

Web 2.0 Applications in the Teaching Process: A Swot Analysis

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Kevser Arslan

PhD Student, Department of Mathematics and Science Education
Yıldız Technical University, Istanbul, Turkey

<https://orcid.org/0000-0003-0658-7175>

Fatma Coştu

Department of Mathematics and Science Education
Marmara University, Istanbul, Turkey

<https://orcid.org/0000-0002-7101-6267>

Abstract

This study, it is aimed to determine the strengths and weaknesses of the web 2.0 applications used in the teaching process through SWOT analysis and to reveal the opportunities and threats. For this purpose, the study group consists of 20 volunteer teachers working in public and private schools. The teachers benefited from web 2.0 tools in their lessons and could actively use web tools. Online interviews were conducted with the teachers. The data obtained from the interviews were evaluated by using descriptive content analysis. The themes and codes were created by analysing the interview data considering the SWOT analysis and its sub-themes. As a result of the research, it was determined that the strengths of the web 2.0 applications used in the teaching process are making the students active, providing permanence in learning, increasing success and creating a positive effect on the development of many skills. Weaknesses of web 2.0 tools; difficulties in creating the materials, time-consuming use in the course, not allowing everyone's access, lack of technology and access. Features such as being independent of space and time, creating the desired content, sharing information, using it as a measurement tool, getting quick feedback, and providing a flexible classroom environment are included among the opportunities of web 2.0 tools. It is under the threat of reducing the influence of the teacher, disrupting the dominance of the lesson, removing the subjects from the centre, causing distraction, experiencing internet and access problems, creating technology addiction in students and creating security problems.

Keywords: Technology, Education, Web 2.0 applications, SWOT analysis.

Introduction

It has been shown that one of the most important areas highlighted by information technologies, which progress at a dizzying pace day by day, is undoubtedly web Technologies (Karaca&Aktaş, 2019). As a result, the demand for applications based on web 2.0 tools is increasing rapidly and the level of interest in web 2.0 tools is increasing (Timur, Timur, Arcagök&Öztürk, 2020). For students to reach the targeted point, the necessity of supporting the process by using technologically oriented methods and techniques comes to the fore because traditional methods are insufficient in the teaching process. At this point, teachers may need various web tools that can help teachers create and develop effective course materials that can support teaching (Uysal, 2020).

Şengür (2020) states that web 2.0 tools are an important tool that plays a role in activating the information flow by supporting interaction and sharing of students. It is also emphasised that the use of web 2.0 tools in education is the most important step that can contribute to the development of learning and teaching environments. While web 2.0 tools provide interactive learning opportunities, they also provide the opportunity to prepare the desired learning environment and content without being dependent on time and place.

It is frequently stated that with the effective use of online learning activities based on such methods, an effective blended learning environment, including face-to-face education, can be created (Deperlioğlu & Köse, 2010). Çelenk (2020) states that the use of web 2.0 tools in education can be seen as a technological innovation in the education system. It is expected that students can take an active role in producing, organising, researching and questioning information in the teaching activity. With the developing information and communication technologies, the needs expected from individuals also differ. Based on this differentiation, digitalisation comes to the fore even more. Web 2.0 technology applications should be adopted to gain awareness and skills to use digital tools efficiently to access, manage, integrate, evaluate and analyze digital resources (Huang, Hood & Yoo, 2013). Faizi (2018) states that students can have the potential to create interactive learning environments by seizing the opportunity to manage their learning with these applications. It also states that with these innovative technologies, they can transition out of the classroom and school context.

It is seen as one of the advantages of web 2.0 tools that it takes teachers and students out of the classroom and helps them dominate the whole learning process (Horzum, 2010). It takes students beyond traditional learning environments by creating learning environments that enable them to cooperate and become active (Clements & Boyle, 2018). It takes students beyond traditional learning environments by creating learning environments that enable them to cooperate and become active (Clements & Boyle 2018). These applications create rich learning environments and increase the interaction or cooperation between individuals who teach and learn (Aşıksoy, 2018). It is known from the literature that web 2.0 tools can increase their potential in improving communication, problem-solving and self-regulation skills (e.g., Ianos & Brezeanu, 2020). It is also revealed in related studies that web 2.0 tools contribute to student-teacher-parent interactions and are beneficial to students' auditory characteristics, learning and skills (e.g. Özpınar, 2020). It is stated by Özer and Kıyıcı (2017) that teaching environments based on web 2.0 tools provide the opportunity for each individual

