and transformation of the 21st century.

Politicians, the business world, and educators have realized that education systems designed to prepare for an agricultural or industry-based economy will not provide students with the knowledge and skills they will need in the knowledge-based economy and societies of the 21st century. While the amount of knowledge produced in knowledge-based global societies doubles every 2-3 years, middle school graduates now encounter more information than their grandparents have learned over their entire lives (United Nations Educational, Scientific and Cultural Organization-UNESCO, 2002, pp. 14-15).

An unexpected important by-product of the revolution created on human society by the information age that came with advanced technology is the emergence of a generation of children who are dependent on multidimensional, interactive media resources and whose world understanding and expectations are very different from the previous

generations. To succeed in a technology-intensive global future, a new educational practice for these children based on their local learning abilities and technological competence must replace traditional education methods (Das, 2015, p. 15). In this regard, what is expected from education today is to function as an institution that adapts to technological developments on one hand and develops innovative solutions to the problems created by globalization on the other hand (Tunca, 2012, p. 20). In such a process, teachers are responsible for using technology effectively, determining appropriate teaching methods and tools for students' learning, designing effective teaching methods, and creating new teaching strategies (Demiraslan & Kocak Usluel, 2008, p. 471).

Teachers' innovative thinking and practices are becoming a sensitive subject of education in the 21st century, as teachers are central to improving the quality of education. Innovative teachers are the teachers who regularly care about their improvement in their field and give importance to their personal development, who can diversify the activities required from students with the effective learning-teaching tactics and methods they use, who can use new techniques and approaches in teaching and presenting information, who can increase students' participation by trying different methods, and who can expand their acquired knowledge and skills (cited by Korucu & Olpak, 2015, pp. 115-116 after Ritchhart, 2004). Haelermans & Blank (2012, p. 884) stated that the professionalization of education and the innovations made by teachers were positively related to the success of students and the efficiency of schools.

Teachers' innovation ability is at the center of organizational innovation in educational institutions. Innovation ability is the ability to adopt or implement new ideas successfully, processes, and/or products, in other words, the organization's innovation potential depends on the resources and competencies that the organization has. The most important resources and competencies in innovation ability are competencies related to organizational knowledge and learning (Kalkan, 2005, p. 48). Teachers are expected to realize innovative education and training processes by reflecting their innovation ability in their work behaviors.

Innovative work behavior as a concept was first described by West & Farr (1989) as the deliberate creation, promotion, and implementation of new ideas within a group or organization to benefit the role performance, group, or organization (Janssen, 2000, p. 288). Scott & Bruce (1994, pp. 581-582) address innovative work behavior as a multi-step process. According to this definition, innovative work behavior begins with defining the problem and generating new or adopted ideas or solutions. In the next stage of the process, the innovative individual seeks support for his/her idea and tries to form a support group. In the last stage, the individual transforms the idea of innovation into a model or prototype. Therefore, innovative work behavior is a process that includes

different activities and different individual behaviors at each stage. Teachers demonstrating innovative work behavior can maintain their professional development, improve their work environment, increase their performance, and are willing to adopt the improvements proposed by their colleagues or other stakeholders outside of the school (Bos-Nehles, Bondarouk & Nijenhuis, 2017, p.382).

Innovation essentially includes intelligence. In other words, innovation is a new idea (Van de Ven, 1986, p. 591). Finding new and useful solutions to problems becomes difficult without the creative spark of innovative genius or the intelligence of organizational systems that recognize and support innovation. Today's most successful initiatives attract attention as smart startups (Glynn, 1996, p. 1081). Senge (1991, as cited in Ercetin, 2004a, p. 59) emphasizes that if the group intelligence emerging in an organization exceeds individual intelligence, this will contribute to individual development. Such a contribution reveals a process that triggers, accelerates, and repeats each other from individual to group and from group to organization.

Although the concept of intelligence is primarily associated with individuals, it has been conceptualized and measured at a collective level by some researchers (Glynn, 1996, p. 1087). The concept of intelligence in organizations was first introduced in 1967 by Harold Wilensky, an American professor. Wilensky (1967, cited in Azma, Mostafapour & Rezaei, 2012, p. 95) stated that intelligence information collected in organizations can be used to determine the right organization and suggested that intelligence has a great impact on organizational efficiency and effectiveness and that the characteristics and measurement of institutional information can be considered to support organizational decisions.

In this regard, Veryard (2018, p. 1) stated that organizational intelligence can be characterized by interpreting and acting effectively in complex situations that are accepted as collective capabilities; recognizing events and signs in the environment and acting accordingly; developing, sharing, and using information appropriate to the purpose of the work; and learning and reflecting on experiences. On the other hand, Ercetin (2001, p. 33) described the concept of organizational intelligence as the abilities enabling organizations to make decisions regarding ordinary and regular activities as well as unexpected situations in a dynamic global environment, and the potential to use these abilities. These abilities are defined below by Ercetin (2004a, pp. 68-74) as operational sub-dimensions of organizational intelligence.

- Adapting to Changing Situations: Organization's ability of the organization to create a new balance in different conditions. The organization can create new balances in different conditions, form and implement appropriate policies and strategies with joint decisions against various complex situations.

- **Being Open-Minded:** All employees in the organization can express their opinions clearly and an environment welcoming all opinions and suggestions is created.
- **Functioning Flexibly and Comfortably:** The rules determined regarding the functioning of the organization can be changed and the employees feel the comfort of this situation, the employees are in healthy interaction with each other, they cooperate, the bureaucratic works and procedures are performed at a level that does not reduce the pace of the organization, and the employees are free to make choices in every subject.
- **Taking Immediate Actions and Producing Instant Reactions:** It is the perception of the necessity of making and implementing decisions quickly at an organizational level. Organizations must develop action by responding rapidly, appropriately, and accurately to each situation and each stimulus affecting them as a whole.
- **Renewability:** It is the use of new information and technologies that will help the organization to develop.
- **Being Intuitive and Prescient:** Being able to notice, feel, and predict what might be the reflections of an organization or a possible situation, in other words, using emotional intelligence at an organizational level.
- **Using Imagination:** It uses individual creativity for individual and organizational development. The ability to use imagination should be evaluated in conjunction with other relevant abilities. For example, being instant is related to acting and developing a reaction, flexibility and comfortableness are related to creating options, and all these are related to using the imagination.

Schools that can use their organizational intelligence are also effective, and these schools reveal new roles for generating radical solutions by redefining their existing problems to achieve their educational goals (Izci, 2017, p. 71). The development of organizational intelligence in schools increases the use of resources and competencies related to knowledge and learning, supports the development of teachers' innovation ability, and demonstrates them with innovative work behaviors (Kalkan, 2005, pp.48-49). Therefore, organizational intelligence enables schools to use their potential most properly, allowing innovation and creativity to emerge in educational processes.

