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Examining the ICT Level of Projects Done by Teachers on Social Networks in Turkey in Terms of Different Variables Example of eTwinning Activity

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Abstract

In this research, the competency of teachers using technology in eTwinning projects was evaluated in terms of different variables. The research was carried out in the causal comparison model. The research participants consisted of 42.745 projects that applied to the eTwinning quality label in Turkey in 2022. The data of the research were obtained from the evaluations of the technology used in the projects during the project evaluation process of the eTwinning National Support Organization of Turkey. The data of the research were analyzed with descriptive statistics. As a result of the research, it was found that female teachers with a quality label, teachers having international projects, teachers working with children in secondary and high school, and teachers with more project experience use technology better in their eTwinning projects. The technology competency of teachers living in the city center is similar to working in the countryside. According to these results, studies can be carried out for male teachers to improve their competency level in technology in eTwinning projects, and more incentives should be given to them to do projects; training to teachers should be given according to the school types.

Keywords: eTwinning projects, Social network, Use of technology, Teachers and technology.

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Introduction

Over the last few centuries, technological developments have changed our attitudes, behaviors, habits, leisure activities, and how we lived (Vatandaş, 2020). Moreover, with the new inventions and developments in science and technology, the cultural, economic, and all daily life have changed radically (Bacigalupo and Cachia, 2011). One of the most important tangible change has happened in the educational technologies and communication technologies. After for a while, these developments become necessary and compulsory need for human beings.

Today, educational technology integration and learning environments have gained great importance. Increasing number of complex challenges of teachers in their schools have made educational technologies and the digital spaces necessary for teachers to interact with their peers and to increase their own professional development (Hertz and Engelhardt, 2021). These technologies inevitably changed the role of teachers and they become mentors and facilitators in the lessons rather than transmitters of knowledge (Cassells et al. 2015). While using technology in education, teachers use digital platforms and materials according to student needs and the feasibility of the contents and the schools. These online learning environments offer vast and important opportunities for individuals to train themselves with the flexible and voluntary participation (Bacigalupo and Cachia, 2011).

The digital social networks create an effective e-learning opportunities for individuals by contributing to learning processes. Hereby, the European Commission tries to increase the competencies, attitudes, knowledge and skills of human being by aiming to create responsible, active, open-minded members of society through school communication and collaboration with educational technologies (Papadakis, 2016). In this respect, the school networking helps to carry out the following main objectives of the European Union (2018):

- Increasing the quality of education with more flexible learning environments,
- Creating global citizenship by promoting a culture of peace and non-violence,
- Introducing new and innovative forms of teaching and learning,
- Mobile and digital society by improving the entrepreneurial competencies,
- Maintaining the language capacity by investing in language learning,
- Appreciating cultural diversity, human rights, and gender equality,
- Focusing on inclusive education by reaching the disadvantaged regions,
- Increasing the skills of creativity, self-regulation, critical thinking, resilience, computational thinking, problem-solving, analytical skills, and the ability to cooperate,
- Carrying out extra-curricular activities in schools,
- Providing sustainable development and sustainable lifestyles,
- Motivating more young people.

By taking account of these priorities, teachers can create innovative projects in social networking platforms and learning environments by working with their colleagues. In this regard, the European Commission creates and supports the eTwinning platform as an educational, social network, and collaborative learning environment for schools that works remotely synchronously or asynchronously with internet technology (Papadakis, 2016).

eTwinning Action

eTwinning is a valuable pedagogical tool in the education system in Europe and in the partner countries aiming to provide a safe platform for teachers, schools, and users (Gilleran, 2019). Additionally, eTwinning has been a unique project in educational technology, inspiring schools and teachers (Carpenter and Tanner, 2013). It aims to improve professional skills and knowledge through structured initiatives realized onsite and online events at European, national and regional levels (Kearney and Gras-Velázquez, 2018). eTwinning not only supports teachers through its virtual learning environments with its webinars, learning events, online workshops, social media posts, MOOCs, and web tools but also provides onsite conferences, workshops, seminars, and informative meetings for the professional development of the target audience (Mouratoglou, Gilleran, and Scimeca, 2021). After all, eTwinning is a flexible space far from paperwork and bureaucracy, and it triggers innovative and enthusiastic teachers to start networking (Cassells, Gilleran, Morvan and Scimeca, 2015).

Starting in 2005, eTwinning is a 17-year-old virtual platform for schools in Europe and some neighboring countries to run online projects, which provides professional development opportunities, and to exchange best practices (Bacigalupo and Cachia, 2011). eTwinning portal is available in 34 countries as a central meeting point for schools and teachers in Europe (European Commission, 2021). eTwinning is also an opportunity for integrating ICT in education by developing and applying novel pedagogies and methodologies in real-life instruction (Kearney and Gras-Velázquez, 2018). It is incorporated into school education policies and is a fast-growing digital transformation. As of 2022, there are more than one million teachers and more than 200 thousand projects in eTwinning (MoNe, 2022).

The action is granted by the European Commission under the Erasmus+ programme and managed and sponsored by the European Education and Culture Executive Agency (Mouratoglou, Gilleran and Scimeca, 2021). At the central level, the Central Support Organization (CSS) is run by European Schoolnet and works on behalf of the European Commission (Papadakis, 2016). CSS moderates and leads the platform by supporting the representatives of other partner countries (Carpenter and Tanner, 2013). In 44 countries, the initiative is managed by the National Support Organizations (NSO) (Gilleran, 2019). NSOs provide training and user support with emails, project cards, telephone lines, and social media channels. NSO also organizes online and onsite events, campaigns, and competitions and publishes news, promotional materials, and activities at the national level (Papadakis, 2016). At National Level, in Turkey eTwinning is moderated and managed by the Turkish National Support Organization, which has worked under the Ministry of National Education General Directorate of Technologies since 2009 (MoNe, 2022).

eTwinning Projects

eTwinning is a platform for teachers and schools and provides a safe space in which the educational community can form partnerships and projects with colleagues and pupils from other European countries (Akıncı and Sağ, 2019). The ultimate aim of these projects is to create education networks and develop collaborative projects enabling teachers to use innovative teaching methods and techniques (Kearney and Gras-Velázquez, 2018). To

create an eTwinning project there should be at least two different registered schools and teachers that communicate and collaborate via the Internet (Vuorikari, 2010). It is worth to say that the schools and teachers do not get any grants in eTwinning action. Additionally, apart from the NSO validations there aren't any administrative issues.

As aforementioned, teachers implementing an eTwinning action can create projects with their project partners. When the projects have been completed, the project members make a quality label application. The National Quality Label (NQL) is given to the successful projects as an award evaluated by respective NSOs showing the quality of teachers' projects. The next level of recognition is the European Quality Label (EQL) nominated by NSOs and awarded by CSS as an acknowledgment for the work and efforts done. The highest level of recognition is the European prize nominated and chosen by NSOs, CSS, and EC among the European quality label projects (Papadakis, 2016).

The projects in eTwinning help pupils to take responsibility for their learning, increase their ICT literacy and develop communication skills in English and other languages with the online cooperative learning activities (Bacigalupo and Cachia, 2011). The project section of eTwinning is the TwinSpace platform which serves as an interactive online classroom that helps teachers learn project management, teamwork, and multidisciplinary approach and learn to use ICT tools. This section offers a forum, pages, materials, twin mail, teacher's bulletin, and chat box to the users allowed to enter this space. This virtual space is used for communication and cooperation among project partners (Vuorikari et al., 2011).

The Impact of eTwinning

As a social networking platform, eTwinning provides a safe venue for teachers to share practices with their peers and students (Kearney and Gras-Velázquez, 2018). It inspires the national education system by responding to teachers' needs, procuring opportunities and tools, and providing meaningful, effective and exciting online activities (Carpenter and Tanner, 2013). eTwinning not only contributes teachers' personal, professional and career development but also contributes two main competencies of teachers and students (Mouratoglou, Gilleran and Scimeca, 2021). The first one is language competency and the second one is the digital competency. Teachers and students are exposed to the real-life language and they gain self-confidence while connecting with their peers in the platform (Kearney and Gras-Velázquez, 2018). Therefore, it is one of the windows for language learning. The second competency is related to digital skills. eTwinning as a virtual platform tries to boost the use of technology and digital learning in educational settings (Akıncı and Sağ, 2019).