to learn and convey their thoughts in the context of their speed and wishes. It is frequently emphasised that web 2.0 applications, which help teachers and students who are active in the teaching process, to actively prepare content, cooperate and improve their creative thinking skills, can provide permanent learning by increasing the interaction in the learning environment in this process (e.g. Şengür, 2020). On the other hand, in the literature, there are some studies proving that web 2.0 tools have a positive effect on increasing success (Akkaya, 2019; Göker & İnce, 2019; Erkensiz, 2017; Gündoğdu, 2017; Iwamoto, Hargis, Taitano & Vuong, 2017; Korkmaz, Vergili, Çakır and Erdoğan, 2019; Mason, 2016; Uysal, 2020; Yıldırım, 2020). It is recommended by Hall (2015) that web 2.0 tools are an effective way of teaching and that educators should be equipped with the necessary equipment. In addition, while it is emphasised that the use of web 2.0 tools by teachers in the education process is beneficial in many ways, suggestions are made by educators for their use in the teaching process (Avcı & Atik, 2020). In addition to the positive effects mentioned, it is possible to come across studies that prove that web 2.0 tools also increase the motivation of students during the course process (Girgin, 2019; Mete & Batıbay, 2019; Yapıcı & Karakoyun, 2017). In the light of the relevant literature, it can be said that there are many studies that can draw a general perspective on the positive effect of web 2.0 tools on the learning and teaching process (Altıok, Yükseltürk & Üçgül, 2017; Avcı & Atik, 2020; Baş & Turhan, 2017; Çalışkan, Güney, Sakhieva, Vasbieva & Zaitseva, 2019; Chng & Gurvitch, 2018; Demirkan, Gürışık & Akın, 2017; Efe, 2015; Eyyam & Doğruer, 2011; Ünal & Uzun, 2018).

Despite the positive effects mentioned, web 2.0 tools have difficulties in the learning process (e.g. Grosseck, 2009); lack of skills in using web 2.0 tools (e.g. Lim & Newby, 2020); Some disadvantages can also be mentioned, such as not having sufficient equipment to use web 2.0 tools (e.g. Özer & Özer, 2017). It is possible to add to these negativities problems such as internet connection problems, lack of trust and the competencies of using these tools (Şahin-Topalcengiz & Yıldırım, 2020). Revealing the positive and negative aspects of web 2.0 tools with

different techniques can contribute to the studies in this field. For this reason, using the SWOT analysis technique can contribute to the field. SWOT analysis, which is strategic planning used in the analysis of the current situation; is an acronym formed from the English initials of the words strength, weakness, opportunity and threat (Cebecioğlu, 2006). Leiber, Stensaker and Harvey (2018) explain SWOT analysis as a structure based on identifying internal and external factors that may affect the researched process or structure. On the other hand, it defines the determined subject as a systematic evaluation method that supports strategic decision making. SWOT Analysis; is to develop future-oriented strategies by revealing the strengths and weaknesses, the opportunities and threats it faces (Güldiken, 2016). By revealing the strengths, it can contribute to creating strategies that aim to make the most of the opportunities, strengthen the weaknesses and take precautions against threats (Erçetin, 2019). The SWOT analysis matrix is given in Figure 1 (Deshpande & Ashtikar, 2005; Gürel & Tatlı, 2017).

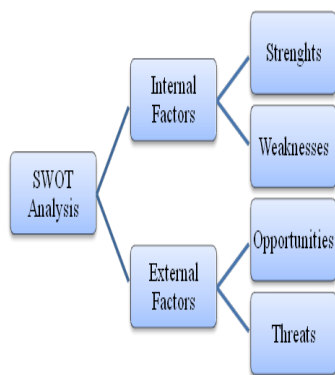


Figure 1: SWOT analysis matrix

Taking advantage of existing strengths and opportunities at the highest level, considering internal and external factors; Developing plans and strategies that can minimise the effects of threats and weaknesses constitute the purpose of SWOT analysis (Şahin, 2013). KıyasBirel (2008) states that SWOT analysis is an effective analysis technique that can be used to increase power and eliminate risks. He also explains it to start a discussion process about the future and goals, leaving behind ordinary points of view. Although SWOT analysis is expressed as a critical thinking exercise, it can be used by teachers

and students to reveal ideas in the context of education (Orr, 2013). SWOT analysis is stated by İçbay (2005) as a method of approaching the goal by increasing the effects of strengths and evaluating opportunities. As a result of the effective use of SWOT analysis, it can create a basic strategy (Kajanus, Kangas & Kurttila, 2004). The SWOT analysis approach can create a solid framework for a comprehensive examination of the examined subject characteristics (O'Brien et al., 2020). The main purposes of the analysis can be listed as developing strengths, minimising weaknesses, seizing opportunities and countering threats (Leiber et al., 2018). The most important aspect is that it allows the evaluation of internal and external situations (Güldiken, 2016).