Kahkha, Pourghaz & Marziyeh (2015) conducted a study with 103 school principals working in high schools in Zahedan, Iran, and determined a positive and significant correlation between organizational intelligence level and innovation management as well as the correlation between organizational intelligence level and career development. Ordooie (2016), on the other hand, determined a positive and significant correlation between the organizational intelligence perception levels and creativity of 121 high

school principals working in 6 different regions of the city of Isfahan. In a study they conducted with 328 teachers working in public secondary schools and Imam Hatip secondary schools in Ankara, Turkey, Tura & Akbasli (2021) concluded that the level of organizational intelligence of the schools where teachers worked greatly influenced innovative work behavior. Kalkan (2008) conducted a study with 223 employees of 65 companies operating in the Marmara Region, Turkey, and revealed that the organizational intelligence level of the companies had an impact on organizational innovation and organizational innovation had an impact on company performance.

In the 21st century, teachers are expected to have innovative work behaviors that will increase the quality of education and training and ultimately transform the education system. In addition to this, it is a known fact that teachers' behaviors are taken as examples by their students. It is considered that innovative behaviors and practices of teachers will create awareness and consciousness about innovativeness in students and, therefore, contribute to the formation of an attitude in this direction. However, the innovative work behaviors teachers exhibit in their education and training activities can be influenced by various factors arising from the individual herself/himself, the educational institution, and/or his/her environment. Determining these factors and evaluating the results of organizational intelligence, whose importance is widely accepted in revealing innovation and creativity in educational organizations, will make the current situation of teacher innovation in Turkey more comprehensible. The analyzed studies on organizational intelligence and innovation were carried out using quantitative research methods. However, there is a need for an in-depth investigation of teachers' opinions and, therefore, qualitative research studies to reveal the factors affecting teachers' innovative work behaviors and the results of organizational intelligence on these factors.

This study aims at revealing the individual and organizational factors that affect teachers' innovative behaviors and examining and evaluating the results of organizational intelligence in these factors. Problem statement; "What are the consequences of organizational intelligence on individual and organizational factors affecting teachers' innovative work behaviors?" The sub-problems of the research determined as follows are listed below.

- According to teachers' opinions, what are the individual factors affecting their innovative work behaviors?
- According to teachers' opinions, what organizational factors affect their innovative work behaviors?
- According to teachers' opinions, what are the consequences of the organizational intelligence level of the schools they work on the individual and organizational factors affecting innovative work behaviors?

Method

Research Design

"Basic research design", one of the qualitative research methods, was used in this study. According to Merriam (2009, p. 23), basic qualitative research is a research design philosophically derived from constructivism, phenomenology, and symbolic interaction that seeks to understand how people make sense of their lives and experiences. In basic qualitative research, it is attempted to reveal how people interpret their experiences, construct their own experiences, and what meaning they attach to their experiences or the process. It is also possible to explore experience, make sense, and process in a single study. A basic qualitative research design does not focus solely on beliefs, opinions, attitudes, or ideas about events and phenomena. Beliefs, opinions, etc. may emerge as part of one's findings. However, this should not be the purpose of conducting a basic qualitative research design (Worthington, 2013). This study fits well with the nature of basic qualitative research design in interpreting the individual and organizational factors that affect teachers' innovative work behaviors through their experiences.

Study Group

This study was carried out with teachers with different education levels and branches working in public schools affiliated with the MoNE in the 2020-2021 academic year in Ankara, Turkey. Two different purposeful sampling methods were used to determine the study group's teachers. According to Patton (2014, p. 230), the basic rationale for the purposeful sample selection is to select information-rich situations to conduct the study in more depth. Information-rich situations are situations where the researcher can provide as much information as possible for the study.

The first purposeful sampling method used in the study is the snowball sampling method. According to Patton (2014, p. 237), this method is used to reach individuals or situations where most information can be obtained about the research questions. The process started with the "Who is the most knowledgeable about this subject? Whom should I talk to about this issue?" questions. In snowball sampling, more participants are included and the sample is expanded by moving to the second unit with the help of one of the units belonging to the universe and moving to the third unit with the help of the second unit. The names and situations obtained through the questions directed to the relevant participants will grow like a snowball. Certain names will start to come forward, the number of individuals to be interviewed, and the number of situations to deal with will decrease after a while (Yildirim & Simsek, 2016, p. 122). For this purpose, a study group

was formed after obtaining the opinion of the R&D Unit of the Ministry of National Education, Turkey. In this regard, within the scope of this study, it was attempted to reach teachers who had a positive approach to innovation in education, who previously used innovative practices in teaching processes, or who took part in various projects on this subject. The second sampling method used in forming the study group is the criterion sampling method. According to Yildirim & Simsek (2016, p. 122), the basic understanding in the criterion sampling method is to work on all situations that meet predetermined criteria within the scope of the study. The researcher can create these criteria forming the basis of sampling or use a previously prepared criteria list. The criterion to be used in this study is that the study group will consist of teachers with have a positive approach to innovativeness in education, who previously applied innovative practices in teaching processes, or who took part in various projects on this subject.

According to Patton (2014, p. 244), there is no definite rule for determining the sample size in qualitative research. The sample size varies depending on the purpose of the research, what is wanted to be known, what can be done with the time and resources available. Considering the studies designed with a phenomenological method, Creswell (2013, p. 78) argues that the sample group should consist of 3-4 participants and 10-15 participants. In this regard, this study was conducted with 20 innovative teachers. Within the research ethics framework, participating teachers were coded from T1 to T20 (T: Teacher). Considering the study group, thirteen of the participants were female and seven were male. Three of the participant teachers were working at primary schools, seven were working at middle schools, three were working at İmam Hatip middle schools, one was working at an Anatolian high school, three were working at Vocational and Technical Anatolian High Schools, two were working at science and art centers, and was working at a special education practice school. Personal information about the participating teachers and the studies they have carried out is included in the appendix of this article.

Data Collection

The data collection tool was an open-ended questionnaire. According to Buyukozturk (2005, p. 136), open-ended questions are preferred if participants are asked to respond freely. Through open-ended questions, it is ensured that the participants answer the research questions in the direction they want and express what they want with their own words (Patton, 2014, p. 354). To prepare the open-ended questionnaire questions used in this study, literature was reviewed comprehensively and, then, the operational dimensions of the organizational intelligence defined in Ercetin (2004b)'s study were used. Ercetin (2004b) conducted a focus group study with 48 students from the Department of Educational Administration, Inspection, Planning, and Economics of the

Institute of Education Sciences (Faculty of Education Sciences, Hacettepe College, Ankara) to define the capabilities related to organizational intelligence for schools and to highlight the operational dimensions of organizational intelligence. As a result of the study, it was determined that the abilities related to organizational intelligence can also be defined for schools and each skill had 7 operational dimensions that interact with each other and enable the formation of each other. These operational dimensions were adapting to changing situations, being open-minded, functioning flexibly and comfortably, taking immediate actions and producing instant reactions, renewability, being intuitive and prescient, and using the imagination. Questions representing each operational dimension of organizational intelligence were included in the open-ended questionnaire questions.

