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A study on enhancing writing motivation using collaborative technologies

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Wiki;
writing motivation.

Abstract

Writing education in the mother tongue is one of the issues that should be emphasized. However, writing motivation does not appear to be a frequently studied topic. The purpose of this study is to examine the effects of wiki-supported, blog-supported and traditional classroom writing activities on the writing motivation of secondary school students. For this purpose, experimental research methods were used. As the procedure, a quasi-experimental design with pretest-posttest control groups was used. Data collection tools were administered to three groups, two experimental and one control group, before and after the experiment. A two-factor ANOVA for the mixed measures procedure was applied to analyze the data. The results showed that Wikis or blogs did not have statistically different effects on writing motivation. The results of the research are important in terms of showing that changing the motivation variable is not possible only with the use of technological tools.

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Introduction

The importance of written communication in the development of societies is undeniable. It is seen that verbal communication is not sufficient for social situations with changing conditions, and written expression is more important to convey the message correctly (Pugalee, 2004). There is a need to develop written expression skills to ensure communication, an essential element of life and language. For this reason, writing education should be given prominence. In this direction, students can be guided by ensuring the correct use of common technologies. Online collaborative tools, where students can create and share products online, have become learning environments used in writing education and other areas of education. These tools provide new opportunities for students to interact with each other and allow them to create individual activities and products. Therefore, students' interest in these tools in their daily lives has also made them interested in the world of education. Thus, students can participate in individual and collaborative learning activities with different online tools (Jensen, 2017; Harris & Alan, 2019; Jena et al., 2020).

The realization of cooperation between students with the support of technology can have different effects on student motivation (Çakıroğlu, 2013). It is thought that blogs positively affect writing processes by contributing to the interaction between students, increasing reflective thinking, and improving critical thinking (Novakovich, 2016). In addition, the fact that it facilitates feedback from both peers and teachers is one of the reasons why collaborative technologies are used to improve writing motivation (Lee, 2015).

Peer feedback can be an essential factor for the continuity of student interaction and for situations where the teacher cannot provide immediate feedback (Mazur & Watkins, 2009). Even if students are in different places and times, evaluating their writing can help maintain their writing motivation. A study examining the effects of peer feedback on the writing motivation of foreign language learners was conducted by Yao et al. (2021). In the applications that lasted for 15 weeks, while the experimental group received peer feedback, the control group did not. The results of the study showed that the experimental group had higher motivation. However, data from various studies reveal that feedback is insufficient in providing motivation (Chen, 2016; Camacho & Alves, 2017). Students are not confident about feedback from their peers. Students' understanding of feedback is affected by emotional reasons, such as the pressure arising from interaction with their peers with higher proficiency levels (Yoshida, 2008). In addition, the fact that feedback can only be provided during the research period shows that online collaborative environments are insufficient to support the formation of permanent motivation in students (Lin et al., 2013). Weng et al. (2022) also experienced that short-term feedback is insufficient to reduce students' anxiety.

In addition, with the inclusion of collaborative online environments in teaching, students publish what they write in a way other internet users can see. This may harm the motivation level of students (Wheeler et al., 2008). Students may want to write a perfect paper or get constructive comments not to lose their friends' esteem (Weng et al., 2022). Therefore, the fact that their writings are openly visible can put pressure on students.

As can be seen, different studies reveal different findings on the learning motivation of students when using collaborative technology. This situation causes the effects of the mentioned technologies on motivation to remain unclear. This research will contribute to revealing whether technical support is sufficient to increase motivation at the end of the experiment. Thus, it is experimental research that can help to remove the uncertainty. In addition, when the literature is examined, it is seen that there is a gap in the direction of revealing the effect of wiki- and blog-supported writing activities on writing motivation with an experimental study. The results of the research are also crucial in terms of filling the gap in this subject.

This research aims to compare the effects of wiki-supported, blog-supported and traditional classroom writing training on the level of writing motivation of 8th-grade students. In this direction, a motivation scale for writing in the native language was developed and applied before and after the experiment. In line with the purpose of this study, the research question sought to be answered is as follows: Is there a significant difference between group 1 in the wiki-supported cooperative learning environment, the experimental group 2 in the blog-supported individual learning environment and the control group in the traditional learning environment in terms of their writing motivation levels?

Literature review

Writing motivation

Researchers have identified four components of motivation. These are self-efficacy beliefs, goal orientations, personal and situational interests, and perceived reasons for success or failure (Troia et al., 2012). Judgments of personal effectiveness affect the choices students make, the effort they put in, the persistence and perseverance they show when obstacles arise, and the thought patterns and emotional reactions they experience. For example, a strong sense of confidence can serve students well when writing an essay because more attention to writing provides more substantial effort and greater perseverance in the face of adversity. Confident students are also likely to feel less anxious and have stronger feelings of self-worth about their writing (Pajares, 2003). Therefore, students' beliefs about themselves affect their writing performance (Zimmerman & Bandura, 1994).

Giving rewards and incentives is not the only method that can be used for students to develop motivation towards writing. Considering that motivation includes the concept of self-efficacy, it turns out that the more effective method is to create a sense of self-belief in writing in students (Akar, 2008). To provide the experience of mastery in writing, teachers need to present their students with challenging but achievable tasks. Teachers should also provide a structure for students to progress gradually from easy to complex tasks (Lam & Law, 2007). Ways to increase students' motivation

and engagement in writing; by focusing on making writing classes relevant to their social and cultural contexts, they provide opportunities for more meaningful participation, design writing assignments relevant to themselves and meaningful, and provide opportunities for social interaction and self-expression (Lo & Hyland, 2007).