It can be stated that the online education process, which is based on the developing technology and transitioned with the pandemic, highlights the need to benefit from different technologies in the teaching process. It is obvious that the use of web 2.0 tools in the teaching process, which manifests itself in line with this need, has become widespread. With the SWOT analysis, teaching environments can be arranged in a more efficient way, obstacles can be minimised, opportunities can be used better, and thus learning and teaching processes can be moved to a qualified point (Aköz, 2019). It is thought that web 2.0 tools used by teachers and students in the teaching process may have strong effects on the process and weak or threatening effects. Within the framework of this idea, revealing the weaknesses and strengths of web 2.0 tools towards the teaching process; aims to identify opportunities and threats. Teachers or students benefit from the strengths and opportunities demonstrated by an effective SWOT analysis; It is expected that the current effectiveness of web 2.0 tools can be reflected on the subjects of the teaching process. On the other hand, minimising existing weaknesses and threats of web 2.0 tools; In the context of teaching, it is aimed to prevent the negative effects that may occur on individuals. It will be possible to make inferences about the future situations of teaching based on web technologies by moving beyond the current situations. It should be possible to make a system for web 2.0 tools in teaching conditions for both teachers and students. Considering the case of taking precautions against

the threats that may be revealed as a result of the research, strengthening its weaknesses and using its strengths to the maximum extent, it is clear that the current study may be needed by the literature. In the teaching process, it can be expressed as another research output to ensure that the tools based on web 2.0 technologies are coordinated and moved to a quality point. The aim of the study has been shaped based on the expected outputs from the current study and the contributions it can provide to the teaching process. The study, it is aimed to evaluate the web 2.0 applications used in the teaching process with the SWOT analysis method. The research questions created within the framework of this purpose are given as follows.

1. What are the strengths of web 2.0 tools used by teachers in the teaching process?
2. What are the weaknesses of web 2.0 tools used by teachers in the teaching process?
3. What are the opportunities offered by web 2.0 tools used by teachers in the teaching process?
4. What are the threats posed by web 2.0 tools used by teachers in the teaching process?

Method

Research Model

The research was carried out within the framework of qualitative research methods with the aim of determining the thoughts about the strengths and weaknesses, opportunities and threats of the web 2.0 tools used in the teaching process. The research was carried out using the phenomenology model, which is one of the qualitative research methods. Phenomenological studies develop the foundations of explanatory theories of social processes that make sense of the life experiences of individuals that require familiarity with the subject and examine

how. In this design, an appropriate research question and effective matching between the shaped objectives and products can be made (Neubauer, Witkop&Varpio, 2019; Starks, Brown, & Trinidad, 2007; Van Manen, 2017). Phenomenology is defined as a rigorous and systematic study carried out to enable participants to express their life experiences at a significant level, as well as providing access to subjective knowledge and perception (Koopman, 2017). The most striking aspect of this type of design is that it reveals the thoughts and personal meaning structures of individuals within the framework of perspectives (Patton, 2018; Willig, 2008).

Study Group

The participants of the research consist of 20 teachers who work in different provinces and give education in different branches during the 2020-2021 academic year. Since it is recommended to have at least 10 participants in phenomenology studies, it can be said that the current study group is sufficient in number (Charmaz, 2011). While forming the study group participants, a criterion sampling type was used. In this type of sampling, the focus is on the participants who met the criteria established within the scope of the study or met the predetermined criteria (Yıldırım&Şimşek, 2018). In this direction, while determining the participant teachers to collect data, the use of web 2.0 tools in the teaching process and the use of these tools in their lessons were considered. Volunteer teachers who have knowledge of web 2.0 tools were included in the study. Participating teachers included in the study; It was coded as T1, T2, T3, ...T20. The "T" stands for the word teacher. Information about the teachers who participated in the study is given in