The participant teachers were contacted through the internet and voluntary participation statements were obtained before conducting the study. It was specifically stated that the identity information of the teachers participating in the research would be kept confidential and that the data they provided would not be used outside of scientific studies. Educators are expected to have moral values and instill moral values in their students. Education systems need researchers who have moral maturity and avoid academic dishonesty. In today's world, academic dishonesty is becoming more common and it is vital to reduce ethical and dishonest behavior in research (Akbasli, Ercetin & Kubilay, 2019). Therefore, special attention was paid to comply with the ethical issues in this study. In this regard, teachers were informed that participation in this study was voluntary and that the study would not impose any responsibility on them. They were informed that their personal information would be protected and not be shared anywhere. Participating teachers were also informed that the study results would be used for purely scientific purposes and that they could withdraw from the study at any time. Upon the requests of the participating teachers, all interviews were conducted in the digital environment and the data related to the study were obtained using an internet-based digital data collection tool.

Data Analysis

The information obtained from the participating teachers was rewritten in the word processing program and transferred to digital media, and each question was examined separately. The data obtained for the first research question were analyzed based on descriptive analysis, and the data related to the second and third research questions were analyzed based on the content analysis. According to Yildirim & Simsek (2016, p. 239), in the descriptive analysis, data are interpreted according to previously determined themes. The data can be analyzed according to the themes revealed by the research questions or they can be presented by considering the questions or dimensions used in

the interview and observation processes. On the other hand, content analysis can be considered an effort to reduce and interpret qualitative data to determine the basic consistencies and meanings by obtaining a voluminous qualitative material (Patton, 2014, p. 453). The main purpose of content analysis is to reach the concepts and relationships that can explain the collected data. Data summarized and interpreted in the descriptive analysis are subjected to deeper analysis in content analysis. The concepts and themes that are not noticed with a descriptive approach are revealed as a result of this analysis. In the research data analysis, frequency values were determined by considering the frequency of the data. Calculated frequency values were used to make sense of the data. In addition to these, direct quotations were included in this study to enable the participant teachers to reveal their opinions more clearly.

Validity and Reliability Studies

Analyzes performed to determine the validity and reliability of qualitative studies are quite different from quantitative studies. In addition to this, it is seen that many researchers developed different criteria. Qualitative researchers attach importance to interviewing with different perspectives rather than singular truths (Patton, 2014; Creswell, 2013). The fact that the researcher is not in a static, but a dynamic process is one of the important characteristics of qualitative studies. In other words, the researcher can develop new techniques, ask different questions, or conduct interviews in a way different from his/her plans in the research process (Yildirim & Simsek, 2016). The opinions of three experts were consulted to ensure the content validity of the research questions and the questions were reorganized in line with the expert opinions. The reliability formula (Reliability = Agreement/ (Agreement + Disagreement) × 100) suggested by Miles & Huberman (1994) was used to calculate the reliability of the study. According to the coding control showing the internal consistency, it is expected that the consensus between coders should be at least 80% (Miles & Huberman, 1994, p. 64). As a result of the calculation made in this regard, the reliability of this study was determined to be 90%.

Findings

This study was structured within the scope of individual and organizational factors affecting teachers' innovative work behaviors, and the results of organizational intelligence on these factors. In this section, the findings obtained from interviews with participating teachers were included.

The first sub-problem of the study is to determine the individual factors affecting innovative work behaviors according to teachers' views. To reveal the individual factors affecting the innovative working behaviors of the teachers, the following questions were asked: "What are the characteristics that you think are effective in your innovative practices?" and "What are the sources of motivation that lead you to make new practices professionally as a teacher performing innovative practices/activities?". The personal characteristics of teachers that they think were effective in their innovative practices and the motivation sources that lead them to make new practices in professional terms were presented in Table 1.

Table 1.

The Individual Characteristics That the Teachers Considered to be Effective in Their Innovative Practices and The Motivation Sources

Individual Characteristics	n
Enjoy conducting research	8
Passion for learning	7
Curiosity	7
Intrinsic motivation	5
Creativity	5
Determination to work	5
Patience	4
Management and coordination skills	4
Love for the profession	2
Problem-solving	2
Self-confidence	2
Effective communication	1
Entrepreneurship	1
Versatile thinking	1
Interest for technology	1
Motivation Sources	**n**
Catching the era of technology	10
The desire to make lessons enjoyable	5
The ability to attract the attention of new generation students	4
Feeling professionally inadequate	2
The desire to expand students' horizons	2
21. Being familiar with century skills	1

Considering Table 1, among the individual characteristics that the teachers participating in this study considered to be effective in their innovative practices, the most expressed characteristics were conducting research (n=8), passion for learning (n=7), and curiosity (n=7). T5 expressed himself/herself in this regard as follows: "I like conducting research. I'm curious and I enjoy learning something new and practicing them". Intrinsic motivation (n=5), creativity (n=5), and persistence (n=5) were determined as other individual characteristics predominantly mentioned by teachers. Effective communication (n=1), entrepreneurship (n=1), versatile thinking (n=1), and interest in technology

(n=1) were among the individual characteristics that teachers mentioned the least to be effective in their innovative practices. Half of the participants (n=10) highlighted the need to catch the era of technology as the source of motivation helping them to adopt new practices. T8 expressed himself/herself in this regard as follows: *"To catch up with the age. I want to prepare my students for real-life without being behind the changing and developing world"*. In addition to this, considering the motivation source for new practices, 4 of the participants pointed out the desire to attract the attention of the new generation students while 5 of the participants expressed their desire to make lessons enjoyable. The least expressed motivation source was the feeling of professional incompetence (n=2), the desire to broaden the horizons of the students (n=2), and the familiarity with 21st-century skills (n=1).

According to teachers ' views, the second sub-problem of the study is to determine what organizational factors affect innovative work behaviors. To identify the organizational factors that influence teachers' innovative work behaviors, the following questions were asked: "Given the new practices, what kind of reactions do you receive from school staff?" and "What kind of support/help do you receive for your new practices and from whom do you receive support/help?". The themes and sub-themes related to the responses provided by the teachers to the questions were presented in Table 2.

Considering the innovative practices implemented by the teachers participating in this study,15 teachers stated that they received positive reactions from the school administration, teachers, and other employees. T7 explained the perspective of school principals and teachers about innovative practices as follows: *"We are lucky that our school principal supports the perfectionist education-oriented employees. In addition to this, our group teachers and teachers from other branches are also eager. They would help us if there were a practice to be implemented"*. 5 of the participants stated that they received negative reactions from some administrators and teachers against their innovative practices at school contrary to the general situation. T6 expressed himself/herself in this regard as follows: *"Teachers from the same branch with us may react. This is because they feel obliged to do something when we do something. Therefore, they react. I was exposed to some obstacles of the teachers from the same branch as me. For example, they can direct students from your project group not to work with us. The administrators may try to prevent you from doing something at school. I remember some teachers asking me why I was still struggling even though the school principal did not want us to do something. I was struggling to do something for the students, not the school principal"*.

The teachers participating in this study stated that they received support mostly from school administrators (n = 15), other teachers in their schools (n = 9), parents (n = 7), and students (n = 6). It was determined that the teachers received support from the school principals to procure equipment and materials, financial support, and facilitate bureaucratic procedures such as leaves, etc. T12 expressed himself/herself as *"Our school administrators are very supportive when it comes to materials. Since innovation is the corporate mission of our school, all kinds of project-based and innovative ideas are supported in every sense"* and, therefore, revealed how important the influence of the

institutional mission, which emerged under the leadership of school administrators, was on teachers' innovative practices. The teachers participating in this study expressed that they received support from other teachers working in their schools, parents, and students in terms of helping and participating in innovative projects and activities. Projects, innovative practices, and activities often require teamwork. Therefore, this result is logical.