The project-based method in eTwinning makes pupils responsible for their own learning and gives chance to create new materials in cooperation with their peers (Anda and Güven, 2013). In addition to this, eTwinning increases the extrinsic motivation of teachers and pupils (Bacigalupo and Cachia, 2011). eTwinning not only provides geographic balance at national level by disseminating the pedagogy of educational technologies by providing access to all school, but also provides pre-service training for student's teachers in universities in the concept of Initial Teacher Education (ITE) by disseminating eTwinning in Universities (Mouratoglou, Gilleran and Scimeca, 2021).

The schools proving the commitment of collaboration, sharing and the teamwork in eTwinning action gets eTwinning school label (Licht, Pateraki and Scimeca, 2020). eTwinning Schools gives the opportunity to leverage school-level effect instead of simply individual level competencies. This helps to increase collaboration at schools by including school principals in teachers' work in developing a school wide approach in the eTwinning School concept. This concept helps to embed eTwinning more effectively at the level of the whole school approach (Kearney and Gras-Velázquez, 2018).

- It has a bottom-up approach with a low administrative burden, and the decisions are taken according to the needs of the target.
- It is a safe place as the NSO members endorse the registrations, and the users connect and share ideas in closed (private) specific areas.
- It not only increases students' confidence but also enables schools to collaborate.

Quality in eTwinning Projects

Each project is evaluated for recognition of the work done in the projects. eTwinning offers several opportunities, such as quality labels, eTwinning awards, and eTwinning school labels. The quality of the eTwinning project is evaluated according to the following five criteria (MoNE, 2021):

Pedagogical Innovation: This criterion measures the pedagogical innovations, creativity, originality of the project idea, and diversity of the activities.
Compliance with the Curriculum: The criteria measure whether there is a strategic effort of the project partners to integrate the curriculum and whether the students' basic skills and competencies are taken into account in the project. The project should complement some of the subjects in the school, and the interdisciplinary approach should be visible.

Cooperation between Partner Schools: This criterion measures communication and cooperation activities. There should be clear coordination strategies among teachers and cooperation among students. At the end of this cooperation, a joint product of partners should be uploaded to the system.

Use of Technology: This criterion evaluates whether the partners use the technological tools effectively or not in the project. The evaluators also check the workspace management in the TwinSpace platform and the application of EU General Data Protection Regulation (GDPR) and copyright issues.

Results, Impact, and Documentation: At the end of the project, the project's results and impact should be realized and disseminated through online media or onsite events. It is expected that the users to realize some activities like surveys or reports on the evaluation of the project. Regular planning, evaluation, reflection, and possible feedback need to be documented. The number of quality label applications and the number of awarded National Quality Label projects in the last eight years are given in Table 1.

Table 1. The Number of Quality Label Applications and The Number of National Quality Label Awarded Projects from 2015 to 2022

Years	Quality Label Applications	Awarded National Quality Labels	The Percentage of Success
2015	398	201	(%50)
2016	801	456	(%56)
2017	2.061	750	(%36)
2018	4.232	1.764	(%41)
2019	8.539	5.081	(%59)
2020	15.732	10.941	(%69)
2021	38.002	31.865	(%83)
2022	42.745	36.503	%88,5

When looking at Table 1, it can be easily seen that the number of quality label applications and the number of awarded teachers increased or nearly doubled every year. The number of 398 quality label applications in 2015 will become 41.238 in 2022. Accordingly, the 201 awarded National Quality Labels will become 36.503 in 2022. However, the success rate of the applications did not increase on a regularly and decreased in 2017 and 2018. The reason for this change is the limitation of the budget given by the European Commission, as these teachers were awarded for attending the National eTwinning Conferences. To increase the number of successful projects, the Turkish NSO had to finish this practice and this tendency in 2019.

Considering that eTwinning project applications are entirely based on an internet-based social network, teachers' use of technology is decisive in these projects. However, in a rapidly developing environment, the ICT competency level of these teachers and the effect of eTwinning in using technology in education are still ambiguous. This research has tried to determine and understand the factors that differentiate the teachers' use of technology in eTwinning projects. In this context, the teachers' gender and branch, the school's type, the geographical region of the school, the potential of teachers to have quality labels, the place (whether in the city center or not), the type of project (whether national or international), the type of task the teachers undertake in the projects, the ages of the students and the number of projects realized by a teacher are taken into account.

There were approximately eight hundred eTwinning projects in Turkey in 2015 and 398 of them have applied for the National Quality Label. By 2022, it is seen that approximately 45 thousand eTwinning projects have been made and about 41 thousand two hundred thirty-eight of them have applied for the National Quality Label. Considering that eTwinning project applications are completely based on an internet-based social network, teachers' use of technology is decisive in their effectiveness in these projects. However, it is not known which characteristics of teachers affect the competency of technology in eTwinning projects in a such rapidly changing

and developing eTwinning Project application process. The aim of the research is to reveal which variables affect teachers' technology competency in eTwinning projects.

Within this research, it has been tried to determine the factors that differentiate the teachers' use of technology. In this context, the gender of the teachers, the quality label reward of teacher, the location of school, , the type of school, the geographical region of the school, the content and the level of the projects (national or international), the type of task undertaken in the projects, the ages of students, the branches of teachers, the number of projects applied. It has been tried to determine whether the category causes differentiation in technology usage. It is thought that the results obtained from the research will contribute to increasing the technology use of teachers who make eTwinning projects and the effectiveness of eTwinning projects. At the same time, the results will contribute to the evaluation process of technology use in eTwinning projects carried out in the National Support Center in our country. In this study, within the framework of this general purpose, answers were sought to the following questions;

1. Does the use of technology of teachers in eTwinning projects differ according to their gender?
2. Does the use of technology run by teachers in eTwinning projects differ depending the city or the countryside according to the city center of the school they work in?
3. Does the number of projects having quality label make difference in the competency level of ICT?
4. Does the use of technology of teachers in eTwinning projects differ according to the type of school they work at?
5. Does the ICT competency level of teachers in eTwinning projects differ according to the geographical region of the school they work in?
6. Does the technology use of teachers in eTwinning projects differ according to the school they work in?
7. Does the ICT competency level of projects differ at the national and international levels?
8. Does the use of technology run in eTwinning projects differ according to the age of students?
9. Does the use of technology run by teachers in eTwinning differ according to the number of projects applied?
10. Does the use of technology of teachers in eTwinning projects differ according to the category they apply?

In this research, the use of technology by teachers in eTwinning projects was examined in terms of different variables. The conceptual framework of the research is shown in Figure 1.

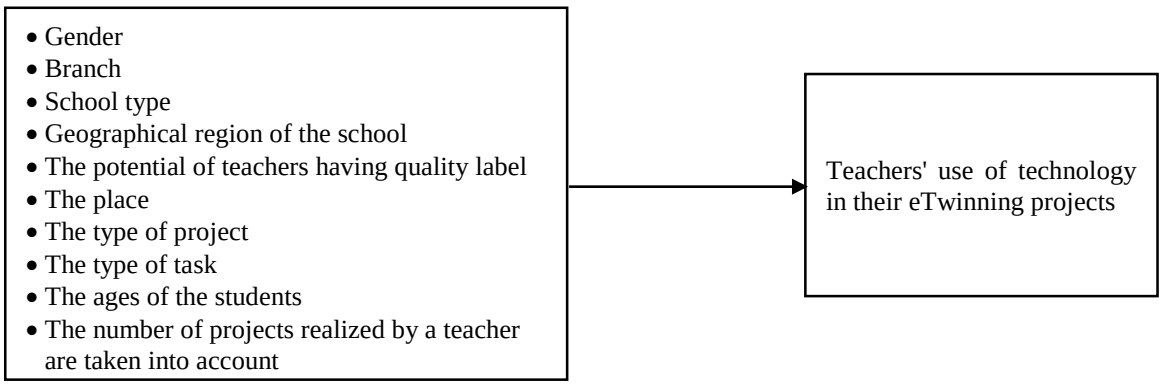

Figure 1. The Conceptual Framework of the Research

Method

Model of the Research

The research was carried out in the causal comparison model. Causal comparison studies are studies to determine the causes of an existing/naturally occurring situation or event and the variables affecting these causes or the consequences of an effect (Büyüköztürk et al., 2010). In this research, the use of technology in eTwinning projects in Turkey has been examined in terms of different variables.