Table 1: Information on the branch teachers in the study group

Code	Gender	Professional Seniority	Educational Status	Branch	School Type
T1	Female	11	Bachelor	Science	Public
T2	Female	2	Graduate	Science	Private
T3	Female	3	Bachelor	Math	Private
T4	Female	17	Doctorate	Social studies	Public
T5	Female	11	Bachelor	English	Public
T6	Male	3	Graduate	Math	Private
T7	Female	14	Bachelor	Math	Public

T8	Female	16	Bachelor	English	Public
T9	Female	5	Bachelor	English	Public
T10	Male	2	Graduate	Science	Private
T11	Female	2	Bachelor	Science	Private
T12	Female	2	Bachelor	Science	Public
T13	Female	4	Bachelor	Math	Public
T14	Female	5	Bachelor	Social studies	Public
T15	Female	5	Bachelor	Math	Private
T16	Female	15	Bachelor	English	Private
T17	Female	1	Bachelor	Social studies	Private
T18	Female	10	Graduate	Science	Public
T19	Male	1	Bachelor	Math	Public
T20	Male	5	Doctorate	Turkish	Private

When Table 1 is examined, information about the participating teachers can be seen. 16 of the teachers who participated in the study were women; It is understood that 4 of them are male. It can be seen from the table that the seniority of the teachers is between 1 and 17 years, that they have education levels from language level to doctorate level, and that there are teachers from every major branch. In

addition, it is understood that teachers working in both private and public schools participated in the study.

Information on the web 2.0 tools that participant teachers use in the learning process is given in Table 2.

Table 2: Web 2.0 tools used by branch teachers in the study group

Web 2.0 Tools	Private School Teachers	Public School Teachers
Kahoot	8	9
Prezi	9	8
Google Form	9	8
Edmodo	8	5
Padlet	7	5
Canva	7	5
Scratch	7	3
Popplet	8	2
Learnings App	7	2
Mind-map	6	2
Coggle	4	2
CroosWord Labs	4	2
Story-Bird	3	2
Learnings App	3	2
Qr-Kod	3	1
Quizlet	3	1
Pixton	3	-
Wordwall	3	-
Storyboard That	3	-

*While calculating the frequency values, the use of more than one web 2.0 tool by a teacher has been taken into account.

When Table 2 is examined, it is seen that the web 2.0 tools used by the participating teachers in their teaching processes. It is seen that the participants of the study use web 2.0 tools that fulfil many purposes such as making presentations, creating concept maps, evaluating, and creating stories. In addition, it is understood that the teachers working in both private and public schools used kahoot, prezi presentation, google form, edmodo, padlet, canva applications the most.

Data Collection Tools

Research data were obtained through semi-structured interviews. It is appropriate to use interviews in order to clearly reveal the experiences in phenomenology studies (Creswell, 2018). It is stated that interviews are in a special position in qualitative studies and are among the most powerful techniques in the data collection process (Tekin&Tekin, 2006). It is to be able to determine the judgments that individuals form about their experiences and how they will realize their future experiences. It can be pointed out that semi-structured interview is an appropriate tool in educational studies because it is not of a sharp standard and is flexible (Türnüklü, 2000). In this context, in the current study, individual interviews were conducted with the teachers through the zoom application in the online environment by using semi-structured interviews. During the interview, sub-questions were included to help the teachers at the points they needed. The interview form, which includes the questions to be asked to the participants before the data collection phase, was developed by the researchers based on the SWOT analysis matrix subheadings. It was then used after taking expert opinion and shaping its final form in line with the feedback received. In the first part of the interview form, which consists of two parts, there are participants' gender, age, seniority, education status and branch demographic information; In the second part, there are four basic questions to determine the views on web 2.0 tools. The questions in the form and directed to the participants to collect data; were addressed orally under the main headings, including their views on the strengths, weaknesses, opportunities and threats posed by web 2.0 tools, and data were collected according to these headings. The

questions asked to the teachers during the interview are given below, respectively:

1. What are the strengths of web 2.0 tools used in the teaching process?
2. What are the weaknesses of web 2.0 tools used in the teaching process?
3. What are the opportunities provided by the web 2.0 tools used in the teaching process?
4. What are the threats posed by web 2.0 tools used in the teaching process?