Table 2.

The Individuals and Institutions That Teachers Receive Support in Their Innovative Practices

Theme	Sub-theme	n
School administrators		**15**
	The procurement of equipment and materials	9
	Financial support	2
	Facilitating leaves etc.	4
Teachers at school		**9**
	Helping and participating in the project and activities	9
Parents		**7**
	The procurement of equipment	1
	Helping and participating in the project and activities	6
Students		**6**
	Helping and participating in the project and activities	6
Universities		**6**
	Educational support	4
	The procurement of equipment and materials	2
TUBİTAK		**5**
	Project support	5
Other schools/Science and Art Education Centers		**4**
	The procurement of equipment and materials	1
	Technological support	3
Municipalities		**4**
	Project support	2
	The procurement of equipment and materials	2
Ministry of National Education		**2**
	Project support	2
Provincial and District Directorates of MoNE		**2**
	Project support	2
National agencies		**2**
	Project support	2
Other ministries		**2**
	Project support	2
Social media		**2**
	Exchange of ideas	2
Private companies	Software and training support	**1** 1

The teachers participating in the study stated that although they got support mostly from the school organization in their innovative practices, they also got support from various institutions outside the school. In this regard, participating teachers benefited from universities (n=6), the Scientific and Technological Research Council of Turkey (TUBİTAK) (n=5), other schools/science and art education centers (n=4), and municipalities (n=4) in their innovative practices. It was determined that teachers obtained educational

support, equipment, and materials from the universities and acquired training and donation opportunities through TUBİTAK. It was determined that teachers also acquired help and donations from other Schools/Science and Art Education Centers and municipalities to procure equipment and materials and use technological software and programs.

The institutions where the teachers participating in this study received the least support for their innovative practices were private companies (n=1). It is thought that this may be as the teachers participating in this study worked in public schools and, therefore, they request support from the state institutions instead of receiving support from different institutions.

In addition, the following questions were asked to the teachers participating in the research to determine the adequacy of the physical conditions of the schools where they work to reveal the organizational factors affecting the innovative work behaviors of the teachers: "Do you think the physical conditions of your school are sufficient for your innovative practices?" and "If you do not think the physical conditions are insufficient, in which terms do you think the physical conditions are insufficient?". The themes and subthemes related to the teachers' responses to the physical conditions of the schools were presented in Table 3.

Table 3.

The Sufficiency of The Physical Conditions of Schools According to Teacher Opinions

Theme	Sub-theme	n
Adequate		10
Inadequate		10
	Lack of technological equipment and infrastructure	7
	Lack of a design skill workshop belonging to the branch	3
	Crowded classrooms	2

Considering the physical conditions of the schools, half of the teachers (n=10) participating in this study found the physical conditions sufficient, while the other half of the participants (n=10) found the physical conditions insufficient. The teachers considering the physical conditions of their schools to be insufficient explained this inadequacy through the lack of technological equipment and infrastructure in schools (n=7), the absence of a design skill workshop in the school (n=3), and crowded classroom sizes (n=2). T8 expressed himself/herself in this regard as *"Lack of technological infrastructure and computer support centers, and crowded classroom sizes are the main reasons for inadequacy"* while T17 expressed himself/herself as *"Unfortunately, there is no workshop suitable for my branch. In this regard, I can't see any effort from our school administrators and other group teachers"* and highlighted that

the school administration and teachers were insensitive towards the problem faced by them as well as the inadequacy in the physical conditions.

The third sub-problem of the study is to determine the results of the organizational intelligence level of the schools in which they work, on individual and organizational factors affecting innovative work behaviors, according to the teachers' opinions. To this end, the teachers who participated in the study were asked questions about their thoughts on the 7 operational subdimensions of organizational intelligence (adaptation to changing situations, open-mindedness, flexible and comfortable working, immediate actions and immediate reactions, renewability, intuitiveness, and foresight, imagination). The findings obtained from the research are given below.

Concerning the Adaptation to Changing Situations dimension of organizational intelligence, participants were asked a question about teachers' involvement in decisions about education and training in schools and the impact of that involvement on their innovative practices. The themes and subthemes, including teachers' opinions about the impact of participation in school decision-making on their innovative practices, are presented in Table 4.

Table 4.

The Effects of Participation in Decisions on The Innovative Practices of Teachers

Theme	Sub-theme	n
Having a voice in participating in decisions		**15**
	High professional motivation	6
	Being supported by the school administration	2
	Increased trust in the organization	2
	Environment for new ideas	2
	Cooperation opportunities	2
	Increased faith in work	1
	Task performance increase	1
	Supporting autonomy	1
Not having a voice in participating in decisions		**5**

Considering the participation of teachers in the decisions regarding the education and training at school, 15 of the teachers stated that they had a say in the process while 5 of the teachers stated that they could not participate in the decisions taken at school. Similarly, 15 of the participants stated that participation in the decisions taken at school was effective in their new ideas and practices. The effects of participation in the decisions taken about the education and training at school on teachers' new ideas and practices were presented in Table 4. Teachers' participation in the decisions taken at school was

most effective on the motivation increase (n=6). Participants' sense of support from school administrators (n=2) and increased confidence in the institution (n=2) were seen as factors that reinforced teachers' innovative practices. T15 expressed himself/herself in this regard as follows: *"Decisions made by exchanging ideas and finding middle ways always have a positive effect on the employees. This way, I can develop new ideas more easily and without hesitation. I can also clarify what kind of support I can get from my friends"*. The least expressed opinions about teachers' participation in decisions were expressed as increasing belief in work (n=1), increasing performance (n=1), and supporting teachers' autonomy (n=1).

The effects of teachers' participation in decisions regarding education and training on their innovative practices create a situation that activates and strengthens individual factors the teachers considered to be effective in their innovative practices. For example, motivation, creativity, problem-solving, self-confidence, and love for the profession, which were among the individual characteristics expressed by participating teachers, were in parallel with participation in decisions and considered the results of organizational intelligence. In addition to this, creating opportunities for cooperation through participation in decision-making was considered an important organizational factor in the cooperation and collaboration between the school administrators, teachers, parents, and students in teachers' projects and activities.

Considering the being open-minded organizational intelligence dimension, the teachers asked a question about expressing their ideas clearly at school and the effects of this on their innovative practices. The themes and sub-themes including teachers' opinions on the effects of expressing their ideas clearly on their innovative school practices were presented in Table 5.

Table 5.