Data Collection Tool

The data of the research were made according to the scoring of the applications, with the assistance of the eTwinning National Support Organization of Turkey. This scoring was made according to the scoring scale created according to the evaluation criteria determined substantially by the European Commission and the Central Support Service. In the project, it is expected that teachers use ICT tools appropriate for students'' age/level and skills to support the pedagogical goals of the project. The other expectations are; students need to take part in creating a digital product with adequate guidance from the teachers, creative use of digital tools, the use of alternative tools for the same product, the involvement of students in the tool recommendation, the ability of students to use the tools independently, sharing the images and personal information of students by the eTwinning Code of Conduct; the visible communication between students in the TwinSpace, the internet safety, produced materials for the project (video, image, music, text, etc.) coherent with the copyright licenses and the criteria for citing sources. In scoring, each item receives a score between 1 and 5, and a minimum of 10 and 50 points can be obtained from the scale. The Cronbach Alpha reliability coefficient of the scale was calculated as 0.94.

Data Collection

Data was taken from eTwinning Turkish National Support Organization (NSO), and the external evaluator evaluated the projects. The external project evaluators were selected according to specific criteria in 2018. The external project evaluators work entirely voluntarily. Therefore, they have no right to demand any expectations and privileges. The selection of external evaluators needs to have the following criteria;

- Having European Quality Label in the last three years,
- Having participated successfully in face-to-face training given by the NSO,
- Having attended the training given by the NSO on project evaluation,
- Having the ability to work compatibly,
- Having information on using technology,
- Knowing project-based learning,
- Having sufficient foreign language knowledge skills,
- Being responsible and devoted to the action,
- Agreeing to work voluntarily, with confidentiality and flexibility the project evaluation calendar,
- Proving to evaluate the projects in terms of scoring and explanations

In the evaluation process, as a requirement of a sustainable policy, the NSO tries to continue to work with experienced external evaluators. That is to say, and for the objectivity of evaluation, the evaluation process is continued with people whose evaluation scores are close to the ideal score. The evaluators complete the project evaluation process meticulously by paying attention to time management. Apart from the online training organized at regular intervals, at least two face-to-face training are held per year with evaluators.

In training, examples of projects that can be described as excellent and poor quality are delivered to the evaluators, and it is expected to reach the perfect scores. The results of the projects are discussed internally. This workshop training continues until the standard scores are attained. Moreover, NSO creates a group of these project evaluators. And the evaluators are supplemented according to the number of applications. The project evaluation team is assigned each year with the ministry's approval.

In addition, each project evaluator logs in to their evaluations through the TURNA program using their Turkish ID number and a password. In this manner, they are held responsible for the scoring they give. In the evaluation, made by taking these measures, a total of 45 projects, 15 of which are among the examples of projects that can be described as good, medium, and bad, are scored by all evaluators. In this scoring, the correlation between raters was calculated as 0.87. The data in this article were taken from the results and scores of the external evaluators described above.

Analysis of Data

Following the purpose of the research, some assumptions were checked before the analyzes were carried out. In the first step, the distribution of ICT competency level scores was checked. The skewness and kurtosis coefficients in the range of ±1 indicate that the scores have a normal distribution (Tabachnick and Fidell, 2013). The calculated skewness and kurtosis coefficients are within the specified range (Table 2). This result indicated that the ICT competency level scores had a normal distribution.

Table 2. The Skewness and Kurtosis Coefficients

Variables	Skewness		Kurtosis	
	z	SH	z	SH
ICT competency level scores	-0,746	0,19	0,736	0,37

Independent groups t-test was applied to compare ICT competency level scores according to two-category variables (gender, etc.). One-way analysis of variance was applied to compare ICT competency level scores according to variables (school type, etc.) with more than two categories. Levene's F test was used to test the homogeneity of variances. Hochberg's GT2 statistics, one of the multiple comparison tests used in case the variances are equal, is a post-hoc type. Analyzes were performed using SPSS 24.0 statistical package program.

The effect power of the significant difference according to the variables was calculated. Expresses the strength of the relationship between the predictive and predicted variables; indicates how much of the variance in the

predicted variable is explained by the independent variable. Techniques used to calculate impact power: 1. Cohen's d: It is calculated by dividing the difference between the means by the standard deviation. T-test and ANOVA use this technique. In Cohen d, .20 is considered low potency, .50 average potency, .80 and above are considered high potency. 2. Eta-square (η^2): It shows how much of the variance in the dependent variable is explained by a particular independent variable. T-test uses this technique. At η^2 value, .02 low potency, .13 average potency, and .26 and above are considered high potency (Cohen, 1992).

Results

In the research's first sub-problem, the answer of the question "Does the use of technology of teachers in eTwinning projects differ according to their gender?" has been sought. Data related to this question are shown in Table 3.

Table 3. Comparison of the ICT Competency Level of Teachers with the Gender of Teachers

Gender	N	M	Sd	t	df	p	Cohen d
Woman	34249	36,24	10,179	19,635	41743	0,000	0,256
Man	7496	33,64	11,331				

As seen in Table 3, teachers' use of technology in eTwinning projects differs significantly by gender (t=19,635, p<0,001). When the data are examined, it is seen that the mean score of technology use by female teachers (x= 36,24) is higher than the mean score of male teachers (x= 33,64). Accordingly, it can be said that female teachers use technology better in eTwinning projects. The Cohen d effect size value calculated to determine the size of the difference is 0.25, which indicates a moderate difference in the level of technology use in the projects of male and female teachers.

In the second sub-problem of the research, the answer of the question "Does the use of technology run by teachers in eTwinning projects differ depending the city or the countryside according to the city center of the school they work in?" has been sought. Data related to this question are shown in Table 4.

Table 4. Comparison of the ICT Competency Level of Projects with the Teachers' Location

City or Countryside	N	M	Sd	t	df	p
City	25627	35,82	10,518	1,145	41718	0,252
Countryside	16093	35,70	10,325			

As seen in Table 4, the place of the school does not make any difference in using technology in eTwinning (t=1,145, p>0,001). That is to say, the ICT competency level has nothing to do with the place. In other words,

there is no significant difference in the level of technology usage among teachers working in city center or rural schools in eTwinning projects.

In the third sub-problem of the research, the answer of the question "Does the number of projects having quality labels make a difference in the competency level of ICT?" has been sought. Data related to this question are shown in Table 5.

Table 5. Comparison of the ICT Competency Level of Projects with Teachers Having Quality Label Status

Result	N	M	Sd	t	df	p	Cohen's d
Awarded Winners	32508	38,96	7,465	142,443	41743	0,000	0.95
Losers	9237	24,57	11,641				

As seen in Table 5, teachers' use of technology in eTwinning projects differs significantly ($p<0,001$) according to teachers' quality labels. When the data are examined, it is seen that the average score of the teachers having quality label ($x= 38.96$) is higher than the average score of teachers who have not ($x= 24,57$). Accordingly, it can be said that teachers who receive the quality label use technology better in their eTwinning projects. The Cohen d effect size value calculated to determine the size of the difference is 0.95, which indicates that there is an above difference in the level of using technology in the projects of male and female teachers.

The answer of the question "Does the use of technology of teachers in eTwinning projects differ according to the type of school they work at?" has been sought in the fourth sub-problem of the research. Data related to this question are shown in Table 6.

Table 6. Data on Teachers' Use of Technology in eTwinning Projects According to the Type of School

	Sum of Squares	df	Mean of Squares	F	p	η^2
Between Groups	124858,099	19	6571,479	61,932	,000	,027
Within Groups	4427320,734	41725	106,107			
Total	4552178,833	41744				

As seen in Table 6, when the data on the use of technology in eTwinning projects according to the type of school teachers working are examined. It is seen that there is a significant difference in the scores of technology use according to the type of school. To understand the source of the difference, Hochberg's GT2 from Post-hoc tests was performed. The η^2 effect size value calculated to determine the size of the difference is 0.027, indicating a moderate difference in the level of technology use in different school types of projects. The data obtained are shown in Table 7.

