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INVESTIGATION OF WEB 2.0 RAPID CONTENT DEVELOPMENT SELF-EFFICACY PERCEPTION LEVELS OF TEACHERS WORKING IN SECONDARY SCHOOLS

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Abstract:
The skills such as information literacy, collaboration, problem solving and analyzing information are needed today, the importance of Web 2.0 applications becomes apparent. The research aims to determine the perception levels of teachers working in secondary schools about their competence to use Web 2.0 technologies. For the purpose, the main problem of the study was determined as "Investigation of Web 2.0 Rapid Content Development Self-Efficacy Perception Levels of Teachers Working in Secondary Schools". In the research 155 secondary school teachers working in Eskişehir province in 2019-2020 academic years chosen as a study group. The research was carried out in accordance with the descriptive research method, which is one of the quantitative research models. In the study, Web 2.0 Rapid Content Development Self-Efficacy Perception Scale (W2SEB) was used to collect data from teachers. According to the findings, there was a significant difference between teachers' daily internet usage hours and Web 2.0 rapid content development self-efficacy perception levels. There was no difference between teachers' self-efficacy scores and occupational seniority. No difference was found between teachers' computer use experiences and self-efficacy scores. As a result of the research, a statistically significant difference is found between teachers' perceptions of Web 2.0 rapid content development self-efficacy and their status of making an eTwinning project. In order to improve their perception of Web 2.0 rapid content development self-efficacy teachers should be encouraged to participate in eTwinning projects more. It is necessary to explain the Web 2.0 tools to teachers in in-service

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trainings and to provide information containing practical examples of the educational use of these tools.

Keywords: Web 2.0, self-efficacy perception, eTwinning, secondary school teachers

1. Introduction

Technology has transformed every field of life, it is inevitable that this will be reflected in today's educational environments. When the skills such as information literacy, collaboration, problem solving and analyzing information are needed today, the importance of Web 2.0 applications becomes apparent. Web 2.0 was first used by O'Reilly Media in 2004 and replaced Web 1.0, known as mono internet.

The main function of Web 1.0 is that people with technical knowledge place information on the site (O'Reilly, 2005). Sharing in Web 2.0 takes place among all users and it can be used by teachers for educational goals in line with the opportunities offered to users. Unlike Web 1.0, a definition can be made for Web 2.0 where users can also develop content, collaborate with each other, and allow information and ideas to be exchanged between users. Web 2.0 is also referred to as the second generation web environment (McLoughlin and Lee, 2007).

Digital content production in teachers' educational environments has also gained an important dimension as the internet usage style has changed and users have become a producer from the consumer position. When teaching 21st century skills to children it is important that teachers should have 21st century skills on technology like digital tools and innovations. Technology offers the potential to develop students' 21st-century skills and opens them new ways to develop their skills like problem solving, critical thinking and communication (Saavedra, A. R., & Opfer, V. D. 2012). It can be said that learning experiences created with social software tools and many other similar applications can improve learning. In this context, education can no longer be understood without the aid of technology (Tejada & Fernández, 2018). In his research Sakman, S. (2020) states that it must be used multimedia elements like texts, photographs, video and animations related to the subject, hypertext, augmented reality applications and movable three-dimensional objects in the digital books. Web 2.0 tools make students research, inquire, produce by removing them from the position of just learning. Instead of classical learning, Web 2.0 tools should be used in order for students to enjoy the lesson and learn with fun (Timur, S., Timur, B., Arcagök, S. ve Öztürk, G. 2020).

Educational technologies can be defined as designs that can be applied to educational problems by bringing solutions to these problems and creating a better learning environment (Erdoğmuş and Çağıltay, 2009). It is understood that the integration of education with technology is based on teachers' behavior and perception and self-efficacy towards technology integration.