The Effects of Being Able to Express Ideas on Teachers' Innovative Practices

Theme	Sub-theme	n
Expressing ideas clearly		**18**
	The emergence of new ideas	9
	Healthy progress of planned works	3
	Increase in self-confidence	3
	Solving problems effectively	2
	Making the best decisions for students	1
Not being able to express ideas clearly		**2**

Almost all the teachers (n=18) participating in the study stated that they could express their ideas clearly at school. 17 of the teachers stated that this was effective in their new ideas and practices. The effects of expressing ideas clearly at school on teachers' new

ideas and practices were presented in Table 5. Participating teachers indicated that expressing their ideas allowed new ideas to emerge (n=9), that planned studies/practices were healthier (n=3), that their confidence was increased (n=3), that they were able to solve problems effectively (n=2), and that they were able to make the best decisions for students (n=1).T7 expressed himself/herself as *"In environments where there is freedom of thought, discussions can be held within the framework of respect and you can reach mutual consensus. It is easier for you to develop new ideas when you know that your idea will be accepted rationally. This way, it is easier to go further"* and emphasized the importance of this situation.

Based on the opinions of the teachers participating in the study, it can be said that the being open-minded dimension of organizational intelligence prepares a clear ground for revealing and applying new ideas in school. In addition to this, the ability of teachers to express their ideas played a role in stimulating self-confidence and problem-solving skills, which were among the individual factors they considered to be effective in their innovative practices. In this regard, the statement of T15 was quite remarkable: *"I can share my new ideas and practices with our school administrators, teachers, parents, and students without hesitation. I didn't have even a single idea that was rejected until now. This increases my self-confidence"*.

Considering the functioning flexibly and comfortably dimension, the teachers participating in this study were asked whether the school administrators were tolerant towards criticism, opinions, and suggestions or not. The themes and sub-themes including the effects of the school administrators' being tolerant towards criticism, opinions, and suggestions on teachers' new ideas and practices were presented in Table 6.

15 of the teachers participating in this study stated that the school administrators were tolerant towards criticism, opinions, and suggestions while 5 of the teachers stated that they could not see this tolerant behavior. 14 of the teachers stated that this was effective in their new ideas and practices. Participants stated that when the school administrators tolerated criticism, opinions, and suggestions, a democratic environment allowing the emergence of different ideas in the school was formed (n=7), the projects and practices were performed in a more positive environment (n=4), their motivation increased (n=2), they produced solutions to problems much faster (n=1), and they could express themselves more easily (n=1). Therefore, the tolerant attitude of the school administrators towards the criticism, opinions, and suggestions created a positive atmosphere in the school and paved the way for innovative work behaviors. T5 commented as follows: "The fact that school administrators support new ideas and practices and create an environment that allows different ideas to be proposed is very

effective for teachers to develop innovative practices" and T15 commented as follows: "Positive criticism does not cause problems anyway. The important thing is to be able to accept negative criticism and use it for personal or business development. *All school administrators I have worked with so far considered all my negative criticism. In this way, new ideas and practices are executed and finalized on time and as they should".*

Table 6.

The Effects of School Administrators' Being Tolerant Towards Criticism, Opinions, and Suggestions on Teachers' New Ideas and Practices

Theme	Sub-theme	n
School administrators are tolerant of criticism, opinions, and suggestions		**15**
	Creating a democratic environment that allows different ideas to emerge	7
	Realizing projects and applications in a positive environment	4
	Increasing motivation	2
	Producing solutions to problems much faster	1
	Expressing oneself comfortably	1
School administrators are not tolerant of criticism, opinions, and suggestions		**5**

Functioning flexibly and comfortably dimension of organizational intelligence provides schools with an important infrastructure in creating a positive school climate and opening the way for new ideas. It was determined that the environment of tolerance created by the school administration also activated the motivation and problem-solving skills of teachers, which were among the individual factors considered to be effective in their innovative practices. On the other hand, the organizational factors that participants considered effective for their innovative practices, such as the provision of equipment, materials, and financial support by school administrators and the facilitation of bureaucratic procedures, such as leaves, were also found to be related to the flexible and convenient dimension of organizational intelligence.

Considering the taking immediate actions and producing instant reactions dimension, the teachers participating in this study were asked whether their schools could produce fast, effective, and timely solutions to the problems arising or not and its effect on their innovative practices. The themes and sub-themes including the effects of producing fast, effective, and timely solutions to the problems arising in the school on teachers' innovative practices were presented in Table 7.

15 of the teachers participating in this study stated that their schools could produce fast, effective, and timely solutions to the problems arising while 5 of the teachers stated that

their schools couldn't. 14 of the teachers stated that this was effective in their new ideas and practices. The effects of producing fast, effective, and timely solutions to the problems arising at school on teachers' new ideas and practices were presented in Table 7. 7 of the teachers participating in this study stated that producing fast and effective solutions for the problems arising prevented time loss. T15 expressed himself/herself as *"Producing fast and effective solutions prevent time loss and ensure that activities and practices progress in a timely and regular way"* and revealed the importance of time and time management in the functioning of the school. 2 of the teachers stated that bringing fast and effective solutions to problems increased the possibility of implementing new ideas while 2 of the teachers stated that they could move on to other issues as the problems were solved quickly. T11 expressed himself/herself in this regard as *"Quick solutions to problems support the applicability of our innovative ideas"* and highlighted that fast and effective intervention to problems opened up space for new ideas and new issues. The least frequent responses in this regard were intervening in the problems before they intensify (n=1), being able to focus more on education and training (n=1), moving forward without facing bureaucratic obstacles (n=1), increasing teachers' trust in the organization (n=1), and increasing motivation (n=1).

Table 7.

The Effects of Producing Fast, Effective, and Timely Solutions to The Problems Arising in The School on Teachers' Innovative Practices

Theme	Sub-theme	n
Producing timely, fast, and effective solutions to problems		**15**
	Preventing time loss	7
	Increasing the applicability of new ideas	2
	Switching to different topics	2
	Being able to intervene in problems	1
	Focusing on the educational works	1
	Avoiding bureaucratic obstacles	1
	Increased trust in the institution	1
	Increased motivation	1
Not being able to produce timely, fast, and effective solutions to problems		**5**

As it can be understood from the opinions of the teachers participating in this study, taking immediate actions and producing instant reactions provides the right use of time and effective time management and provides opportunities and space for new ideas and practices. The organizational intelligence dimension-immediate actions and immediate responses-was found to have an impact on the individual factors that teachers

considered effective in their innovative practices, such as increasing their confidence and motivation, as well as organizational factors.

Considering the renewability dimension of organizational intelligence, the teachers participating in this study were asked whether their schools could easily adapt to new technologies and practices or not and its effect on teachers' innovative practices. The themes and sub-themes including the effects of school's easy adaptation to new technologies and practices on teachers' innovative practices were presented in Table 8.

Table 8.