Table 7. Comparison of the ICT Competency Level of Teachers with the Type of School

	Type of School	N	M	Sd	Difference
1	Anatolian Imam Hatip High Schools	1315	37,66	9,48	2-3-10-5-8-9-13-15-7-14
2	Secondary Schools	7857	37,07	9,57	2-7-5-13-8-9-10-14
3	Science and Art Education Centers (BİLSEM)	719	35,76	10,98	12-8-13-14
4	Special Education Schools	93	35,38	11,08	14
5	Kindergartens	5167	34,67	10,50	13-14
6	Primary Schools	17621	34,53	10,95	13-14
7	Imam Hatip Secondary Schools	1273	34,34	10,78	13-14
8	Vocational Technical and Anatolian High Schools	2043	33,87	11,28	13-14
9	Regional Boarding Schools	106	33,77	11,33	14
10	Science High Schools	617	33,76	11,95	14
11	Anatolian High Schools	2978	33,19	11,37	14
12	Multi-Program High Schools	282	32,70	12,16	
13	Social Sciences High Schools	776	31,96	11,56	
14	Private Schools	229	27,73	12,91	

When Table 7 is examined, it can be said that the use of technology in eTwinning projects of teachers working in Anatolian Imam Hatip High Schools and Secondary Schools and BİLSEM is better, and the use of technology in eTwinning projects of teachers working in other school types are similar.

In the fifth sub-problem of the research, the answer of the question "Does the ICT competency level of teachers in eTwinning projects differ according to the geographical region of the school they work in?" has been sought. Data related to this question are shown in Table 8.

Table 8. Comparison of the ICT Competency Level of Projects with The Geographic Region of the School

	Sum of Squares	df	Mean Square	F	Sig.	η^2
Between Groups	6570,900	6	1095,150	10,069	,000	,001
Within Groups	4527865,001	41630	108,764			
Total	4534435,901	41636				

As seen in Table 8, when the competency level of ICT use in eTwinning projects compared with the geographical region of the school where the teachers work, it is seen that there is a significant difference in the technology use scores when regions are compared. To understand the source of the difference, Hochberg's GT2 from Post-hoc tests was performed. The η^2 effect size value calculated to determine the size of the difference is 0,001, which indicates a small difference in the level of technology use in different projects of different regions. The data obtained are presented in Table 9.

Table 9. Comparison of the ICT Competency Level with The Regions

N.	Regions	N	M	Sd	Difference
1	Marmara Region	9494	36,14	10,634	1-2-3-4-56>7
2	Aegean Region	4583	35,78	10,400	
3	Mediterranean Region	6911	35,99	10,046	
4	Central Anatolian Region	9789	35,70	10,322	
5	Black Sea Region	5162	35,86	10,539	
6	Eastern Anatolian Region	2627	35,64	10,538	
7	Southeast Anatolian Region	3071	34,52	10,736	

When Table 9 is examined, according to Hochberg's GT2 analysis results, it can be said that the use of technology in eTwinning projects of teachers working in Marmara, Aegean, Mediterranean, Central Anatolian and Black Sea Regions is better than teachers working in the Southeast Region.

In the sixth sub-problem of the research, the answer of the question "Does the technology use of teachers in eTwinning projects differ according to the school they work in?" has been sought. Data related to this question are shown in Table 10.

Table 10. Comparison of the ICT Competency Level with the Place of Schools

	Sum of Squares	df	Mean Square	F	p	η^2
Between Groups	41900,844	79	530,390	4,900	,000	,009
Within Groups	4510277,989	41665	108,251			
Total	4552178,833	41744				

As seen in Table 10, when the data on the use of technology in eTwinning projects are examined according to the school where teachers work, it is seen that there is a significant difference in technology use scores according to school type. The η^2 effect size value calculated to determine the size of the difference is 0,009, which indicates that there is a small difference in the level of using technology in the projects of the place of school. To understand the source of the difference, Hochberg's GT2 from Post-hoc tests was performed.

Table 11. Comparison of the ICT Competency Levels of Teachers in the Cities of Turkey

Provincial Traffic Code	N	M	Sd	Provincial Traffic Code	N	M	Sd
Sinop	121	38,84	9,054	İstanbul	4333	36,11	10,767
Bolu	170	38,47	10,321	Aksaray	193	35,96	10,012
Tunceli	58	38,10	7,599	Manisa	494	35,95	11,260
Kilis	46	37,83	7,576	Yozgat	148	35,95	11,056
Giresun	245	37,31	9,586	Balıkesir	727	35,93	10,038
Çorum	400	37,15	10,180	Uşak	125	35,92	9,845
Osmaniye	235	37,15	9,782	Yalova	154	35,91	11,525
Muğla	709	37,08	9,332	Ankara	3723	35,82	10,144
Mersin	2433	36,82	9,958	Mardin	203	35,76	9,270
Batman	139	36,76	9,796	Ağrı	127	35,75	10,655
Bitlis	149	36,64	10,108	Denizli	654	35,75	10,188
Sivas	488	36,64	10,558	İzmir	1456	35,65	10,661
Bursa	1931	36,62	10,144	Zonguldak	492	35,63	10,897
Edirne	183	36,61	10,456	Adana	942	35,62	10,298
Çanakkale	317	36,53	10,582	Adıyaman	158	35,57	11,371
Elazığ	290	36,52	10,715	Gaziantep	1116	35,56	10,944
Nevşehir	212	36,42	9,947	Sakarya	670	35,54	10,697
Koceli	1087	36,41	10,763	Hatay	888	35,52	10,037
Erzurum	826	36,38	10,011	Niğde	198	35,51	10,922
Malatya	337	36,35	10,295	Kayseri	622	35,45	10,138
Afyon	280	36,32	10,285	Kastamonu	136	35,37	11,669
Bilecik	148	36,28	10,772	Aydın	642	35,33	10,464
Ordu	1241	36,28	9,870	Erzincan	873	35,32	11,208
Trabzon	420	36,24	10,930	Bingöl	153	35,29	8,034
Antalya	1460	36,22	9,987	Konya	1982	35,28	10,413
Karaman	215	35,21	10,085	Burdur	275	34,47	10,072
Tekirdağ	480	35,10	10,754	Gümüşhane	18	34,44	7,838
Iğdır	83	35,06	11,410	K.Maraş	270	34,33	10,135
Kırşehir	87	34,71	12,280	Düzce	254	34,17	10,776
Kitahya	503	34,71	10,384	Amasya	212	33,96	10,366
Karabük	89	34,61	11,287	Artvin	143	33,92	10,683
Van	150	34,60	9,737	Ardahan	18	33,89	6,978
Kırklareli	436	34,50	10,827	Isparta	408	33,63	9,616
Rize	148	33,58	11,369	Bayburt	75	32,67	7,769
Tokat	254	33,54	11,178	Şanlıurfa	493	32,64	10,799
Şırnak	264	33,48	10,354	Siirt	47	32,13	11,409
Diyarbakır	605	33,29	10,700	Hakkari	20	31,50	13,089
Bartın	80	33,00	11,518	Kırıkkale	89	30,11	12,200
Muş	75	32,80	12,254	Kars	57	29,12	11,539
Samsun	744	36,20	10,977				

When Table 11 is examined, it is seen that the ICT competency level of teachers working in the cities of Sinop, Bolu, Tunceli, Kilis, Giresun, Çorum, Osmaniye, Muğla, Mersin, Batman, use technology is quite high. However, the cities of Kars, Kırıkkale, Hakkâri, Siirt, Şanlıurfa, Bayburt, Isparta, Ardahan, Artvin, Amasya and Düzce are quite low and they are behind the group.

In the seventh sub-problem of the research, the answer of the question "Does the ICT competency level of projects differ at the national and international level?" has been sought. Data related to this question are shown in Table 12.