The concept of self-efficacy appears technically as "perceived self-efficacy". It was first mentioned by Albert Bandura in Social Cognitive Theory. The self-efficacy

perception is the belief and self-judgment of the individual about overcoming the difficulties that the individual is exposed to (Bandura, 1997). It is seen that self-efficacy adapted to many fields is used in different disciplines. Web 2.0 Rapid Content Development Self-efficacy Belief Scale developed by Birişçi, S., Kul, Ü., Aksu, Z., Akaslan, D., Çelik, S. (2018) to identify teachers' self-efficacy beliefs in incorporating Web 2.0 tools in their classroom activities is one of these adaptations. We can say that individuals with high self-efficacy perception in Web 2.0 rapid content development have beliefs that they can overcome the difficulties they will encounter in any technology integration. Today, it is considered that determining the self-efficacy beliefs of teachers or pre-service teachers on Web 2.0 tools is important in the contet of organizing teaching activities or revealing the need for professional development (Birişçi, S., Kul, Ü., Aksu, Z., Akaslan, D., Çelik, S., 2018).

In the research conducted by Horzum, M. B. (2010), where teachers' awareness of Web 2.0 tools, their frequency of use, and their goals were examined in terms of various variables, there is relation between internet usage frequency and Web 2.0 tools awareness. In the same study, Web 2.0 awareness was found higher among teachers with less teaching experience than teachers with higher teaching experience.

eTwinning, an online learning platform that enables teachers in Europe to do projects online, supports developing Web 2.0 content. It makes students more active and enables self learning for students. In the research conducted by Çakmak, B. (2020), ıt has been observed that self-learning with technology increase study self-efficacy. With this research, Web 2.0 rapid content development self-efficacy of teachers working in secondary school; the current situation is revealed by examining whether it differs according to the branch, the time spent in the profession, the experience of using the computer and whether or not he / she did the eTwinning project before. In line with the results obtained, it is thought to guide future studies. In this context, the purpose of this study is to determine the perception levels of secondary school teachers towards their competence to use Web 2.0 technologies. For this purpose, the main problem statement of the study was determined as "Investigation of Web 2.0 Rapid Content Development Self-Efficacy Perception Levels of Teachers Working in Secondary Schools"

Within the scope of these purposes, the following sub-goals are determined.

1) What are the Web 2.0 rapid content development self-efficacy of secondary school teachers?
2) Web 2.0 rapid content development self-efficacy of teachers working in secondary school;

- Does it differ according to the branches?
- Does the teachers differ in terms of the year they spent in the profession?
- Does it differ according to the amount of time spent in computer?
- Does it differ according to the situation of making an eTwinning Project before?

2. Methodology of Research

The research was carried out in accordance with the descriptive method, which is one of the quantitative research patterns. The descriptive research is an approach that describes an existing situation as it is (Büyüköztürk, Çakmak Kılıç, Akgün, Karadeniz ve Demirel, 2010; Karasar, 2012). With this research design, it is aimed to determine the self-efficacy perception levels of secondary school teachers' Web 2.0 rapid content development.

2.1. Study Group

The study group of the research consists of 155 secondary school teachers working in Eskişehir province in 2019-2020 academic year. The study group was selected by simple random sampling method.

Table 1: Branches of Teachers

Branches	**Frequency (n)**	**Percentage (%)**
Turkish	19	12,3
Physical education	25	16,1
Religious culture and moral knowledge	8	5,2
Visual Arts	22	14,2
Science	16	10,3
English	26	16,8
Elementary School Mathematics	20	12,9
Computer Education and Instructional Technology	7	4,5
Music	12	7,7
Total	**155**	**100,0**

According to Table 1, secondary school teachers from 10 different branches participated in the research. Considering the branches of the teachers, it is quite obvious that the teachers in the research are the most English teachers and the least are the Computer Education and Instructional Technology teachers.

2.2. Data Collection Tools

In this study the Web 2.0 rapid content development self-efficacy beliefs (W2SEB) scale developed by the researchers was used (Birişçi, Kul, Aksu, Akaslan & Çelik, 2018). This scale was developed by Birişçi, Kul, Aksu, Akaslan, and Çelik (2017) in order to evaluate teachers' belief levels regarding the use of Web 2.0 tools in the course content process and to determine their ability to use technology. The scale consists of 21 items and has a five-point Likert type. The categories of the scale include “I am totally inadequate”, “I am inadequate”, “I am moderately adequate”, “I am sufficient” and “I am completely sufficient”. The lowest score is 21 points, the highest score is 105 points. The scale was applied to 155 teachers in Eskişehir province. Cronbach Alpha internal coefficient for the scale was .95, while .97 was found in this study.