The fact that students have sufficient motivation towards writing affects their writing behavior positively (Demir, 2013). Therefore, it is important to develop motivation for writing with new methods and tools. The learning environment is one of the variables thought to be effective in writing motivation (Magnifico, 2010). Interest and value as sub-factors of motivation can help create positive learning outcomes and participation (Pintrich & Schunk, 2002). Therefore, examining the effects of learning situations in which new technologies, which students are interested in and value, are used as a learning environment on writing motivation can contribute to the literature.

Turkish writing education

The Turkish education system aims to provide basic language education and language skills in Turkish lessons based on mother tongue education (Sever, 1995). Turkish course aims to provide reading, listening, speaking and writing skills.

In order to provide individuals with adequate writing skills, writing activities must be carried out in order and with integrity (Göçer, 2010). However, it can be seen that writing-related activities are skimped on, and sometimes activities related to other language development elements, such as speaking and listening, are emphasized (Ungan, 2007; Tok & Ünlü, 2014). The time that should be allocated for writing activities is wasted, and the activities are given as homework (Gündüz & Şimşek, 2011). These problems in secondary school writing practices are often caused by excuses such as preparing students for high school entrance exams. Therefore, writing activities remain unfollowed for various reasons. Writing teaching should be adopted by giving due attention to writing activities. Studies also confirm that there are problems in the implementation and evaluation processes of writing activities (Allen, 2003; Girmen et al., 2010; Tok & Ünlü, 2014). In the Turkish Curriculum, which was reorganized in 2018, the specific objectives of the program regarding writing are "to ensure that students use Turkish consciously, correctly and carefully in accordance with the writing rules, to gain the love and habit of writing, to express their feelings and thoughts on a subject or thesis in writing effectively and efficiently, to enable them to express themselves understandably" (MEB, 2019, p. 8). As stated in this aim, developing activities that can make writing a habit can facilitate students to have a more moderate approach to writing processes.

Theoretical foundations of collaborative learning

Social constructivist approach

After Piaget focused on the individual aspect of cognitive development, a group of researchers in the 1970s focused on the effect of social interaction on the cognitive structure of the individual (Doise & Mugny, 1984). According to the social constructivist approach, learning occurs when people interact. In the social structure, people observe and imitate each other's behavior (Krohn, 1999). Therefore, while ideas in cognitive constructivism are constructed through a personal process in the individual, in social constructivism, ideas are constructed as a result of interaction with the teacher and other students (Powell & Kalina, 2009). Individual constructivist and social constructivist philosophies differ in the definition of knowledge, the definition of learning, and the focus of learning (Gredler, 1997).

Vygotsky is one of the leading theorists who have signed the theoretical foundations of social constructivism. He explained many concepts related to social constructivism, such as cognitive dialogue, area of proximal development, social interaction, culture, and inner speech (Vygotsky, 1962). Vygotsky is one of the leading social constructivists who examined the relationship between mental processes and human behavior and adopted a functionalist approach. He stated that humans are superior to animals in terms of cognitive processes and their physiological superiority. He showed language and social interaction skills at the beginning of these cognitive discriminators (Daniels, 1996).

One of the advocates of social constructivism is Dewey. According to Dewey, the learner does not learn alone but as a part of the surrounding society and the world. He suggested the creation of a triple network between the individual, society and world for the social construction of ideas. Dewey states that four conditions are necessary for ideas to be meaningful. Accordingly, ideas must:

a) be part of an acceptable theory,

b) be useful as a means of generating positive action,

c) be constructed by participants in the community,

d) related to guidelines or reference points provided by the community (Oxford, 1997).

Gredler (1997) explained social constructivism's perspective on learning in four groups. The first of these is cognitive tools. Students participate in social learning activities that include hands-on, project-based methods and subject-based cognitive tools. They create a product together and make sense of it throughout the social learning process. The second is idea-based cognitive constructivism. Idea-based cognitive constructivism shows that important concepts in different disciplines (such as photosynthesis) improve student vision and help students think and create social meaning. As a third approach, according to the pragmatic or urgent approach, social constructivism should be applied in the classroom when needed. Proponents of this approach argue that the individual and the whole class share knowledge, meaning and understanding of the world. The fourth approach, the operational or situational cognitive perspective, focuses on the relationship between humans and their environment. If the social relations between the environment and group members change, the duties of

individuals also change.

Socio-cultural approach

While socio-cognitive theory focuses on individual development in the context of social interaction, the socio-cultural theory developed under the leadership of Vygotsky focuses on the cause-effect relationship between social interaction and individual cognition change. Social activities that improve individual mental functioning are the basic analysis unit of the socio-cultural approach (Dillenbourg et al., 1995).

Vygotsky (1978) stated that some tools are needed to facilitate the realization of learning. Language, signs, symbols, writing and reminder techniques used in social interaction are essential in providing cognitive development. After the teacher demonstrates the use of the tools, the learner is expected to internalize it. Later, the learner uses these tools in the process of self-expression in the social learning environment. Here, Vygotsky (1978) emphasized that cognitive gains can be internalized after they emerge in the social context. In this process, the learner's thoughts undergo change and transformation (John-Steiner & Mahn, 1996).

Methods of supporting collaborative learning with technology

Computer technologies are the leading technologies that support cooperative learning. Primary, secondary and high schools have computer laboratories in Turkey. The purpose of these laboratories is primarily to develop computer skills. However, computers should be used to contribute to learning in different disciplines. Students can be helped to achieve meaningful and permanent learning by coming together through computers. Related to this, the concept of computer-assisted cooperative learning (CACL) is frequently encountered in the literature. Koschmann (2002) defined CACL as a field of study that focuses on understanding and creating meaning through joint activity, and that deals with the works designed through these applications.