Table 12. Comparison of the ICT Competency Level of Projects with the Type of Project

National / International	N	M	Sd	t	df	p	Cohen's d
National	16703	33,62	10,165	-34,912	41743	0,000	0,35
International	25042	37,21	10,379				

As seen in Table 12, teachers' use of technology in eTwinning projects differs significantly according to their national or international level (t=- 34,912, p<0.001). When the data is examined, it is seen that the average technology usage score of the teachers carrying out their projects at international level (x= 37,21) is higher than the projects at National level (x=33,62). Accordingly, it can be said that the use of technology in eTwinning projects run by teachers who carry out international projects have higher ICT competency. The η2d effect size value calculated to determine the size of the difference is 0.35, which indicates that there is a difference in the level of using technology in the projects of national and international projects.

In the eighth sub-problem of the research, the answer of the question "Does the use of technology run by teachers differ according to the type of task they take in the projects?" has been sought. Data related to this question are shown in Table 13.

Table 13. Comparison of the Competency Level of Teachers with the Type of Task They Are Doing in Projects

	Sum of Squares	df	Mean Square	F	p	η^2
Between Groups	15755,540	2	7877,770	72,487	,000	,003
Within Groups	4536423,294	41742	108,678			
Total	4552178,833	41744				

Teachers can take part in projects as founders, managers or members. As can be seen in Table 12, when the data on the use of technology in eTwinning projects are examined according to the type of task that the teachers take in the projects, it is seen that there is a significant difference in the scores. To understand the source of the difference, Hochberg's GT2 from Post-hoc tests was performed. The η^2 effect size value calculated to determine the size of the difference is 0,003, which indicates that there is a small difference in the level of using technology in the projects of type of task. The data obtained are presented in Table 14.

Table 14. Comparison of the competency level of teachers with the type of task they are handling

Task Type in Project	N	M	Sd	Difference
1 Founder	10065	34,70	10,972	2>1-3
2 Member	30453	36,14	10,219	
3 Administer	1227	35,50	10,874	

When Table 13 is examined, it can be said that the ICT level of members in the projects is better than the founders and managers. In the research's eighth sub-problem, the answer of the question "Does the use of technology run

in eTwinning projects differ according to the age of students?" has been sought. Data related to this question are shown in Table 14.

Table 14. Comparison of the ICT Competency Level of Teachers with the Students Ages

	Sum of Squares	df	Mean Square	F	Sig.	η^2
Between Groups	112344,491	4	28086,123	264,883	,000	,025
Within Groups	4394193,695	41442	106,032			
Total	4506538,186	41446				

As seen in Table 14, when the data on the use of technology in eTwinning projects are examined, it is seen that there is a significant difference (p<0,000) in the ages of students. To understand the source of the difference, Hochberg's GT2 from Post-hoc tests was performed. The η^2 effect size value calculated to determine the size of the difference is 0.025, indicating a moderate difference in the level of technology use in projects of different ages. The data obtained are shown in Table 15.

Table 15. Comparison of the ICT Competency Level of Projects with the Students' Ages

Ages of Students	N	M	Sd	Difference
1) 12-15	9310	37,76	9,404	2-3-4-5
2) 16-19	6581	36,68	9,873	3-4-5
3) 0-6	8546	34,15	11,013	
4) 7-11	16434	33,30	11,426	
5) Not Specified	576	34,84	9,192	

When Table 15 is examined, it can be said that the use of technology in eTwinning projects of teachers working in the 12-15 and 16-19 age groups are better than the students in other age groups.

In the ninth sub-problem of the research, "Does the use of technology by teachers in eTwinning projects differ according to their fields?" The answer of the question has been sought. Data related to this question are shown in Table 16.

Table 16: Data on Teachers' Use of Technology in eTwinning Projects by Field

	Sum of Squares	df	Mean Square	F	Sig.	η^2
Between Groups	201802,684	16	11211,260	107,451	,000	0,045
Within Groups	4324204,740	41444	104,338			
Total	4526007,423	41462				

As seen in Table 16, when the data on the use of technology in eTwinning projects of teachers according to their fields are examined, it is seen that there is a significant difference (p<0,000) in technology use scores according to school type. To understand the source of the difference, Hochberg's GT2 from Post-hoc tests was performed.

The η^2 effect size value calculated to determine the size of the difference is 0.045, which indicates that there is a moderate difference in the level of using technology in the projects of projects by field. The data obtained are presented in Table 16.

Table 17. Comparison of the ICT Competency Levels with the Branches of Teachers

Lessons	N	M	Sd
Pre-Primary	8478	37,98	9,314
Class	12783	37,12	9,445
Special Education	761	35,65	10,9
Technology Design	555	35,48	10,21
Vocational High School (Occupational Courses)	539	35,27	10,876
Secondary Education Mathematics	962	35,21	10,854
Religion Culture	598	35,12	10,637
Psychological Consult. and Guide.	1166	34,91	10,147
Foreign Language	6866	34,79	11,17
Mathematics (in Elementary Schools)	401	34,71	11,044
Science	1680	34,56	10,601
Information Technologies	782	34,39	10,892
Turkish	1028	34,27	10,205
Visual Arts	349	34,18	10,76
Turkish Language and Literature	589	34,18	10,811
Social Science	340	34	10,582
Physical Education	241	32,7	10,675
Total	41463	35,78	10,448

As seen in Table 17, the use of technology in the eTwinning projects of pre-school teachers, classroom teachers, special education teachers, and technology and design teachers is better than teachers of visual arts, Turkish language, social sciences, and physical education teachers.

In the tenth sub-problem of the research, the answer of the question "Does the use of technology run by teachers in eTwinning differs according to the number of the projects applied?" has been sought. Data related to this question are shown in Table 18.

Table 18. Comparison of the ICT Competency Level with the Number of Projects Done

	Sum of Squares	df	Mean Square	F	Sig.	η^2
Between Groups	70091,534	6	11681,922	108,784	,000	,015
Within Groups	4482087,299	41738	107,386			
Total	4552178,833	41744				

As seen in Table 18, when the data on the use of technology in eTwinning projects are examined, the significant difference (p<0,000) can be easily seen. The more project a teacher makes, the more successful the project gets. To understand the source of the difference, Hochberg's GT2 from Post-hoc tests was performed. The η^2 effect size

value calculated to determine the size of the difference is 0.015, which indicates that there is a small difference in the level of using technology in the projects in the projects done. The data obtained are presented in Table 19.

Table 19. Comparison of the ICT Competency Level of Teachers with the Number of Projects Run

Project Numbers	N	M	Sd	Difference
1) 1-5	17841	34,68	10,551	
2) 6-10	4628	35,05	10,724	
3) 11-15	4999	36,15	10,242	
4) 16-20	3015	36,22	10,315	
5) 21-30	5440	37,51	9,920	1-2-3-4-7
6) 31<	4201	38,36	9,603	1-2-3-4-5-7
7) Not specified	1621	35,41	11,007	
Total	41745	35,77	10,443	

As seen in Table 19, the projects of the teachers who have scored 21 or more projects is better in ICT than the teachers who have done 20 or less projects.

Teachers in Turkey can apply for special category prizes at National level for years. The special category prizes in 2022 were: The Theme Category (The New European Bauhaus), Accessible eTwinning, Vocational and Technical Education Category, Disabled Category, STEM Category, Primary Education Category (for the disadvantaged groups), and Innovation and Entrepreneurship categories. In the eleventh sub-problem of the research, the answer of the question “Does the use of technology of teachers in eTwinning projects differ according to the category they apply?" has been sought. Data related to this question are shown in Table 20.

Table 20. Comparison of the ICT Competency Level of Teachers with the Special Category Applied

	Sum of Squares	df	Mean Square	F	Sig.	η^2
Between Groups	151879,465	7	21697,066	205,802	,000	0,033
Within Groups	4400097,001	41736	105,427			
Total	4551976,466	41743				

As it can be seen in Table 20, when the data on the use of technology in eTwinning projects according to the special category to which the teachers applied are examined, it is seen that there is a significant difference ($p<0,000$) in the technology use scores according to the category they apply. To understand the source of the difference, Hochberg's GT2 from Post-hoc tests was performed. The η^2 effect size value calculated to determine

the size of the difference is 0.033, which indicates that there is a moderate difference in the level of using technology in the projects of Teachers with the Special Category Applied. The data obtained are presented in Table 21.