Data Analysis

The data obtained from the interviews conducted in the online environment were analyzed by using the content analysis technique. The process of analyzing qualitative data begins with the collection and collection of data prepared for analysis on a regular basis. In the next stage, it is based on the analysis of the collected data, separating them under certain codes and presenting them in tables (Creswell, 2013; Elliott, 2018; Erlingsson&Brysiewicz, 2017). Descriptive analysis is based on the analysis and interpretation of the obtained data, taking into account the previously created themes. It is stated that the descriptive analysis process is completed in four steps. In the first stage, a framework is created for the data analysis of the data obtained on the basis of the research, it is decided under which themes it will be organized and presented, the data is read and organized in the context of the determined themes. In completing this process, it is important for the researcher to be able to analyze the data logically (Baltacı, 2019; Özdemir, 2010; Vaismoradi, Turunen&Bondas, 2013; Yıldırım&Şimsek, 2018). In this direction, in the current study, considering the sub-headings of the matrix of the SWOT analysis in the process of descriptive content analysis; i) Strengths of web 2.0 Tools in the Teaching Process, ii) Weaknesses of web 2.0 Tools in the Teaching Process, iii) Opportunities Provided by web 2.0 Tools to the Teaching Process and iv) Threats Created by web 2.0 Tools in the Teaching Process were determined. The interview records of the participants were transcribed in the same way without any correction to be deciphered by the researchers. In this direction, each view was examined, similar views were brought together, codes were created that allow to look at the

similar features from a general framework, and the frequency values of the codes were calculated. While calculating the frequency values, the case of each teacher having more than one answer was taken into account. In the next stage, each teacher's opinion was examined and placed under the previously created themes. Therefore, the data processing process of the research was carried out and the data analysis process was terminated. After the analysis, the findings were presented based on the research questions. In the study, the data obtained through the interviews were interpreted and these comments were supported by quoting from the interviews.

Validity and Reliability

While coding the data obtained from the interviews, the reliability of the analyzes is important in the theme and code creation process. The data obtained from the teachers through interviews were transcribed one-to-one. The study data were sent to the education field specialist for review. Data coded by field experts and researchers were brought together, each theme and code were controlled. The data analysis process was completed by providing a consensus between the experts and researchers and finalizing the data. The reliability calculation of the research was carried out by using the reliability formula of Miles and Huberman (2016). The numbers of "Agreement" and "Disagreement" are determined from the markings of researchers and field education experts. Confidence coefficient is calculated by dividing the consensus by the sum of those with and without consensus and multiplying by 100. The calculated value should be at least 80 (Miles & Huberman, 2016). The reliability of the research

calculated in this direction was found to be 92%. Therefore, it is concluded that the reliability among the evaluators is ensured. Explanations were made under the data presented in tabular form and direct quotations were made from the teachers' views.

Ethical Issue

Within the scope of the research, the voluntary participation of the branch teachers to be interviewed was taken into consideration. It was stated that the online interviews with the participants would be confidential and would be used within the scope of a scientific study. In addition, branch teachers were informed that they could leave the research at any time they wanted. The questions were asked to the interviewees in the same order, and there was no limitation for the answers given by the participants. Thus, the teachers were given the opportunity to express their thoughts that they found important on the subject. It was explained that the confidentiality principle of the answers received from the students who voluntarily participated in the research would not be violated, that the data obtained would never be used for purposes other than scientific research, and that the control would be provided by the researcher at every step. In addition, the respondents were assured that their identities would not be revealed and their identities would be hidden.

Findings

The SWOT matrix findings of the data obtained from the online interviews of the teachers participating in the study regarding the web 2.0 applications used in the teaching process are given in Table 2.

Table 2: SWOT Matrix Findings for Web 2.0 Applications Used in the Teaching Process