2.3. Data Analysis

Demographic information of the teachers forming the working group and in the interpretation of Web 2.0 rapid content development self-efficacy perception levels frequency, percentage, arithmetic mean and standard deviation were used. Considering the skewness and kurtosis values of the data, it can be said to be normally distributed since it is between + 1.96, -1.96 values. Independent sample t-test was conducted to determine whether self-efficacy beliefs differ according to the state of doing an eTwinning project before. Whether the self-efficacy beliefs change according to the occupational seniority, branch and computer experience was examined with one-way analysis of variance (ANOVA). In order to determine the direction of the differences obtained with ANOVA, homogeneity test was conducted between the groups and it was observed that it was distributed homogeneously. Hochberg GT2 Post Hoc test was used to find the direction of difference.

3. Results of Research

After analyzing the data, findings to determine whether secondary school teachers' Web 2.0 rapid content development beliefs change according to some variables will be discussed in this section.

Table 2: Internet Usage In A Day

Internet Usage In A Day	**Frequency (n)**	**Percentage (%)**
Less than 1 Hour	8	5,2
1-2 Hours	66	42,6
3-4 Hours	61	39,4
More than 4 Hours	20	12,9
Total	**155**	**100,0**

According to the Table 2, the rate of teachers whose daily internet usage time is 1-2 hours is more than two fifths of the teachers who participated in the research (42.6%).

Internet Usage In A Day	**n**	$\bar{x}$	**Ss**	**F**	**p**
Less than 1 Hour	8	2,5893	,67581	4,771	0,003
1-2 Hours	66	3,1385	1,02008		
3-4 Hours	61	3,4840	,96096		
More than 4 Hours	20	3,8333	,86580		

According to the analysis of variance to determine the difference between Web 2.0 rapid content development beliefs according to daily internet usage times, a statistically significant difference was found between internet usage times and belief scale scores.

Table 3: Daily Internet Usage Time Hochberg GT2 Post Hoc Test Results

Internet Usage In A Day		**p**
1.Less than 1 Hour	2. 1-2 Hours	,563
	3. 3-4 Hours	,085
	4. Less than 1 Hour *	,014
2. 1-2 Hours	1. Less than 1 Hour	,563
	3. 3-4 Hours	,242
	4. More than 4 Hours *	,032
3. 3-4 Hours	1. Less than 1 Hour	,085
	2. 1-2 Hours	,242
	4. More than 4 Hours	,649
4. More than 4 Hours	1. Less than 1 Hour *	,014
	2. 1-2 Hours*	,032
	3. 3-4 Hours	,649

Hochberg GT2 Post Hoc test was used to determine the direction of difference. According to the result of the test, a significant difference was found between those with a daily internet usage time of less than 1 hour and more than 4 hours, and between those with a daily internet usage time of 1-2 hours and more than 4 hours.

Table 4: Occupational Seniority

Occupational Seniority	**Frequency (n)**	**Percentage (%)**
1-5 Years	19	12,3
6-10 Years	53	34,2
11-15 Years	27	17,4
16-20 Years	40	25,8
21 Years or More	16	10,3
Total	**155**	**100,0**

In Table 4, which shows the time spent in the profession, it is seen that the teachers with seniority between 6-10 years are more than one third of the total participants. The rate of teachers with seniority of 21 years or more participating in the research is 10.3%.

According to the result of variance analysis to determine the difference between teachers' seniority and Web 2.0 self-efficiacy beliefs sccores, no statistically significant difference was found between seniority and rapid content development belief scores.

Table 5: Computer Usage Experience

Computer Usage Experience	**Frequency (n)**	**Percentage (%)**
1-5 Years	3	1,9
6-10 Years	41	26,5
11-15 Years	54	34,8
16-20 Years	52	33,5
21 Years or More	5	3,2
Total	**155**	**100,0**

According to Table 5, more than one third of the participants have the experience of using computers between 11-15 years. It is seen that 3 participants have 1-5 years of computer use experience. According to the result of the variance analysis conducted to determine the difference between teachers' computer use experiences and Web 2.0 rapid content development beliefs, there was no statistically significant difference between computer use experience and Web 2.0 fast content development self-efficacy belief scores (p> 0.05).