The concept of CACL emerged in the 1990s in response to software that forced students to study in isolation. The Internet's exciting potential to connect people innovatively has incentivized CACL research. As CACL developed, unforeseen barriers in design were removed, and the dissemination and effective use of innovative educational software became more evident (Stahl et al., 2006). There are some methodological advantages of providing collaboration via computer. The researcher gains control over some aspects of the collaboration (for example, determining the rules about work sharing and ordering and determining the distribution of activities). There are also pedagogical effects of collaboration with computers. One of them is supporting the types of interactions that are expected to contribute to learning (Dillenbourg et al., 1995).

Online collaboration is one version of computer-assisted collaboration. With the possibility and accessibility of multi-level interaction, resource sharing and high-level thinking activities, online learning environments enable students to develop their competencies in real-world situations (Oliveira et al., 2011). Emphasis should be placed on creating online learning communities to promote interaction and collaborative learning (Rogoff, 1994).

Campbell (1997) defines online collaborative environments as an Asynchronous Learning Network (ALN). ALN is a combination of self-study and asynchronous interaction with others. In ALN, the learner and the instructor use computer and communication technologies to work with distance learning resources without having to be online simultaneously.

Harris (1999) mentions four important benefits of online collaboration:

- The learner's online access to a large number of people other than classmates and educators provides exposure to different views, perspectives, beliefs, experiences and thinking processes.
- Asynchronous communication facilitates learning anywhere and anytime.
- It enables students to move from their private to the public world and dialogues to create a common understanding of meaning by comparing, contrasting and/or combining similar information gathered in different places.
- Online collaborative learning experiences help build local, national or global learning communities by broadening the "global awareness" of participants (p. 55).

Technologies that support collaborative learning

Technologies that support collaborative work enable interaction between the teachers who create the environment and the students who use the environment. These technologies are called dynamic web technologies or web 2.0 environments in the literature. In its most basic form, web 2.0 refers to a concept that allows individuals to collaborate, contribute to written content, customize their websites and publish their thoughts immediately (Heafner & Friedman, 2008). Web 2.0 tools enable students to read, write and edit content in projects (O'Bannon & Britt, 2012). The contribution of Web 2.0 to the continuity of cooperation and interaction in extracurricular times makes it frequently used in teaching different fields. Internet environments known as web 2.0 tools such as Wikis, blogs, RSS (Really Simple Syndication), social networks, concept map creation tools and podcasts can be used for participation and collaboration in situations where students are physically far from each other (Carty, 2007; Ajjan & Hartshorne, 2008; McLoughlin & Alam, 2014; Liu & Lan, 2016; Jensen, 2017; Harris & Alan, 2019).

Studies support the evidence that using web 2.0 tools in educational settings benefits teaching and learning (Thompson, 2007; Redecker, 2009; Imperatore, 2009; Kist

et al., 2010; Echeng, 2011; Chai & Koh, 2015; Cych et al., 2018; Faizi, 2018; Velasco, 2018). Web 2.0 environments help students increase their academic success (Jena et al., 2020), be innovative and creative (O'Bannon & Britt, 2012; Çalışkan et al., 2019), improve cooperation among students (Rosen & Nelson, 2008; Kan, 2011; Mai et al., 2014; Biasutti, 2017; Cilliers, 2017; Daniela et al., 2018), and increase participation (Usoro et al., 2014; Sukhmandeep & Amit, 2018). Web 2.0 enables students to construct information and create content instead of listening to lectures and take responsibility for their learning (An & Williams, 2010).

Wikis and blogs

Wiki technology enables students to participate actively in the knowledge-building society by sharing their knowledge with others (Trentin, 2009). Wikis are most used to support collaborative learning (Lin & Yang, 2011; Medero & Albaladejo, 2020). In the literature, it has been shown that wikis have a positive effect on the educational outcomes of various fields such as pharmacy (Thompson & O'Bryant, 2014), nursing (Kardong-Edgren, 2009), statistics (Neumann & Hood, 2009), software engineering (Ras & Rech, 2009), information and communication technologies (Kear et al., 2010). It is seen that wikis have positive contributions as collaborative writing tools, especially in foreign language writing education (Alshumaimeri, 2011; Wong et al., 2011; Caruso, 2014; Li et al., 2014; Al-Johali, 2019; Khan and Hameed, 2021). Using wiki technology in second language writing education positively contributes to writing motivation (Çelik and Aydın, 2021). According to Wang (2014) 's study results, wikis are an effective tool in increasing students' motivation to learn foreign languages and gain confidence in writing.

Another web 2.0 environment used for education is the blog. One of the positive effects of the blog on students is reflection and reflective thinking (Korkmazgil, 2009; Yang, 2009; Sackstein, 2015; Özkan, 2017). Students can use blogs as a means of self-expression and self-reflection by posting their individual learning experiences on their personal blogs (Hall & Davison, 2007). The study's results support that using blogs positively affects the outputs related to writing education (Arslan & Şahin-Kızıl, 2010; Wu, 2015; Sulistyo et al., 2019). Blogs can be used in native (Akçay & Arslan, 2010; Karsak, 2014) and foreign language education (Wang, 2009; Okan & Taraf, 2013; Sulistyo et al., 2019).

Although wikis and blogs show similar features (see Table 1), they differ in the number of users, content preparation, the purpose of use, scope and interaction. While wikis are multi-user environments, blogs are tools made available to users for their personal use. Therefore, learning activities in wikis take place in groups (Ramanau & Geng, 2009). Groups come up with a common product, modify and correct it. In blogs, the products created are published on their own. However, with both tools, users can evaluate each other's learning and exchange ideas with each other asynchronously. Although wikis and blogs are technologies that are widely used in education as web 2.0 environments, it is difficult to find research results on their effects in terms of writing motivation. Including wikis and blogs in writing activities, especially in mother tongue writing, and examining their impact on writing motivation can contribute to the literature. The purpose of this study is to examine the effects of these two different learning environments on students' writing motivation.