Strengths	Weaknesses
<ul style="list-style-type: none"> • Ability to Share Content with Students • Increasing Student Success • Making the Student More Active in the Teaching Process • Being Effective in Teaching Concepts • Ensuring permanent learning 	<ul style="list-style-type: none"> • Internet Connection and Access Problems • Difficulty in Use • Waste of Time in the Teaching Process • The Process of Creating Materials Takes Time • Not suitable for all levels of students.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Being Student-Centered • Providing a Fun Learning Environment • Creating a Comfortable Classroom Environment • Providing Visual and Auditory Support • Increasing Class Efficiency • Increasing Student Interest • Increasing Motivation • Being Attractive • Encouraging Students • Working in Collaboration • Increasing Student Success • Activating the Student in the Teaching Process • Being Effective in Teaching Concepts • Ensuring Permanence in Learning • Being Student-Centered • Providing a Fun Learning Environment • Creating a Comfortable Classroom Environment • Providing Visual and Auditory Support • Increasing Class Efficiency • Increasing Student Interest • Increasing Motivation • Being Attractive • Encouraging Students • Working in Collaboration • Arousing Curiosity in Students • Making Teaching Student-Focused • Reducing Anxiety • Increasing Self-Confidence • Ensuring the Gaining of Basic Skills • Appropriate Use in Educational Environments • Creating a Virtual Experience • Providing Quick Access to Information • Enabling Students to Share Their Knowledge • Concretization of Abstract Concepts • Addressing More Than One Sense Organ • Ability to Address Multiple Intelligence Fields • Supporting Learning • Creating a Social Environment 	<ul style="list-style-type: none"> • Requirement of Technological Vehicle Opportunity • Difficulty in Creating Materials • To create a time management problem when it is not used appropriately for students and teachers. • Not allowing everyone access in some cases • Distraction of subject matter in some cases
Opportunities	Threads
<ul style="list-style-type: none"> • Being Independent of Space • Being Independent of Time • Ability to Create Desired Content • Easy Content Creation • Easy Access • Ability to Communicate and Connect 	<ul style="list-style-type: none"> • Internet Connection and Access Problems • Teachers Require Technology Proficiency • Minimizing the Influence of the Teacher • Injuring the Teacher-Student Relationship • Losing Classroom Management • Abuse by Students

Opportunities	Threads
<ul style="list-style-type: none"> • Ability to Share Information • Usability as a Measurement Tool • Ability to Give Quick Feedback • Storage of Materials • Reusable Contents • Being Economical • Ensuring Student and Teacher Interaction • Updating or Editing of Materials • Shaping Suitable for Students • Being able to be created in accordance with the gains • Facilitating In-Class Planning • Providing the convenience of Communicating with Students • Recognizing the Opportunity to Present Many Contents at Once • Increasing Students' Interaction with Technology • Encouraging Adaptation • Easily Send Files • Reaching more detailed information in a short time 	<ul style="list-style-type: none"> • Ability to Move the Lesson Away from the Subject Center • Ability to Divert Student's Focus in Some Situations • Ability to Concentrate Unfamiliar Students Away from The Subject • Causing Distraction in Students • Ability to Move Friend Relationships to a Completely Virtual Environment • Reducing Students' Consciousness of Responsibility • Ability to Use Users' Personal Information • Affected by technical problems such as electricity. • Creating Technology Addiction in Students • Ability to Open Doors to Security Problems • Ability to Reduce the Influence of Instruction in Some Situations

When Table 2 is examined, it is seen that the SWOT matrix containing the strengths and weaknesses, opportunities, and threats of the web 2.0 tools used in the teaching process created based on the opinions of the teachers. A SWOT analysis of the web 2.0 tools they used in the teaching process was conducted by taking the opinions of the branch

teachers participating in the study.

The findings of the data obtained from the online interviews regarding the strengths of the web 2.0 applications used in the teaching process of the branch teachers participating in the study are given in Table 4.

Table 4: Findings Regarding the Strengths of Web 2.0 Applications Used in the Teaching Process

Theme	Code	Frequency
Strengths of Web 2.0 Applications in the Teaching Process	Ability to Share Content with Students	17
	Increasing Student Success	17
	Activating the Student in the Teaching Process	15
	Being Effective in Teaching Concepts	14
	Ensuring Persistence in Learning	14
	Being Student-Centered	13
	Providing a Fun Learning Environment	13
	Creating a Comfortable Classroom Environment	9
	Providing Visual and Auditory Support	9
	Increasing Class Efficiency	8
	Increasing Student Interest	8
	Increasing Motivation	8



Strengths of Web 2.0 Applications in the Teaching Process	Being Attractive	7
	Encouraging Students	7
	Working in Collaboration	7
	Arousing Curiosity in Students	5
	Making Instruction Learner-Centered	5
	Reducing Anxiety	4
	Increasing Self Confidence	4
	Ensuring the Gaining of Basic Skills	2
	Appropriateness of Use in Educational Environments	2
	Creating a Virtual Experience	2
	Providing Quick Access to Information	2
	Enabling Students to Share Their Knowledge	2
	Concretization of Abstract Concepts	2
	Addressing More Than One Sense Organ	2
	Addressing Multiple Intelligence Fields	1
	Supporting Learning	1
Enabling Students to Socialize	1	