Table 6: Status of Doing an eTwinning Project Before

Status of Doing an eTwinning Project Before	**Frequency (n)**	**Percentage (%)**
No	94	60,6
Yes	61	39,4
Total	**155**	**100,0**

It is seen that 94 of the participants have not previously done an eTwinning project. 61 participants have previously been involved in an eTwinning project. Independent sample t-test was conducted to determine the difference between teachers' previous status of making an eTwinning project and their beliefs in Web 2.0 rapid content development.

Status of Doing an eTwinning Project Before	***n***	$\bar{x}$	**Ss**	**F**	**p**
No	94	2,7756	,72037	,182	0,000*
Yes	61	4,1991	,71389		

*p<0.05

Comparing the scores of rapid content development beliefs according to the status of doing or not doing an eTwinning project in the table, it is seen as the self-efficacy ($\bar{x}$= 2,7756) of the teachers who have not done eTwinning projects before. On the other hand, it is in the form of teachers ($\bar{x}$= 4,1991) who have already done an eTwinning project. According to the participants' status of making an eTwinning project, whether the Web 2.0 rapid content development self-efficacy beliefs have changed has been examined by independent sample t-test and a statistically significant difference has been found among the teachers as a result of the analysis. (p <0.05)

4. Discussion and Conclusions

According to the analysis of the obtained data in the research; The average of teachers' Web 2.0 rapid content development self-efficacy perception scores is 70.05. There was no difference between teachers' self-efficacy scores and occupational seniority. These findings are similar to the study conducted in 2016, examining teachers' attitudes towards education with technological tools (Çınarer, G., Yurttakal, A. H., Ünal, S., & Karaman, İ. 2016). On the other hand there is a significant difference was found between daily internet usage time and self-efficacy perception. This difference is between those with daily internet usage time of less than 1 hour and more than 4 hours and between those with daily internet usage time of 1-2 hours and more than 4 hours. From this point of view, as

the daily internet usage time increases, we can say that Web 2.0 rapid content development self-efficacy perception increases. These findings differ from those of Horzum (2010). No difference was found between teachers' computer use experiences and self-efficacy scores. We can define that there is no difference between the teachers who started using computers before and the teachers who started later, as the teachers quickly adapt to the rapidly advancing technology. The difference between teachers' perceptions of Web 2.0 rapid content development self-efficacy and status of doing a previous eTwinning projects is significant. Due to the online nature of the eTwinning online project platform, it is important to collaborate and provide project-based work tools with Web 2.0 tools. Research by Pateraki supports our study, in his research teachers were asked to determine their entry level according to digital competencies through self-assessment, they are asked to complete an online questionnaire before and after an eTwinning project as a result and there has been a significant increase in their perceived competence (Pateraki, I., 2018). Web 2.0 technologies are ideal to exploit the synergic and cooperative nature of the web. Therefore, we can say that teachers carrying out eTwinning projects have high self-efficacy perceptions of Web 2.0 rapid content development.

Teachers find Web 2.0 tools useful in education (Caliskan, S., Guney, Z., Sakhieva, R. G., Vasbieva, D. G., & Zaitseva, N. A. 2019) Information technologies are increasingly included in education every day. Education, gradually left from the concept of classical classroom and knowledge, has spread rapidly and instantly all over the world. Digital technologies, which are changing and developing day by day, will continue to transform the role of the teacher in education and individualized learning spaces (Ally, M. 2019). We can say that education technologies have removed the limits in this context. In the constantly advancing technology and developing world, students have become active learners rather than an audience (Korucu, A. T., & Sezer, C. 2016).

eTwinning enables teachers to use information technologies effectively in their lessons ("eTwinningin Faydaları", 2020). Teachers should participate in eTwinning projects more to increase their perception of Web 2.0 self-efficacy. Teachers who implement online educational and collaborative projects such as etwinning, and teachers who can share good practice and access professional opportunities through the use of ICT and digital technologies, create facilities to bring innovation to their classrooms (Arama, A., 2018). It is necessary to explain the Web 2.0 tools to teachers in in-service trainings and to provide information containing practical examples of the educational use of these tools.

Conflicting of Interests Statement

The authors declare that there is no conflict of interest.

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