Table 21. Data on Teachers' Use of Technology in eTwinning Projects by Category to which They Apply

National Special Category Prizes	N	M	Sd	Difference
1) The Theme Category (The New European Bauhaus)	1907	39,60	8,537	6-7-8
2) Disabled Category	749	38,25	9,002	8
3) eTwinning Türkiye Special Category Prize of 2022	113	45,93	6,766	1-2-4-5-6-7-8
4) Vocational and Technical Education Category	280	36,18	11,106	
5) STEM Category	791	40,61	8,397	2-4-6-7-8
6) Primary Education Category	7081	38,33	8,813	
7) Innovation and Entrepreneurship Category	971	37,77	9,805	8
8) Not Specified	29852	34,63	10,769	
Total	41744	35,77	10,443	

As seen in Table 21, the teachers who applied from the eTwinning Turkey Special Award 2022 Theme category; The teachers who applied from the STEM category won the Barrier-Free eTwinning, Vocational and Technical Education, Basic Education and Turkey Special Award of the Innovation and Entrepreneurship Category. It is seen that the teachers applying for the 2022 Theme Category and The New European Bauhaus category are better than the teachers applying for the Basic Education and Turkey Special Award Innovation and Entrepreneurship Category.

Discussion

At the end of the research, it was determined that female teachers use technology better in eTwinning projects. Hakkâri, Atalar, and Tüysüz (2015) stated in their research that gender has no effect on the use of information and communication technology. The findings of the study of Gerçek et al. (2006) also support this. Birgin et al. (2010), Summak et al., (2010); Menzi et al., (2012) stated in their studies that male teacher candidates have higher technology use skills than female teacher candidates. In addition, it has been stated in many studies that teacher candidates' attitudes towards technology do not differ when gender is taken into account (Karasakaloğlu et al., 2011; Çetin and Güngör, 2014). In contrast, Kaplan et al. (2013) stated that female teachers have higher scores in using information technologies than male teachers. Erdemir et al. (2009) also found that female teacher candidates

were at a better level than male teacher candidates in their self-confidence in using technology for teaching purposes. Studies show that male and female teachers have different results in their technology skills. However, it can be said that female teachers are better than male teachers in terms of technology proficiency in eTwinning projects.

In the research, it is tried to compare teachers' ICT competency level of teachers working in the city and in the countryside. Atalay and Anagün (2014) stated in their research that the use of technology in rural areas increases the motivation of teachers. In addition, Atalay and Anagün (2014) stated that six of the classroom teachers working in rural areas express themselves as competent, three of them expressed themselves as moderately competent and two of them expressed themselves as not competent. However, in this study, it was determined that teacher's residence (living in the city center or in the countryside) do not affect the ICT competency of teachers in eTwinning projects. According to the results of the research conducted by Kearney and Gras-Velázquez (2015) with 6.000 eTwinning teachers, it is stated that eTwinning is effective in the context of equal opportunity in education for schools in disadvantaged regions. Avcı (2021), in his qualitative study done to 20 students, similar to other studies, found that eTwinning activities improve the technology skills of teachers working in different settlements, provides equal opportunities for teachers in education, and brings teachers and students together from different socio-economic situations. Demir and Kayaoğlu (2021), in their study with 11 high school students from Turkey and 23 students from Azerbaijan, and 2 teachers, concluded that eTwinning activity increased students' ICT proficiency and cross-cultural awareness. At the same time, it was stated in this research that eTwinning activity provides equal opportunities in terms of giving the opportunity to cooperate with schools in regions with low economic level. Accordingly, teachers can use technology effectively with eTwinning projects wherever they work. It can be said that eTwinning projects also enable the use of technology in rural areas, thus contributing to the provision of equal opportunities and access in education.

According to the results of this research, it can be said that the teachers receiving a quality label beforehand can use technology better in their eTwinning projects. Projects that have received the quality label are projects that contribute greatly to the development of students. Projects are highly integrated with curricula and they support the development of creativity and innovation skills. A teacher can only receive a quality label in a project if he gets more than seventeen points in eTwinning projects (MoNE, 2022). Before these criteria, there are some essential requirements for a project to be evaluated. The project created by teachers needs to be visible in the pages of the TwinSpace platform which functions as a virtual classroom. The project needs to be created in the last two years and the number of Turkish teachers in a project needs to be 10 or less. The teachers' individual contribution needs to be noticeable and the quality label application forum needs to be original. So, copy pasting documents are not accepted during the evaluation process. Together with these requirements, the teachers in the project need to have common goals and plans in the project. In this research, it was observed that the teachers who received the quality label by getting high scores from these criteria also used technology in their projects better.

As a result of the interviews done to 470 teachers in Bursa during the 2020-2021 academic year by Başar et al. (2021), it was seen that teachers who received the quality label on eTwinning platform have a high awareness of

media literacy and e-security process. In this study, it was also observed that the eTwinning activity increased the motivation of the students and the students participate more actively in the education process. In addition to this, Çetin and Gündoğdu (2022) realized a research with 10 successful teachers who have received the eTwinning quality label. The outcomes of the research were; teachers learned many innovative teaching approaches like 6 thinking hats technique, gaming and gamification-based learning, critical thinking, blended learning, cooperative learning, interdisciplinary learning, problem-solving and inquiry-based learning. With these techniques teachers improved their professional skills and increased their motivation as teachers show dedication to be in events and do not hesitate to be in activities.

In the frame of the research, the ICT competency of teachers working in kindergartens, primary schools, science and art education centers (BİLSEM), special education schools, Anatolian imam hatip high schools, secondary schools, imam hatip secondary schools, vocational technical and Anatolian high schools, regional boarding schools, science high schools, Anatolian high schools, multi-program high schools, social sciences high schools and private schools have been examined. As a result of the research, it was seen that teachers working in Anatolian Imam Hatip High Schools and Secondary Schools and BİLSEMs and special education schools use technology better in eTwinning projects than other schools in the list. Contrary to the outcome of this research, the research done by Çelik (2019) states that teachers working in high schools have higher technology literacy than teachers working in primary schools. Additionally, in the study of Çobanoğlu (2018), a significant difference has been reached in favor of primary school teachers regarding the use of technology in the lesson between teachers working in primary school and teachers working in secondary schools. Regarding the research done, as aforementioned, in terms of technology use in eTwinning projects, it is seen that teachers working in kindergarten, primary schools, BİLSEMs and Special Education Schools are better.

According to the research findings, it can be said that the use of technology in the eTwinning projects of the teachers working in the Marmara, Aegean, Mediterranean, Central Anatolia and Black Sea Regions is better than in the Southeast Anatolian Region. However, it can be said that the use of technology in eTwinning projects is similar in many regions of Turkey. These outcomes show that the location of teacher does not affect teachers' ICT competency level. However, it has been observed that teachers' use of technology in eTwinning projects differs according to the cities. Teachers working in the cities of Sinop, Bolu, Tunceli, Kilis, Giresun, Çorum, Osmaniye, Muğla, Mersin, Batman, use technology better in their eTwinning projects than Kars, Hakkari, Siirt, Sanlıurfa, Bayburt. Isparta, Ardahan and Artvin. It has been observed that the use of technology in eTwinning projects of teachers working in Amasya and Düzce cities are behind the group.

According to the results of the research, it is seen that the use of technology by the teachers making their projects at international level is better than the use of technology by the teachers who make projects at the national level. According to Gezgin and Çabuk (2021), eTwinning action has many contributions to teachers and students. The benefits can be interpreted as; teachers can share their experiences with their peers, develop their digital literacy skills and participate in national and international trainings for the work they do (Kearney and Gras-Velázquez 2015).

eTwinning, a network for teachers, aims to contribute to the increase of knowledge and skills of teachers and students through regional, national and international communication and cooperation by increasing the quality of their professional education (Bozdağ, 2017). Today, digital technologies are developing rapidly and the eTwinning activity, a social teacher network, updates teachers in terms of integration into education and increases the motivation of both teachers and students thanks to interactive web 2.0 tools (Gezgin and Çabuk, 2021). In their research, Erdem et al. (2021) concluded that teachers involved in eTwinning activities follow national and international innovations, get inspiration from the best practice examples. Hereby, they emphasize that this platform is extremely important for increasing the quality of education. In their research, F. Yılmaz (2012) and S. A. Yılmaz (2012) stated that with the eTwinning platform, teachers had the chance to get to know different cultures, cooperate with teachers in that country and thus contribute to their foreign language development. Another research was conducted by Bozdağ. Bozdağ emphasized that the projects included in the eTwinning activity are an important tool for technology integration in education (2017). In this way, students increase their digital literacy skills and communicate with their peers from various countries, get awareness of cultural diversity and increase their foreign language skills.