The Effects of School's Easy Adaptation to New Technologies and Practices on Teachers' Innovative Practices

Theme	Sub-theme	n
Adapting to new technology and practices		15
	Increasing the quality of innovative practices	7
	Ensuring the work progress quickly and accurately	4
	Increasing the desire and enthusiasm for new works	2
	Making works easier	1
Not being able to adapt to new technology and practices		5

15 of the teachers participating in this study stated that their schools easily adapted to new technologies and practices while 5 of the teachers stated that their schools couldn't adapt easily. 14 of the teachers stated that school's adaptation to new technologies and practices was effective in their new ideas and practices. The effects of the school's easy adaptation to new technologies and practices on teachers' new ideas and practices were presented in Table 8. Teachers participating in this study stated that their schools' adaptation to new technologies and practices easily increased the quality of their innovative practices (n=7) as follows: *"Our school became one of the schools performing projects. We adapt quickly to the conditions of the world. For example, we started producing masks as soon as the pandemic started in Turkey. Then, we increased the quality of these masks. In this regard, I can tell that I'm working at a qualified school"* (T6). The teachers also highlighted that this helped procedures progress faster and more accurately (n=4) by saying *"A good command of technological practices enables our business to progress faster and more solidly"* (T3) while some others highlighted that their schools' adaptation to new technologies and practices easily increased their desire and enthusiasm for new studies (n=2) by saying *"Technology is at the focal point of our lives. For example, programs enriched with web 2 designs arouse a sense of success and desire in children"* (T7). One of the teachers stated that the school's adaptation to new technologies and practices made the works of their school easier.

The renewability dimension prepares a technical and technological ground for innovative practices in the school as well as providing an intellectual infrastructure for the emergence of new ideas in teachers. In this regard, T11 expressed himself/herself as *"Our innovative ideas can be implemented with technological and physical infrastructure. For example, a new artificial intelligence classroom was established in our school. This way, it will be possible for us to produce projects related to artificial intelligence"*. On the other hand, individual factors considered by teachers to be effective in their innovative practices, such as enjoying conducting research, passion for learning, and curiosity, directly reflected teachers' need for innovation as an organizational intelligence factor.

Considering the being intuitive and prescient dimension of organizational intelligence, the teachers participating in this study were asked whether the school administrators could anticipate and intervene in possible conflicts in the school or not and its effect on the innovative practices of teachers and its effects on the innovative practices of teachers. The themes and sub-themes including the opinions on the effects of school administration's ability to predict possible conflicts in the school and take the necessary intervention on teachers' innovative practices were presented in Table 9.

Table 9.

The Effects of School Administration's Ability to Predict Possible Conflicts in The School and Take the Necessary Intervention on Teachers' Innovative Practices

Theme	Sub-theme	n
Anticipating and responding to the conflicts		**14**
	Ensuring the work continue in cooperation	5
	Completing the works	3
	Creating a peaceful working environment	1
Not being able to anticipate and respond to the conflicts		**6**

14 of the teachers participating in this study stated that the school administrators could anticipate and intervene in possible conflicts in the school while 6 of the teachers stated that the school administrators could not anticipate and intervene in the possible conflicts. 7 of the teachers stated that this was effective in their new ideas and practices. 5 of the teachers stated that this attitude of the school administration has ensured that teaching in the school continues in collaboration, 3 of the teachers stated that teaching runs smoothly, and 1 of the teachers stated that a peaceful working environment has been created.

It was determined that being intuitive and prescient dimension allowed the organization to continue smoothly and maintain the environment of cooperation by ensuring that expected or unexpected possible situations within the organization were predicted and intervened. T11 expressed himself/herself in this regard as *"Cooperation is very important in innovative practices, but there may be conflicts regarding the ideas. Once these conflicts are overcome, a collaborative environment can be ensured"* and highlighted the importance of being intuitive and prescient. Being intuitive and prescient dimension of organizational intelligence emerges as an important organizational factor in the innovative practices of teachers as it promotes cooperation and teamwork.

Considering using the imagination dimension of organizational intelligence, the teachers participating in this study were asked whether the teachers were encouraged by the school administrators to produce creative solutions to the problems encountered at school and the effects of this on the innovative practices of teachers. The themes and sub-themes including the effects of teachers' encouragement by the school administration to produce creative solutions for the problems encountered in the school on their innovative practices were presented in Table 10.

Table 10.

The Effects of Teachers' Encouragement by The School Administration to Produce Creative Solutions for The Problems Encountered in The School on Their Innovative Practices

Theme	Sub-theme	n
Being encouraged by the school administration		**16**
	Improving creativity	8
	Increasing motivation	5
	Broadening the horizon	3
	Encouraging new works	2
	Increasing job satisfaction	1
	Increasing the sense of belonging	1
	Strengthening communication	1
Not being encouraged by the school administration		**4**

16 of the teachers participating in this study stated that they were encouraged by the school administrators to produce creative solutions to the problems they encountered at their schools. However, 4 of the teachers stated that they were not encouraged in this regard. It was determined that 15 of the teachers stated that being encouraged by the school administrators to produce creative solutions to the problems encountered at school was effective in teachers' new ideas and practices. The teachers participating in this study stated that being encouraged by the school administrators to produce creative

solutions to the problems encountered at school developed their creativity (n=8), increased their motivation (n=5), and broadened their horizons and perspectives (n=3). T6 expressed himself/herself in this regard as follows: *"When you are supported, you work with great enthusiasm and can find more creative solutions"*. The least frequent responses were the increase in job satisfaction (n=1), the increase in the sense of belonging to the school (n=1), and the strengthening of communication at school (n=1).

Using the imagination dimension is a key organizational intelligence factor that reveals creativity, which is the most important element of innovation, and employs teachers' creative thinking skills. This dimension is associated with all dimensions of organizational intelligence and includes the individual factors considered to be effective on teachers' innovative practices through promoting creativity, motivation, investigation, learning, and curiosity as well as including organizational factors through job satisfaction, organizational belonging, and organizational communication effects.

Discussion, Results, and Recommendations

As in all organizations, innovation activity is vital for educational organizations to survive by adapting to the information age and competing with other organizations. It is also a process that consists of generating ideas, supporting, realizing, and spreading the idea, and generating innovative work behaviors. As every stage of the innovation processes in educational organizations requires the efforts of teachers and the school community, determining their motivation to realize innovation and the factors that affect these motivations is an important element for ensuring organizational innovation in particular and innovation in the education system in general. In this regard, this study was structured within the scope of individual and organizational factors affecting teachers' innovative work behaviors, and the results of organizational intelligence on these factors. In line with the findings of this study, the following results were obtained:

It was determined that the individual factors considered to be effective in teachers' innovative practices focused on enjoying conducting research, passion for learning, curiosity, intrinsic motivation, creativity, and persistence. Similarly, Messmann & Mulder (2011) identified curiosity, Borasi & Finnigan (2010) identified perseverance, and Messmann & Mulder (2011), Loogma, Kruusvall & Uemarik (2012), and Suharyati (2017) identified motivation level as the individual factors influencing teachers' innovative work behaviors in their studies. Motivation is the psychological force that determines the direction of individuals' behavior within the organization, the level of their effort, and their resistance against the obstacles. Employees can be motivated to help the organization achieve its goals or prevent it from achieving them (Demir, 2019, p.

295). A teacher who is motivated for success in school will continue to strive and demonstrate the necessary behaviors until he/she reaches this goal. In this study, the sources of motivation promoting the teachers to perform new practices were determined to be the desire to catch up with the age, to keep up with the age of information and technology, to make the lessons more fun, and to attract the attention of the new generation students. It was determined that the factors promoting the teachers stemmed from their intrinsic motivation. Teachers who are intrinsically motivated value their work and derive their sense of accomplishment and inspiration from their profession and their students.