Method

The study was carried out with the quantitative research method. The quasi-experimental design with a pre-test and post-test control group was used as the experimental procedure. Measurements were made on the three groups, two experimental and one control group, before and after the experiment. The study's independent variables are the learning environments of wikis, blogs and the traditional classroom. The dependent variable is writing motivation. The symbolic view of the research model is given in Table 2.

Table 1. Differences between wikis and blogs.

	Wiki	Blog
The number of users	The basic logic of wikis is that a group creates a product. Therefore, the number of users is more than one. It is a multi-author system.	The blog can be used as a personal, thematic, community and company blog. The user can be a single person, or it can be more than one person. It is generally used as a single-author system.
Content preparation	Content can be changed or edited by another user.	Content in the personal blog can only be edited by one user.
Purpose of use	Generally, it is aimed at strengthening group dynamics and communication.	Generally, the sharing of ideas is at the forefront.
Scope	It is a database where information is created online together.	It is an online diary in which the articles, usually from the present to the past, are archived with the date and name of the author.
Interaction way	Interaction with other users is provided by content editing and forum.	Interaction with other users is provided by comments.

Table 2. Visual representation of the study.

Group	Selection	Pre-test	Operation	Post-test
GE1	S	S1	X1	S4
GE2	S	S2	X2	S5
GC	S	S3		S6

GE1: Experiment group using wiki environment
GE2: Experiment group using blog environment
GC: Control group
S: Convenience sampling
S1 and S4: Pre-test and post-test applied to the experimental group using the wiki environment
S2 and S5: Pre-test and post-test applied to the experimental group using the blog environment
S3 and S6: Pre-test and post-test applied to the control group
X1: Experimental process applied to the group using the wiki environment
X2: Experimental process applied to the group using the blog environment

Sample groups

The study was carried out in the fall semester of the 2018-2019 academic year with 8th-grade students of a secondary school in Ankara, Turkey's capital city. 8th-grade students were preferred participants because they had sufficient knowledge and computer and Internet skills that would not adversely affect the study. 8th-grade students in Turkey can be between the ages of 12 and 13. All students participating in this study were born in 2006.

Special permission was obtained from the Provincial Directorate of National Education, affiliated with the Ministry of National Education, to conduct experimental studies with the sample. The ethical suitability of the study was approved after the authorities reviewed the full-scale

teaching program to be used in the study. The study was carried out in three classes that were randomly determined. The experimental process group of the selected classes was also randomly determined. Therefore, students in the same class were selected for the same experimental processing conditions. The distribution of 71 students participating in the study according to the experimental and control groups is given in Table 3.

Table 3. Distribution of experimental and control groups by gender.

Group	Female		Male		Total	
	N	%	N	%	N	%
Experiment1	13	50.0	13	50.0	26	100
Experiment2	12	70.6	5	29.4	17	100
Control	17	60.7	11	39.3	28	100

There were 26 students in the experiment 1 group (wiki-assisted writing activities), 17 in the experiment 2 group (blog-assisted writing activities), and 28 in the control group in which the writing activities with a book were carried out. While the ratio of male and female students in the experiment 1 group was one-to-one, there were more female students than male students in experiment 2 and control groups.

When the number of groups was examined, it was seen that there were fewer students in the experiment 2 group than in the other groups. The equivalence of the groups was assessed to determine whether this difference in the number of groups would affect the research results. In order to compare the experimental and control groups, a one-way analysis of variance was conducted regarding the pre-tests of the writing motivation scale. According to the ANOVA results regarding the pre-test scores, there was no difference between the writing motivation of the experimental and control groups, $F(2,78) = .563$, $p>.05$. Therefore, according to the analysis of the written expression skill pre-test, it was determined that the experimental and control groups were equivalent.

Before starting the application process, students were asked to complete the personal information form to determine their internet access. Table 4 shows the students' awareness and use of wikis and blogs.

Table 4. Frequency analysis of personal information.

	Internet use at home(f)	Having a PC(f)	Computer use at home(f)	Knowing what wikis are(f)	Knowing what blogs are(f)	Wiki use (f)	Blog use(f)
Yes	67	43	51	13	29	10	10
No	5	29	22	59	44	63	63
Total	72	72	73	72	73	73	73

According to Table 4, most study participants were internet users at home (f=67). While 43 of the participants had their own computers, 29 of them had not. In addition, 51 participants used a computer at home, whether it was their own or not, while 22 did not. When the participants' knowledge about wikis was examined, 13 reported that they were aware of wikis, and 59 said that they were not. The number of participants who were aware of the blog before the application was higher (f=29). The number of participants who used wikis and blogs was equal (f=10).

Application process

The implementation process was carried out in two steps: pilot and actual implementation. The pilot application's results helped identify the problems that may be encountered in the actual application beforehand. All obstacles that could prevent the execution of the study were removed after the pilot implementation. Thus, the researcher placed the study on a solid foundation and ensured that the study was terminated in a planned process. The implementation of the writing activities included one lesson hour of the Turkish lesson, which was 5 hours a week for each class. One lesson hour per week was used to implement the pre-test and post-test. The pilot and main application process took a total of 14 weeks, four weeks for the implementation of the scale and ten weeks for the realization of the activities. Writing activities took two weeks for the pilot application and eight weeks for the main application.