According to the data obtained from the research, it can be said that the teachers registered as member in the project use technology in eTwinning projects better than teachers who are founders and managers in the project group. When looked at the branches of teachers in terms of using technology in eTwinning, it is seen that the projects of pre-school, technology and design, classroom level and special education, use technology better than the teachers in branches of Visual arts, Turkish Language & Literature, Social Sciences and Physical Education. According to the student group where the teachers work, it is seen that the ICT competency level of teachers working with students in the 12-15 and 16-19 age groups are better than the other age groups.

When looked at the competency level of teachers in the projects, it is seen that teachers who have done 21 or more projects are better in using ICT than the teachers who have done 20 or less projects. Thanks to the projects carried out, students get to know their identities better, increase their confidence in their own abilities and foster the national and international citizenship perceptions (Gilleran, 2019). In eTwinning, it is expected that the teachers find partners by creating projects, share ideas by forming groups, use innovative teaching techniques with their students and interact with other schools and teachers at the national or international level (Avcı, 2021). During the project work, both teachers and students hold online meetings among themselves. At this point, the expected action from teachers and students in eTwinning projects is to carry out the studies they have planned with their partners in cooperation (Paz-Albo and Hervás, 2017).

The teachers who applied to the Turkish National Special Award get also some awards at National level. The teachers who applied to the STEM category, receive the Barrier-Free eTwinning, Vocational and Technical Education, Basic Education and Turkish Special Award from the Innovation and Entrepreneurship Category. It is seen that the teachers applying from the 2022 Theme Category and The New European Bauhaus category use technology better than the teachers applying from the Basic Education category and Turkish Special Award Innovation and Entrepreneurship Category award.

While some characteristics of teachers affect the use of technology in eTwinning projects, eTwinning project processes also affect the teachers' use of technology. Memişoğlu and Broutin (2018), Akıncı and Sağ's (2019) emphasize that eTwinning project applications contribute to students' foreign language skills, increase students' socialization and communication competencies, improve themselves in the use of web 2.0 tools, increase the motivation of students and increase their attendance rate, and it was also noted that the materials they produce in foreign languages contribute to the development of media literacy skills. In the social network analysis Ulutan (2020) made within the scope of eTwinning activity, states that the eTwinning activity facilitates the cooperation between teachers in different countries in Europe. It enables schools to find project partners to create projects, inspire teachers with good project practices and ideas, and support teachers' professional development. The analysis also states that it creates an environment where teachers and students can work together. In the research conducted by Başaran et al. (2020) done to 24 teachers, it was concluded that the eTwinning activity affected positively the professional development of teachers. There were also other outcomes of this research. Considering the other findings in this study; It has been concluded that the eTwinning portal increases teachers' professional competence, teachers can closely follow technology and innovation, teachers develop a sense of belonging to their schools and classes, teachers improve their creativity. And the platform increases teachers' motivation by providing information sharing among teachers. The platform also triggers the emotional intelligence and academic success of the students with the eTwinning projects

In the study conducted by Çevik et al. (2021) with 50 gifted children studying at Science and Art Centers, it was observed that students' ICT competency and academic success increased significantly. E. Demir (2021) and M. Demir (2021) stated in their research that eTwinning projects are a guide for teachers' professional development. In their study, Gezgin and Çabuk (2021), on the other hand, described the creation process of a project in the eTwinning activity and stated that the activity contributed to the education and training process on cooperation, interdisciplinary learning, media literacy, harmony with the curriculum, technology integration and critical skills. In Yılmaz's (2022) master's thesis, researching eTwinning schools in 6 schools, it was concluded that the eTwinning platform creates a technology-rich learning environment for teachers and students, enables more digital applications to be used in classrooms and develops students' creative skills and digital competencies.

Conclusion

At the end of the research, it was determined that female teachers use technology better in eTwinning projects. In the research, it is tried to compare teachers' ICT competency level of teachers working in the city and in the countryside. It is understood that teachers receiving quality label beforehand can use technology better. Additionally, teachers working in Anatolian Imam Hatip High Schools and Secondary Schools and BİLSEMs and special education schools use technology better in eTwinning projects than other schools. According to the results of the research, it is seen that the ICT competency level the teachers making projects at an international level is better than the use of technology when compared with the teachers having projects at national level. Add to these, teachers registered as a member in the project use technology in eTwinning projects better than teachers who are founders and managers in the project group. When looked at the level of students, it is seen that the ICT competency level of teachers working with students in the 12-15 and 16-19 age groups is better than the other age

groups. Furthermore, the competency level of teachers having 21 or more projects are better in using ICT than the teachers who have done 20 or less projects. While some characteristics of teachers affect the use of technology in eTwinning projects, eTwinning project processes also affect the teachers' use of technology.

Recommendations

According to the results of the research, support for the development of technology competency level of male teachers should be increased. Technology usage skills of teachers working in high school and private schools should be developed. The motivation of teachers in the international projects should be increased and the international projects should be encouraged in eTwinning projects. It should be ensured that the founders and managers in the projects use technology better and they are more involved in the process of projects. Though the competency level of students in the younger age group may not be very developed, the technology use skills of teachers working in this age group should be increased and the use of technology should be supported in projects realized in these age groups. As the number of projects done by teachers increases, the use of technology in projects also increases. For this reason, teachers should be supported to increase the number of projects they realized.

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References

Akıncı, B., & Sağ, R. (2019). The Contribution of eTwinning project practices on students' English learning process. *Electronic Journal of Education Sciences, 8*(16), 152-171.

Anda, E., & Güven, S. (2013). High school teachers' views on the effects of eTwinning projects as a learning environment. *International Journal of Academic Research, 5*(3), 511-518.

Atalay, N., & Anagün, Ş. (2014). Kırsal alanlarda görev yapan sınıf öğretmenlerinin bilgi ve iletişim teknolojilerinin kullanımına ilişkin görüşleri. *Eğitimde Nitel Araştırmalar Dergisi, 2*(3), 9-27.

Avcı, F. (2021). Çevrimiçi bir öğrenme ortamı olarak etwinning platformuna ilişkin öğretmenlerin görüş ve değerlendirmeleri. *Cumhuriyet International Journal of Education*, *10*(1), http://dx.doi.org/10.30703/cije.663472

Bacigalupo, M., Cachia, T. (2011). *Teacher Collaboration Networks in 2025, What is the role of teacher networks for professional development in Europe*. Publications Office of the European Union

Başaran, M., Kaya, Z., Akbaş, N., & Yalçın, N. (2020). Proje tabanli öğretim sürecinde etwinning faaliyeti'nin öğretmenlerin mesleki gelişimlerine yansimasi. *Eğitim Kuram ve Uygulama Araştırmaları Dergisi*, *6*(3), 373-392.

Birgin, O., Çoker, B., & Çatlıoğlu, H. (2010). Investigation of first year pre-service teachers' computer and internet uses in terms of gender. *Procedia Social and Behavioral Sciences, 2*, 1588-1592.

Bozdağ, Ç. (2017). Almanya ve Türkiye'de okullarda teknoloji entegrasyonu, eTwinning örneği üzerine karşılaştırmalı bir inceleme. Ege *Eğitim Teknolojileri Dergisi*, 1(1), 42-64.

Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2010). *Bilimsel araştırma yöntemleri* (7. Baskı). Ankara: Pegem.

Carpenter, J., & Tanner, S. (2013). *Study of the impact of eTwinning on participating pupils, teachers and schools*. A proposal to the European commission, Education for Change, London.