When Table 4 is examined, it is seen that teachers' opinions about the strengths of web 2.0 tools used in the teaching process are seen. Teachers mostly stated that "Sharing Content with Students" and "Increasing Student Achievement", "Making Students More Active in the Teaching Process", "Effectiveness in Teaching Concepts" and "Ensuring Permanence in Learning", "Being Student-Centered" and "Presenting a Fun Learning Environment", "Providing Visual and Auditory Support" and "Increasing the Efficiency of the Course" codes. At least, they presented their opinions in the codes of "Attracting to Multiple Intelligence Fields", "Supporting Learning", "Addressing to More than One Sense Organ", "Concretizing Abstract Concepts", "Creating a Social Environment" and "Creating a Virtual Experience".

T9 coded teacher "... I realize that students get bored with the lesson only when I give lectures or solve the question directly from the book. But when I have the same questions solved from kahot, the question solution becomes fun for them. I think they approach the lesson with more interest and enthusiasm. Children feel more comfortable in

the lesson and participate in the lesson more..." expressed his opinion on the strengths.

The teacher with the code T16 said, "... I give the children small quizzes prepared by the school at the end of each subject. Since I have used applications such as Padlet, Canva, and Scratch in the lesson, they have had better average scores than previous quizzes. I think that these applications increase the success of students because they appeal to age groups. They even learn and remember conceptual words they are not familiar with easily." expressed his opinion on his strengths.

The teacher with the code T20 said, "... The students were worried about answering the questions I asked in the lesson incorrectly. But with these applications we use, I saw that they were not worried about answering questions. I noticed that even timid students began to participate in the lesson." expressed his opinion on his strengths.

The findings of the data obtained from the online interviews regarding the weaknesses of the web 2.0 applications used in the teaching process of the branch teachers participating in the study are given in Table 5.

Table 5: Findings regarding weaknesses of web 2.0 applications used in the teaching process

Theme	Code	Frequency
Weaknesses of Web 2.0 Applications in the Teaching Process	Internet Connection and Access Problems	19
	Difficulty in Use	17
	Waste of Time in the Teaching Process	10
	The Process of Creating Materials Takes Time	8
	Not Suitable for All Levels of Students	5
	Requirement of Technological Vehicle Opportunity	5
	Difficulty in Creating Materials	3
	Creating Time Management Problems When Not Used Appropriately by Students and Teachers	2
	Not Allowing Everyone's Access in Some Circumstances	2
	Distraction of Subject Interest in Some Situations	2

When Table 5 is examined, it is seen that the views of the teachers regarding the weaknesses of the web 2.0 tools used in the teaching process are seen. The teachers mostly expressed their opinions in the codes of “Experiencing Internet Connection and Access Problems”, “Difficulty in Use”, “Time Wasting in the Teaching Process”, “The Process of Creating Materials Takes Time”, “Not Suitable for All Levels of Students”. At least, they presented their opinions in the codes of “Creating time management problems when it is not used appropriately for students and teachers”, “Not allowing everyone’s access in some cases” and “In some cases, it is irrelevant to the topic”.

T12 coded teacher said, “Web 2.0 tools are used for a wide range of purposes. Even if I want to use a web 2.0 tool that I discovered and liked, I watch videos on using the tool before the lesson and I can use it after a few tries. After learning, if I want to

create material beforehand, I waste a lot of time...” He explained his view on the weaknesses of the technique.

Teacher coded T17”... Using these tools is very nice for both me and the children. However, when I use it in class, I exceed the time allotted to the subject. Students want to do it one by one. If I do not all but half of them, my lesson time ends quickly. In particular, the duration of the distance education process that started with the pandemic is 30 minutes, and this time may be less for these applications.” He expressed his opinion on the weaknesses of the technique.

The findings of the data obtained from the online interviews of the branch teachers participating in the study regarding the opportunities offered by the web 2.0 applications used in the teaching process are given in Table 6.