In experimental research, a pilot application is necessary, as there may be variables or situations that researchers are unaware of, as well as dependent and independent variables (Robson, 2002). In the pilot application process, it was studied with an experimental sample, which was different from the original application but studied under the same conditions, with the same teacher and at the same grade level. Thus, a copy of the actual implementation process was provided. Subjects' previous exposure to the experimental process, which is the subject of the research, may cause misleading results on pre-test and post-test scores. Therefore, in the actual implementation process, a different sample group was used than during the pilot implementation. The writing activities for the application were prepared by using the Turkish textbook that started to be used in 2018. The activities were carried out with wikis in one group, blogs in another group, and textbooks in another group. By ensuring all the activities applied were identical for all groups, variables other than the learning environment were controlled.

For the group that used the wiki, a wiki account was created from www.wikidot.com by the researcher and a wiki environment called 'our writing activities' was created. When the research started, the participants were added to the groups created in the Wiki environment. There were five wiki groups and approximately six students in each group. In the wiki-supported collaborative writing process, a group of five to six students needed to organize the wiki environment together and work as a team. For example, in the story writing activity, two people wrote the introduction, two wrote the development, and two wrote the conclusion. In this case, students did not act independently of each other's writings and were expected to organize the text according to each other's writings. In other writing studies, activities were carried out without ignoring teamwork. Due to their structure, wikis offer the opportunity to perform activities together. Students can see each other's writing and can intervene immediately. Therefore, in cases where there was no consensus during the activities, they could immediately see each other's shortcomings and make the necessary changes. In the wiki group, the forum section was also used actively, and it was supported that the students could chat about the activities. During the text, poem and story writing activities, it was requested to produce a product as a group.

The researcher and teacher could see the members who contributed to the group and details by examining the wiki reports.

Students in the group that used blogs were asked to open a blog account at www.blogger.com. Since it was necessary to have a Gmail account to open a blog on Blogger, students were provided with a Gmail account and then allowed to open a blog. The researcher created an internet address for the students to have information about the activities. Students were asked to add this address and each other's Blogger account to their reading lists. In addition, the researcher added all students' blogs to the reading list of the blog he created for activities. Thus, it became easier to follow the activities of students. In the group where blog-assisted writing activities occurred, stories, poems and text-writing activities were carried out individually. Students could read and comment on their publications by following each other's blogs. However, during the activities, the students did not have a chance to interfere with each other's writings.

In the group where writing education with the textbook was carried out, there was no intervention by the researcher, and the teaching was carried out in the usual flow. The researcher and the teacher of the course adhered to the practices and activities in the experimental group to a large extent and took care not to reflect these to the control group. While the writing activities were carried out with the control group, the students were expected to complete the activities individually using the relevant space in the book or their notebooks. Therefore, the students in this group couldn't read, examine and evaluate what each other wrote. The teacher presented information about the content of the activities, and they were asked to perform the expected writing action in the required time. During the implementation of the activities, the students were not expected to use any desktop software. In addition, there was no use of a smart board in the classroom. In research-based activities, there was no restriction on the resources students could use outside the classroom. During the face-to-face application, the students raised their fingers and stated what they wanted to ask the teacher.

The 8th grade Turkish Lesson Book provided by the Ministry of National Education was used as the basic educational material in the preparation of the applications in both the experimental groups and the control group. Thus, it was aimed to prevent variables other than the teaching environment being effective in determining the difference between the experimental and control groups. Accordingly, story, poem, essay writing and research activities were carried out in all groups. During the eight-week practice, the researcher and the teacher held a pre-lesson evaluation meeting and exchanged ideas on the execution of the activities. The researcher was in the classroom during the application and observed that the activities were progressing as determined.

Writing Motivation Scale

The Writing Motivation Scale (WMS) developed by the researcher was used to determine the students' writing motivation. Based on the literature research, the scale was created and presented to the expert review. After the necessary corrections were made, validity and reliability studies were undertaken.

Sources for the creation of the item pool for the WMS were:

- The TARGET model, a comprehensive approach for learning motivation developed by Epstein (1989) for use by families and later further developed by Ames (1992),
- the scale of "Children's Perceptions of Self and Task" developed by Eccles and Wigfield (1995) within the framework of expectation and value theory,
- the Wlodkowski Model developed by Wlodkowski (1984),
- the ARCS Motivation Model developed by Keller (1987),
- the 'Writing Lesson Motivational and Instructional Inventory' developed by Lam and Law (2007),
- the "Motivation Scale for Turkish Lesson" developed by Erdem and Gözüküçük (2013) and studies on writing motivation.

The selection and arrangement of scale items were based on the fundamental studies and scales related to motivation in the literature. They were suitable for the target audience and had been examined by experts in Turkish writing education.

Validity and reliability

To ensure the content validity of the scale items, the opinions of four experts, three of whom are writing education experts and one who is a measurement and evaluation expert, were consulted. The writing education experts are from the Department of Turkish Education at Gazi University. The measurement and evaluation expert is a professor working in the field of educational sciences at the same university. Accordingly, the scale, initially prepared as 55 items, was reduced to 18 items by consulting expert opinions. In addition, corrections were made to clarify some items' expressions in line with the experts' recommendations.

Preliminary trial

Five randomly selected secondary school students were asked to evaluate the scale items before the pilot application to determine whether the scale items were clear and understandable. After determining whether there were parts of the items that the students did not understand, necessary adjustments were made to the scale.

Pilot study

After expert evaluation and preliminary testing, the scale was applied to randomly selected sixth, seventh and eighth-grade students from two secondary schools in the capital city of Turkey. Reliability and factor analysis were performed in light of the data collected from 151 students by eliminating the missing and sloppy data. Thus, the scale took its final form.