Considering the innovative practices implemented by the teachers participating in this study, the teachers stated that they received positive reactions from the school administration, teachers, and other employees. It was determined that the participants of this study got the most support from school administrators, other teachers in their schools, parents, and students in their innovative practices. It was also determined that the teachers received support from the school administrators in terms of the procurement of equipment and materials, financial support, and bureaucratic procedures such as leaves while they received support from the other teachers working at their schools, parents, and students in terms of helping and participating in innovative projects and activities. In this regard, Binnewies & Gromer (2012) found that support from school administrators and colleagues was significantly effective in generating new ideas, developing and implementing those ideas that were accepted as innovative behavioral processes by teachers, and that support from school administrators increased teachers' motivation to develop creative ideas at work. Similarly, Kurtulus (2012) determined the support of school administration as a factor affecting teachers' innovativeness.

The teachers participating in the study stated that although they got support mostly from the school organization in their innovative practices, they also got support from various institutions outside the school such as TUBİTAK, other Schools/Science and Art Education Centers, and municipalities. Half of the teachers participating in the study considered the physical conditions of the schools they work to be sufficient for their innovative practices while the other half considered the physical conditions of their schools insufficient. In a study conducted by Celik (2006), the lack of physical resources was an important factor among the barriers to change and innovation in primary schools.

Within the scope of this study, teachers' opinions on 7 operational dimensions of organizational intelligence were also evaluated. Considering adapting to changing situations dimension of organizational intelligence, teachers expressed their opinions on participation in the decisions taken at school. Decision-making is the selection of the most appropriate among the possible ways for solving a problem (Erdogan, 2000, p. 55). Employees of democratic and intelligent organizations have the right to present their

opinions on issues that concern them and that will affect their work, and to participate in the decisions to be made. Teachers participating in this study stated that they could participate in the decisions considering the education and training at school, which affected their innovative practices. Teachers' motivation and confidence in the institution increase when they are involved in school decision-making and feel supported by the school administration. Innovative organizations should have flexible structures that can get the information they need from their environment and turn it into innovation by sharing and discussing it internally through organization members (Uzkurt, 2010, p. 45). Therefore, participation in decisions emerges as a factor that paves the way for new ideas and practices in school organizations.

Considering the being open-minded dimension of organizational intelligence, teachers provided their opinions on expressing their ideas at school. Silence in organizations is the conscious withholding and silencing of employees' opinions and thoughts on functional and/or behavioral issues for improving and developing the organization (Cakici, 2007, p. 149). Organizational silence may hinder democratic administration in schools, create a negative school climate, and decrease productivity. Therefore, it is recommended to create a democratic environment in schools, to provide information, and to create environments where teachers can express their ideas clearly for preventing organizational silence (Aydug, Himmetoglu, & Turhan, 2017, p. 1120) Almost all of the teachers participating in this study stated that they could express their opinions clearly at school and this was effective in their new ideas and practices. Teachers' ability to express their ideas clearly at school results in coming up with new ideas, maintaining planned studies/practices healthily, and increasing teachers' self-confidence.

Considering the functioning flexibly and comfortably dimension of organizational intelligence, the teachers participating in this study stated that the school administrators were tolerant towards criticism, opinions, and suggestions and that this affected their new ideas and innovative practices. Participants stated that when the school administrators tolerated their criticism, opinions, and suggestions, a democratic environment allowing the emergence of different ideas in the school was formed, the projects and practices were performed in a more positive environment, and their motivation increased. This study concluded that functioning flexibly and comfortably provided schools an important infrastructure in creating a positive school climate and opening the way for new ideas. Similarly, in a study they conducted, Chang, Chuang, & Bennington (2011) determined a significant relationship between organizational climate and innovative and creative teaching. This study showed that the school climate promoting innovation encouraged innovative and creative teaching. Organizational climate is the quality that affects the behaviors of the employees by providing the organization its identity and is perceived by the employees (Sezgin & Sonmez, 2017, p.

179). Successful educational practices are ensured by creating working environments with happy, safe, and diligent teachers and school administrators who know how to live together effectively (Peker, 1978, as cited in Dagli, 2018, p. 7).

Considering the taking immediate actions and producing instant reactions dimension, the teachers participating in this study stated that timely, fast, and effective solutions could be produced against problems arising at school. Participants stated that producing fast and effective solutions against the problems arising at school prevented time loss and increased the possibility of implementing new ideas. Participants also stated that they could move on to other issues requiring attention as the problems were solved quickly. Similarly, in a study they conducted, Carungay & Tsuruoka (2002) evaluated time pressure as one of the factors motivating innovation. Time is an uninterrupted process in which events come from the past to the present and follow each other toward the future, and it is the main element that gives meaning to movement. Although time is the most valuable asset of individuals, many people make use of their invaluable time through coincidences and luck factors. However, the time that cannot be saved, that is only consumed and lost, and that cannot be recovered should be used effectively and efficiently (Gurbuz & Aydın, 2012, pp. 16-17). Time management is essentially self-management. In other words, controlling the events we experience is managing the events by directing the individual (Guclu, 2001, p. 89).

Considering the renewability dimension, the participants explained that the schools they worked in could easily adapt to new technologies and practices. The participants stated that their schools' adaptation to new technologies and practices increased the quality of their innovative practices, enabled the works to progress faster and more accurately, and increased their desire and enthusiasm for new studies. In a study they conducted, Loogma, Kruusvall, & Umarik (2012) concluded that teachers' Information and Communication Technologies (ICT) competencies served as a predictor for innovation and that the development of e-learning related competencies was closely related to innovation. ICT competence is a determining factor in teachers' innovative behavior, especially in developing, adopting, and disseminating technological innovations. To reach the knowledge and skills required in the teaching process, the teachers must follow the technology and use information communication technologies effectively. Information and Communication Technologies are a core function of schools today and the teachers are expected to use these technologies (Akbasli, Taskaya, Meydan, & Sahin, 2012, p. 114).

Considering the being intuitive and prescient dimension, the teachers participating in this study stated that the school administrators could anticipate possible conflicts in the school and make the necessary intervention. Conflict is an interaction based on the perception of connected individuals in some way that something is not appropriate or

does not correspond. The divisions and inconsistencies arising in the relations and activities between the parties in the interaction process reveal the conflict between the two parties. Despite all efforts, it is not easy to prevent conflicts in organizations. The fact that individuals' knowledge, experience, interests, and abilities are quite different from each other creates conflict environments. Therefore, the school administrators must be always ready for conflicts as the forces and groups in the school environment are more fluid and even minor frictions can lead to conflicts (Gokyer, 2017, pp. 391-392). The teachers participating in this study stated that the school administrators' anticipation of possible conflicts in the school and making the necessary interventions ensured that the work in the school continued in cooperation, the studies were completed smoothly, and a peaceful working environment was created. Similarly, in a study they conducted, Tomic & Brouwers (1999) demonstrated that teachers received support from their colleagues in the process of developing new ideas and highlighted the importance of cooperation in terms of innovative practices.