Cassells D., Gilleran, A., Morvan, C., & Scimeca, S. (2015). *Celebrating ten years of eTwinning, central Support Organization for etwinning*, European Schoolnet, Brussels.

Cohen, J (1992). A power primer. *Psychological Bulletin. 112* (1), 155–159.

Çelik, V., & Yeşilyurt, E. (2013). Attitudes to technology, perceived computer self efficacy and computer anxiety as predictors of computer supported education. *Computers & Education, 60*(1), 148–158.

Çetin, G. İ., & Gündoğdu, K. (2022). eTwinning Proje Uygulamalarına İlişkin Öğretmen Görüşleri, *Elektronik Sosyal Bilimler Dergisi, 21*(81), 76-90.

Çetin, O., & Güngör, B. (2014). İlköğretim öğretmenlerinin bilgisayar öz-yeterlik inançları ve bilgisayar destekli öğretime yönelik tutumları. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi, 33*(1), 55-77.

Çevik, M., Barış, N., Şirin, M., Ortak Kılınç, Ö., Kaplan, Y., Atabey Özdemir, B., Yalçın, H., Şeref, G., Topal, S., & Delice, T. (2021). The effect of digital activities on the technology awareness and computational thinking skills of gifted students (eTwinning project example). *International Journal of Modern Education Studies*, 5(1), 205-244.

Çobanoğlu, A. (2018). Student teachers' satisfaction for blended learning via Edmodo learning management system. *Behaviour & Information Technology*, *37*(2), 133-144.

Demir, E., & Demir, M. (2021). Türkiye'de öğretmenlerin mesleki gelişimi ve eğitim sistemine etkileri. *Eğitim Bilim ve Araştırma Dergisi*, *2*(1), 1-8.

Demir, N., & Kayaoğlu, M. N. (2021). Multi-dimensional foreign language education: The case of an eTwinning project in Turkey. *Computer Assisted Language Learning*, 1-38.

Erdem, G. E., Başar, F.B., Toktay, G., Yayğaz, İ.H., & Küçüksüleymanoğlu, R. (2021). eTwinning projelerinin öğretmenlerin dijital okuryazarlık becerilerine katkısı. *International Journal of Social Sciences and Education Research,* 7 (3), 204-219.

Erdemir, N., Bakırcı, H., & Eyduran, E. (2009). Öğretmen adaylarının eğitimde teknolojiyi kullanabilme özgüvenlerinin tespiti. *Türk Fen Eğitimi Dergisi*, *6*(3), 99-108.

European Commission, (2021). Embedding eTwinning in national educational policies from practice to policy: summary report 2021, European Education and Culture Executive Agency, Publications Office of the European Union, https://data.europa.eu/doi/10.2797/861891

European Union, (2018). Key Competences for Lifelong Learning Council Recommendation. *Official Journal of the European Union*, C 189/01

Gerçek, C., Köseoğlu, P., Yılmaz, M., & Soran, H. (2006). Öğretmen adaylarının bilgisayar kullanımına yönelik tutumlarının çeşitli değişkenler açısından incelenmesi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, *30*(30), 130-139.

Gezgin, S., & Çabuk, G. M. (2021). eTwinning projelerinin uygulanması: Kurucu öğretmen perspektifleri, *Anadolu Öğretmen Dergisi*, 5(2), 380-398.

Gilleran, A. (2019). eTwinning in an era of change - Impact on teachers' practice, skills, and professional development opportunities, as reported by eTwinners, Central Support Organization of eTwinning, European Schoolnet, Brussels.

Hakkari, F., Tüysüz, C., & Atalar, T. (2016). Öğretmenlerin bilgisayar yeterlikleri ve öğretimde teknoloji kullanımına ilişkin algılarının çeşitli değişkenler bakımından incelenmesi. *Bayburt Eğitim Fakültesi Dergisi*, *10*(2), 460-481.

Hertz, B., & Engelhardt, K. (2021). Implementing Personalized Support in Scalable Online Courses, (Ed. Patricia Wastiau), European Schoolnet, Brussels.

Karasakaloğlu, N., Saracaloğlu, A. S., & Uça, S. (2011). Türkçe Öğretmenlerinin Teknoloji Tutumları İle Bilgi Teknolojilerini Kullanma Düzeylerinin İncelenmesi. *Mersin Üniversitesi Eğitim Fakültesi Dergisi.* 7(2), 26-36.

Kearney, C., & Gras-Velázquez, À. (2018). *eTwinning Twelve Years On: Impact on teachers' practice, skills, and professional development opportunities, as reported by eTwinners*. Central Support Organization of eTwinning, European Schoolnet, Brussels

Licht, A., Pateraki, I., & Scimeca, S. (2020). *eTwinning Schools: towards a shared leadership approach - Quantitative and qualitative analysis of the eTwinning School practices*. Central Support Organization of eTwinning, European Schoolnet.

MoNe (Ministry of National Education), (2021). *2021 Yılı Ulusal Kalite Etiketi Değerlendirme Süreci*, http://etwinning.meb.gov.tr/wp-content/uploads/2020/12/2021_Kalite_Etiketi_Sureci_1.12.2020.pdf

MoNe (Ministry of National Education), (2022). *Adım Adım eTwinning*. Milli Eğitim Bakanlığı Yenilik ve Eğitim Teknolojileri Genel Müdürlüğü, http://yegitek.meb.gov.tr/meb_iys_dosyalar/2022_08/25140200_Adim_Adim_eTwinning_.pdf

Memişoğlu, B., & Broutın Ö. (2018). Fatih Projesi Bileşenlerinin eTwinning Projesine Entegrasyonu. *Proceedıng Book*, 136.

Menzi, N., Çalışkan, E., & Çetin, O. (2012). Öğretmen adaylarının teknoloji yeterliliklerinin çeşitli değişkenler açısından incelenmesi. *Anadolu Journal of Educational Sciences International*, 2(1), 1-18.

Mouratoglou, N., Gilleran, A., & Scimeca, S. (2021). *Embedding eTwinning in national educational policies from practice to policy*, Publications Office of the European Union.

Papadakis, S. (2016). Creativity and innovation in European education. Ten years eTwinning. Past, present and the future. *International Journal of Technology Enhanced Learning*, 8(3-4), 279-296.

Paz-Albo, J., & Hervás, A. (2017). The eTwinning experience: Beyond school classrooms. In L. Gómez, A. López, & I. Candel (Eds.). ICERI2017 Proceedings (pp. 8848-8851). IATED Academy. https://dx.doi.org/10.21125/iceri.2017.2445

Summak, M. S., Bağlıbel, M., & Samancıoğlu, M. (2010). Technology readiness of primary school teachers: A case study in Turkey. *Procedia-Social and Behavioral Sciences, 2*(2), 2671-2675.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics (5th ed.)*. Boston: Allyn and Bacon.

Ulutan, E. (2020). *Türkiye eTwinning Faaliyeti Sosyal Ağ Analizi; eTwinning Okulu Örneklemi*, Milli Eğitim Bakanlığı Yenilik ve Eğitim Teknolojileri Genel Müdürlüğü.

Vatandaş, S. (2020). Zamanın ve Mekânın Sanallaşması- Felsefe ve Bilimin Nesnel Gerçekliğinden, Dijital Çağın Sanallığına: Zaman ve Mekânın Yapısal ve İşlevsel Değişimi, *Yalova Sosyal Bilimler Dergisi, 10*(20), 115-137.

Vuorikari, R., Berlanga, A., Cachia, R., Cao, Y., Fetter, S., Gilleran, A., ... & Petrushyna, Z. (2011, December). ICT-based school collaboration, teachers' networks and their opportunities for teachers' professional development-a case study on eTwinning. In *International conference on web-based learning* (pp. 112-121). Springer, Berlin, Heidelberg.

Yılmaz, F., & Yılmaz, S. A. (2012). Çok kültürlülük Projesi: eTwinning uygulamalarına ilişkin öğrenci görüşleri, *Dicle Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *4*(8), 120-132.

Yılmaz, R. (2022). *Teacher's opinions about children's right to play during the pandemic in the pre-school period* (Master Thesis), Eskişehir Osmangazi University.