The literature review shows that there are sub-factors for learning, performance, participation, communication, collaborative work and research in determining the motivation to write. However, the scale prepared by the researcher consists of three sub-factors as motivation for learning (Sample item: What I learn in writing activities is exciting for me), motivation for performance (Sample item: I do my writing homework regularly) and motivation for participation (Sample item: I often volunteer to do writing activities in Turkish class). The result of the KMO Barlett test, which was performed to determine the suitability of the scale for factor analysis, was .853 and factor analysis was performed because it was found to be statistically significant ($\chi 2=909.165$; $p<0.00$). As a result of the factor analysis for these three factors, it was seen that there were some problems in the load distribution of the scale items in the factors. Since it was seen that there were items with a load on more than one factor, two items were removed from the scale, and the number of factors was reduced to two, namely participation in learning and performance. The table showing the factor loads of the scale items is provided in Appendix 1. The number of items, Cronbach's alpha values related to the sub-factors in the scale and the whole scale are shown in Table 5. The WMS, which was rearranged for the application as a result of the reliability analysis, is given in Appendix 2.

Table 5. Factor, number of items and Cronbach alpha values of WMS.

Factor	Number of Items	Cronbach Alpha
Learning motivation	9	.838
Performance motivation	7	.772
The whole scale	16	.886

Analysis of data

The SPSS (Statistical Package for Social Sciences) program was used to analyze the data in the study. Before the analysis, the Kolmogorov-Smirnov test was conducted to determine whether the scale of writing motivation showed normal distribution for Experiment 1, Experiment 2 and the Control groups. Since the values of the WMS are in the normal distribution range, the assumption of normality is met.

Two-way ANOVA for Mixed Measures on a single-factor analysis was performed to reveal whether the scores for writing motivation differed between the two experimental and the control groups. Since it was determined that there was no difference between the groups in terms of writing motivation, two-factor ANOVA for repeated measures was preferred. In addition to examining the differences between the groups in terms of dependent variables, the changes within the groups before and after the experiment can be examined with two-factor ANOVA for repeated measurements.

Findings and discussion

In this section, the findings on whether there was a significant difference between the experimental and control groups in the writing motivation scores as a result of the data analysis are explained, interpreted and discussed together with the related study results in the literature.

The research question regarding the students' writing motivation levels is "Is there a significant difference between experimental group 1 in the wiki-supported cooperative learning environment, experimental group 2 in the blog-supported individual learning environment and the control group in the traditional learning environment in terms of their writing motivation levels? In line with this research question, a two-factor ANOVA for mixed measures was conducted between the writing motivation levels of the experimental and control groups.

To perform a two-factor ANOVA for mixed measurements, the dependent variable should be at least in the interval scale, the scores of the dependent variable should show normal distribution, the variances between the groups should be equal, the covariances of the groups should be equal, and the difference scores of the participants should be independent of each other.

Since the scale of the writing motivation variable to which ANOVA was applied was Likert type, the interval scale assumption was met. After the Kolmogorov-Smirnov test of normality was applied, the kurtosis and skewness values were analyzed to examine the distribution of the scores of the writing motivation. Since the values of the WMS were in the normal distribution range, the assumption of normality was met. Since Levene's Test table showed that the variances of the pre-test and post-test scores of the groups are equal ($p>.05$), the assumption of the equality of variances was met. Box M values for the covariances of the groups were examined. Accordingly, the covariances were equal ($p>.05$). Therefore, the assumption of the equality of group covariances was satisfied. Since the difference score of any participant was independent of that of the other participants, the assumption of independence of difference scores was also met. These findings showed that the necessary assumptions were met to perform ANOVA for mixed measures. The mean, standard deviation, and minimum and maximum values of the participants in the experimental and control groups are given in Table 6.

Table 6. Distribution of mean, standard deviation, minimum and maximum values of the WMS.

	PRE-TEST					POST-TEST				
Group	N	$\bar{X}$	Min	Max	S	N	$\bar{X}$	Min	Max	S
Wiki	27	3.28	2.00	4.56	.64	27	3.19	1.44	4.50	.79
Blog	27	3.33	2.44	4.25	.43	27	3.14	1.88	4.81	.62
Control	27	3.23	2.25	4.00	.54	27	3.08	1.56	4.06	.54

WMS is a 16-item five-point Likert scale. Therefore, the lowest value a student can get from the scale is 16, and the highest value is 80. Analyses were made according to the item averages of the students. While the mean score of the group participating in writing activities in the wiki-supported cooperative learning environment was 3.28 before the experiment, this value became 3.19 after the experiment. While the average score of the group participating in the writing activities in the blog-supported individual learning environment was 3.33 before the experiment, it became 3.14 after the experiment. While the WMS score of the control group was 3.23 before the experiment, it became 3.08 after it. Accordingly, the pre-test and post-test values of the students who participated in wiki- and blog-supported writing activities and those with books in the classroom seem close to each other.

Table 7 shows the two-factor ANOVA results on whether the changes observed after the experiment compared to before the experiment showed a significant difference in the writing motivation levels of students exposed to three different processes.

Table 7. Distribution of ANOVA results of the WMS pre-test-post-test scores.

Source of Variance	SS	*df*	MS	F	p
Between-subjects	28.329	80			
Group (Wiki/Blog/Control)	.220	2	.110	.305	.738
Error	28.109	78	.360		
Within-subjects	29.993	81			
Measurement (Pretest-Posttest)	.789	1	.789	2.112	.150
	.071	2	.036	.095	.909
Group* Measurement					
Error	29.133	78	.374		
Total	58.322	161			

Accordingly, it was found that the writing motivation levels of the participants who participated in the writing activities in three different learning environments did not differ significantly from before the experiment. That is, the common effects of being in different process groups and repeated measures factors on writing motivation were not significant, $F(2,78)=.095$, $p > .05$. This finding revealed that participating in writing activities in a wiki-supported collaborative learning environment, a blog-supported individual learning environment, and a face-to-face individual learning environment did not have a decisive effect on changing students' writing motivation levels.