Considering using the imagination dimension, the teachers participating in this study stated that they were encouraged by the school administrators to produce creative solutions for the problems encountered in their schools. The teachers participating in this study stated that being encouraged by the school administrators to produce creative solutions to the problems encountered at school developed their creativity, increased their motivation, and broadened their horizons and perspectives. In a study they conducted, Borasi & Finnigan (2010) mentioned that creative problem solving was an effective factor in innovative behavior. Ucus & Acar (2018) revealed a positive and significant relationship between teachers' creative classroom behaviors and innovative behaviors. Creativity is the process of perceiving problems or lack of knowledge, creating hypotheses for this, testing and changing these hypotheses, and communicating the results (Torrance, 1977, p. 7) Creative thinking, which is a concept related to creativity, is the association of observation, knowledge, experience, or thoughts in a way that produces new thought and concept (Yildirim, 2002, p. 38). All innovations start with creative thinking. While creativity is the generation of new and useful ideas in any field, innovation successfully implements creative ideas in a community. For individuals and societies, creativity is a starting point for innovation. Creativity serves as the seed of all innovations and, likely, individuals' perceptions (implementation of people's ideas) towards innovations in a society affect their motivation to generate new ideas in that society (Amabile, Conti, Coon, Lazenby & Herron, 1996, pp. 1154-1155).

As can be seen, the organizational intelligence factors discussed in this study reveal results that activate and strengthen the individual and organizational factors teachers considered to be effective in their innovative practices. Therefore, it can be concluded that organizational intelligence with all its dimensions positively affects teachers'

innovative work behaviors. The following recommendations can be made based on the results of this study:

As it is the responsibility of the school administrators to create an environment that paves the way for innovative behavior in schools, it should be ensured that school administrators are trained to gain leadership behaviors based on innovation and organizational intelligence. In schools, the school administrators and all employees should work together to ensure that all stakeholders understand and develop organizational intelligence and its dimensions. In this regard, the school administrators should make arrangements together with the administration staff and stakeholders to strengthen the individual characteristics that are effective in the innovative practices of teachers and make the organizational conditions suitable for new ideas and practices. For this purpose, the school administrators should focus primarily on teachers and ensure that they feel the administrative support they need. Sharing information among teachers, supporting cooperation and collaboration, making decisions on non-urgent issues with the participation of school administrators and teachers, finding solutions with the participation of teachers by using problem-solving techniques such as brainstorming and Pareto analysis to solve the problems encountered, and creating a learning organization and an innovative climate in the school through studies such as school resource exploration, as well as project support and institutional collaboration by transforming the emerging ideas, are considered to be actions that will have a significant impact on creating an intelligent and innovative school organization.

Ethics Committee Approval: In this research, the ethics committee approval notification document containing the eligibility decision for the research was received from the Ethics Committee of Hacettepe University Senate (Date: 24 November 2020, No: 35853172-101.02.02).

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ATTACHMENT-1: PARTICIPANT CODES

T1, male, science teacher at a middle school, professional seniority: 5 years, working time at the related school: 3 years, bachelor's degree, continues to perform various STEM practices and eTwinning projects at the school he works.

T2, male, science teacher at an Imam Hatip Middle School, professional seniority: 5 years, working time at the related school: 5 years, bachelor's degree, continues to perform various STEM practices and eTwinning projects at the school he works.

T3, female, technology and design teacher at a middle school, professional seniority: 12 years, working time at the related school: 5 years, Ph.D. degree, performed university-based projects and especially foreign-oriented projects (such as NASA, ASU, ESA, ESO, and JAXA) and TUBİTAK projects.

T4, female, class teacher at a primary school, professional seniority: 12 years, working time at the related school: 5 years, postgraduate degree, continues to perform eTwinning projects at the school she works.

T5, male, mathematics teacher at an Imam Hatip Middle School, professional seniority: 13 years, working time at the related school: 2 years, Ph.D. degree, performs ERASMUS projects at the school he works.

T6, male, information technologies teacher at a Vocational and Technical Anatolian High School, professional seniority: 14 years, working time at the related school: 4 years, postgraduate degree, performed foreign-oriented projects (European School Network partnership with AIRBUS). Served as a Scientix Ambassador.

T7, male, science teacher at a middle school, professional seniority: 14 years, working time at the related school: 7 years, postgraduate degree, continues to perform eTwinning projects at the school he works.

T8, female, science teacher at a middle school, professional seniority: 14 years, working time at the related school: 8 years, postgraduate degree, performed new practices projects in mathematics, coding, and solving numerical problems at the school she works.

T9, female, Turkish language teacher at a middle school, professional seniority: 15 years, working time at the related school: 6 years, bachelor's degree, served as the school coordinator of the Nutrition Friendly School, School Health, Sister School, and Capital Teacher Workshops Projects.

T10, female, mathematics teacher at an Imam Hatip Middle School, professional seniority: 16 years, working time at the related school: 4 years, bachelor's degree, performed STEM practices at the school she works. Provided project consultancy and guidance in competitions organized by TUBİTAK, Turkey.

T11, female, technology and design teacher at a science and art center, professional seniority: 16 years, working time at the related school: 2 years, postgraduate degree, took part in the Teknofest-Tubitak Projects and the Ministry of Youth and Sports Project at the school she works.

T12, female, mathematics teacher at a science and art center, professional seniority: 20 years, working time at the related school: 2 years, Ph.D. degree, performs ERASMUS projects at the school she works.

T13, female, class teacher at a primary school, professional seniority: 21 years, working time at the related school: 15 years, bachelor's degree, participated in international events on STEM and Coding, took part in webinars related to eTwinning projects, and continues to perform eTwinning projects.

T14, male, technology and design teacher at a middle school, professional seniority: 21 years, working time at the related school: 13 years, bachelor's degree, performed projects that increased the readiness of the students in his school by attracting the attention of the students with lectures and examples. Continues to share information, experience, and documents for Technology and Design teachers through various social media platforms.

T15, female, science teacher at a middle school, professional seniority: 22 years, working time at the related school: 8 years, bachelor's degree, continues to perform various STEM practices and eTwinning projects at the school she works.

T16, male, technology and design teacher at a special education practice school, professional seniority: 22 years, working time at the related school: 11 years, bachelor's degree, took part in the ERASMUS projects at the school he works. Provided coding training.

T17, female, technology and design teacher at a middle school, professional seniority: 23 years, working time at the related school: 6 years, postgraduate degree, performed various STEM practices and eTwinning projects at the school she works.

T18, female, class teacher at a primary school, professional seniority: 24 years, working time at the related school: 23 years, bachelor's degree, performed various STEM practices and eTwinning projects at the school she works.

T19, female, health services teacher at a Vocational and Technical Anatolian High School, professional seniority: 27 years, working time at the related school: 14 years, postgraduate degree, performed ERASMUS projects, and continues to serve as a project manager at the school she works.

T20, female, cloth production technology and fashion design teacher at a Vocational and Technical Anatolian High School, professional seniority: 29 years, working time at the related school: 6 years, postgraduate degree, performed ERASMUS projects at the school she works. Served as the project manager of an IPA project.