The analysis also includes the basic effect tests of the group and the measurement. The main impact tests given in Table 6 can be interpreted as follows: There is no significant difference between the averages of the total scores obtained from the pre-test and post-test scores for the level of writing motivation of the students who participated in the writing activities in the wiki-supported, blog-supported and traditional learning environment, $F(2.78) =.305$, $p>.05$. As can be seen, this test does not take into account the changes in the groups from the pre-test to the post-test. Regarding the main measurement effect, there is no significant difference between the mean scores of the writing motivation of the individuals participating in the study before and after the experiment, without making any group distinctions, $F(2.78)=2.112$, $p>.05$.

It is seen that performing writing activities with a group does not make a significant difference on motivation levels. However, at the end of the experiment, it is seen that the highest score belongs to the experimental wiki group in which the activities were carried out with the group. In addition, it is seen that the wiki group has a higher post-test score average than the group using individual blog writing. The fact that there is no significant difference between the groups in writing motivation scores indicates that the learning environment was not determinative for this study. Unlike the control group, students in the wiki and blog groups had to publish their writings in a way that people other than themselves could see. This situation may have prevented the increase in motivation levels by putting pressure on the students. Gündoğdu's (2017) study reveals similar findings in that blog-assisted writing activities caused fear of making mistakes in some students. The fact that everyone would see the writings was recorded as one of the negative situations that hindered the participants' motivation. Some students mentioned that this situation increased their motivation, while others said it decreased.

The belief that students will fail leads to feelings of anxiety and reluctance, preventing them from taking action and negatively affecting their motivation (Walker, 2003). Students' writing tendencies may have become sharper over the years. While students who previously liked to write can develop motivation, other students may be inadequate in this regard. However, according to the results, no significant decrease was observed in motivation levels. Therefore, it cannot be said that the wiki and the blog have failed in the motivation to write. Likewise, Bodur (2010) concluded that the blog did not affect students' motivation towards the lesson. Again, in the study of Çelik and Aydın (2021), it is seen that the wiki had positive effects on writing motivation, but it did not produce positive results on all items in the motivation scale.

In this study, the writing activities of the control and experimental groups were prepared based on the textbook determined by the Ministry of National Education. To avoid the uncertainty of the source of the effect, the writing activities in the course book used in the control group were also integrated into the learning environments of the experimental groups. Therefore, only the environment has changed, and the learning activities have remained as they are. This practice may have prevented the experimental group students from using their learning environments more freely. The necessity of sticking to the textbook while preparing writing activities may have caused insufficient time for students to spend on writing activities. While students could only perform writing activities for the lesson, they may not have developed enough motivation to perform the activities outside the classroom.

Although the results of the study show that wikis and blogs do not have a definite and significant effect on improving motivation to write, these technologies can be used for students with positive attitudes towards writing. The fact that

wikis and blogs do not decrease motivation may indicate that it is possible to achieve an effect if the factors related to the participant group are improved. Graham (2018) identified seven motivational beliefs: the value and utility of writing, whether the person enjoys writing and considers writing an attractive task, writing proficiency, why the person is engaged in writing, why one is or is not accomplished, identities as writers and writing communities. These are factors that affect the motivation to write. Therefore, participants who develop a positive attitude towards writing may be more motivated. Besides that, Ekholm et al. (2018) found that writing attitudes decline over the school years. Therefore, it may be beneficial to carry out technology-supported writing activities from the beginning of secondary school education to prevent a decrease in attitude and motivation.

In addition, creating a feedback-based learning motivation among students may not be as easy as it seems. Some students are concerned about damaging interpersonal relationships or the negative effects of power relationships among students on the content of feedback (Topping, 2009). To avoid such reservations, a more professional online peer review system can be created by using valid, reliable and well-structured rubrics (Schunn et al., 2016).

As in this study, Huei et al. (2013) concluded that the blog format was not more motivating. However, many studies say blogging is more motivating (Gallagher, 2010; Lee, 2010; Lou et al., 2010; Mompean, 2010; Trajtemberg & Yiakoumetti, 2011; Taki & Fardafshari, 2012). In this study, the result is not surprising due to the age group of the sample and the fact that they will take an exam for the transition to high school. Perhaps the most crucial issue for the participants' lives is this exam. They may not have wanted to deal with writing activities that they thought would not affect their Turkish course averages to a large extent. They may even see writing as a waste of time. Therefore, wikis and blogs seem insufficient to develop motivation for this.

Conclusion

This study investigated whether there was a significant difference in writing motivation between the experimental groups with wiki-supported and blog-supported learning environments and the control group with the traditional learning environment. There is no significant difference between the changes observed before and after the experiment in the writing motivations of the experimental and control groups. The writing motivation scores of the experimental and control groups are close to each other. Therefore, web 2.0 technologies did not increase students' motivation to write compared to traditional writing education. In addition, collaborative or individual structuring of the learning environment does not affect writing motivation.

Many studies show that learning motivation increases with technology support (Gallagher, 2010; Lee, 2010; Lou et al., 2010; Mompean, 2010; Trajtemberg & Yiakoumetti, 2011; Taki & Fardafshari, 2012). However, changing conditions can be critical in leading to different results. For this study, the most significant factor that may cause a positive development in students' motivation is their grade level. In addition, the literature supports the results of this study that technology support is insufficient to increase motivation at the end of the experiment (Rau & Wu, 2008; Huei, 2013). The low self-efficacy perceptions of students about writing may be another factor in their inability to develop motivation. Indeed, studies show a linear relationship between self-efficacy and motivation (Walker, 2003).

Although there was no significant difference between the groups in the study, results were observed in favor of the experimental groups. It is impossible to ignore the effect of collaborative technologies, which is the common point of the experimental groups. Therefore, teachers and teacher candidates have a great responsibility for the correct use of these technologies. It should not be forgotten that these technologies can be used more effectively in primary and secondary education if students are given the responsibility for adopting these technologies in higher education and creating effective cooperative learning environments.

Korucu and Karalar (2017) noted that instructors do not use blogs and wikis enough. They added that, in general, instructors use Web 2.0 tools to distribute instructional content to students based on a teacher-centered approach. This may prevent active learning. For this reason, there is a need for studies on the use of wikis and blogs in education. It is seen that wikis and blogs are widely used in foreign language education in the higher education process. Because these environments are designed as versatile and multilingual, they improve the learners' language skills. They enable learners to communicate and interact with learners in many parts of the world (Daşkın, 2017).

There are some differences between blogs and wikis. Blogs have a single author and are used for static and linear configurations. In contrast, Wikis have collaborative authorship, dynamic content, and non-linear and multi-page configurations (West & West, 2009). Whether these differences between wikis and blogs will make a difference in writing motivation can be more clearly demonstrated at the higher education level by expecting students to perform more and different types of academic activities.

Limitations of the study

During this study, it was observed that it took time for the students in the experimental groups to adapt to technology. Besides, it was observed that the students had problems logging into the system. It has been determined that the information that needs to be entered into the system, such as username and password, is forgotten. Additionally, the number of participants and distribution of groups are limitations of the study. In line with these limitations, offering some suggestions for practice and research is useful.

Suggestions for practice

The adaptation period of secondary school students should be considered when applying instructional technologies such as wikis and blogs. After ensuring that the technical

skills related to these technologies are fully used, it is helpful to start the application. The diffusion of innovations occurs at a certain time through various communication channels within the members of the social system (Rogers, 2003).

If students perform the application with their own technological tools, the time-consuming entry step can be easily skipped. At this point, adopting the BYOD (Bring Your Own Device) model may be appropriate. The BYOD model supports flexible and collaborative school learning environments (Johnson et al., 2015). Another solution for this problem may be to save all user information of students and enable them to access information about their accounts with the help of the teacher when necessary. Another solution is to ensure that all students continuously work on the same computer in the laboratory.

The laboratory environment where the application is carried out must have the physical competencies and the necessary technical equipment. Considering the contributions of wikis and blogs to written expression skills in this study, using these technologies in writing courses of departments providing education on language development in universities may be effective.

Suggestions for research

By repeating similar studies in different age groups and courses, generalizability can be achieved in the results of wiki and blog effects on the variables examined. Reflecting on the results of applications in different subject areas can make valuable contributions to the literature by observing whether wiki and blog technologies, known as authoring tools, give effective results in other courses.

The writing motivation variable examined in this study may be related to other variables. To see the consistency of the effects of different variables, the contribution of wiki-supported collaborative writing activities and blog-supported individual writing activities to different variables (perception of self-efficacy towards writing, attitude towards Turkish lessons, etc.) can be examined.

Different collaborative writing tools can be used for activities where students can think and work together. The effects of different applications that allow online co-creation (e.g. Google Docs, Office 365, Padlet as a digital clipboard, Riseup Pad) on writing processes can be examined with the methods used in this study.

Appendices

Appendix 1. WMS factor loads.

Item no	Items	Factors	
		Learning motivation	Performance motivation
1	Even if writing is not taught in school, I still want to learn how to write beautifully.	,668	,222
2	What I learn while doing writing activities in the lesson increases my desire to write.	,416	,204
3	What I learn in writing activities is exciting for me.	,602	,419
4	I would like my teacher to explain in detail when describing the writing topic and writing activities.	,718	,212
5	Writing activities are more important to me than listening, speaking and reading activities.	,219	-,098
6	Those who are successful in writing activities will also be successful in other lessons.	,128	-,002
7	I would like to get the highest grade in writing activities in Turkish class.	,837	,070
8	I would like to receive compliments on my writing.	,768	-,107
9	I like to share what I write.	,488	,328
10	I do my writing homework regularly.	,738	,206
11	Compared to other students, I rank my success in writing activities high.	,290	,350
12	I believe that in my next education life, I will be successful in writing activities.	,598	,420
13	I like to write about my daily life.	,485	,414
14	My favorite lesson is Turkish because of writing activities.	-,051	,776
15	I often volunteer to do writing activities in Turkish class.	,201	,701
16	I am happy when it is time for writing activities in Turkish class.	,224	,221

Appendix 2. Writing Motivation Scale.

Dear students,

Evaluate the following statements about writing motivation in terms of writing activities in Turkish lessons. Indicate your level of agreement with the statements with an X sign.

Items	I strongly disagree	I do not agree	I am undecided	I agree	I totally agree
1. Even if writing is not taught in school, I still want to learn how to write beautifully.					
2. What I learn while doing writing activities in the lesson increases my desire to write.					
3. What I learn in writing activities is exciting for me.					
4. I would like my teacher to explain in detail when describing the writing topic and writing activities.					
5.Writing activities are more important to me than listening, speaking and reading activities.					
6. Those who are successful in writing activities will also be successful in other lessons.					
7. I would like to get the highest grade in writing activities in Turkish class.					
8. I would like to receive compliments on my writing.					
9. I like to share what I write.					
10. I do my writing homework regularly.					
11. Compared to other students, I rank my success in writing activities high.					
12. I believe that in my next education life, I will be successful in writing activities.					
13.I like to write about my daily life.					
14. My favorite lesson is Turkish because of writing activities.					
15. I often volunteer to do writing activities in Turkish class.					
16. I am happy when it is time for writing activities in Turkish class.					

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