Table 6: Findings regarding the opportunities offered by web 2.0 applications benefited in the teaching process

Theme	Code	Frequency
Opportunities Offered by Web 2.0 Applications in the Teaching Process	Being Independent of Space	16
	Being Independent of Time	16
	Ability to Create Desired Content	12
	Easy Content Creation	12
	Easy Access	11
	Ability to Communicate and Connect	10
	Ability to Share Information	10
	Usability as a Measurement Tool	6

Opportunities Offered by Web 2.0 Applications in the Teaching Process	Ability to Give Quick Feedback	6
	Storage of Materials	5
	Reusable Contents	5
	Being Economical	5
	Updating or Editing of Materials	5
	Ensuring Student and Teacher Interaction	5
	Shaping Suitable for Students	5
	Being able to be created in accordance with the gains	3
	Facilitating In-Class Planning	3
	Providing the convenience of Communicating with Students	3
	Recognizing the Opportunity to Present Many Contents at Once	2
	Increasing Students' Interaction with Technology	2
	Encouraging Adaptation	2
	Easily Send Files	2
	Reaching more detailed information in a short time	1

When Table 6 is examined, it is seen that the views of the teachers regarding the opportunities of web 2.0 tools used in the teaching process. Teachers mostly expressed opinions in the codes of “Independent of Space”, “Independent of Time”, “Creating Desired Content”, “Creating Easy Content”, “Using as a Measurement Tool”. At least, he presented his views on the codes of “Easily Sending Files”, “Ensuring the convenience of Communicating with Students”, “Reaching more detailed information in a short time” and “Increasing Students’ Interaction with Technology”.

T5 coded teacher “...we can prepare quizzes for students with web 2.0 tools such as kahoot, google form and we can simply measure their levels. I think this is a very good opportunity for us teachers. Also, for example, if I prepare a question in google form, students can instantly see how many points they got after completing the exam and which questions, they made wrong. This gives me a lot of convenience;

children do not ask me how much I bought or which question was wrong.” He expressed his views on the opportunities of web 2.0 tools.

T13 coded teacher said, “We see the opportunities provided by web 2.0 tools more in the distance education process that we are forced to face during the pandemic our country is facing. We can communicate with our students remotely, regardless of time or place. We can create materials in accordance with their level and achievements. We can easily reach them during or after the lesson. In fact, they can benefit from the materials at any time they want later on...” He expressed his views on the opportunities of web 2.0 tools.

The findings of the data obtained from the online interviews of the branch teachers participating in the study about the threats posed by the web 2.0 applications used in the teaching process are given in Table 7.

Table 7: Findings regarding the threats created by web 2.0 applications used in the teaching process

Theme	Code	Frequency
Threats posed by Web 2.0 Applications in the Teaching Process	Internet Connection and Access Problems	17
	Teachers Require Technology Proficiency	15
	Minimizing the Teacher's Influence	11
	Harming the Teacher-Student Relationship	11
	Losing Classroom Management	10
	Abuse by Students	6

Threats posed by Web 2.0 Applications in the Teaching Process	Moving the Lesson Away from the Subject Center	5
	Ability to Divert Student's Focus in Some Situations	5
	Ability to Concentrate Unfamiliar Students Away from the Subject and Concentrate on the Vehicle	2
	Causing Distraction in Students	2
	Ability to Move Friends Relationships to Completely Virtual Environment	2
	Reducing Students' Consciousness of Responsibility	2
	Ability to Use Users' Personal Information	2
	Affected by technical problems such as electricity	2
	Creating Technology Addiction in Students	1
	Being able to open the door to security problems	1
	Being able to reduce the effectiveness of teaching in some situations	1

When Table 7 is examined, the views of teachers about the threats of web 2.0 tools used in the teaching process are seen. Teachers mostly expressed their opinions in the codes of “Experiencing Internet Connection and Access Problems”, “Teachers Require Technology Proficiency”, “Minimizing the Influence of the Teacher”, “Losing the Classroom Management”, “Diverting the Lesson from the Subject Center” and “Abuse by Students”. At least, he expressed his views in the codes of “Causing Distraction in Students”, “Diverting the Student’s Focus of Interest in Some Situations”, “Being Affected by Technical Problems such as Electricity”, “Opening the Door to Security Problems”, “Creating Technology Addiction in Students”.

T3 coded teacher “... We have to stay connected to internet access while using these tools in the lesson. But the school’s internet may not always work properly. Even now, I use it while doing distance education from home, but still sometimes the internet is slow and disconnected due to the intensity. Inevitably, I have problems in the process of using it in the course. Although these materials are fun for students, they distract students.” He expressed his views on the threats of web 2.0 tools.

The teacher with the code T13 said, “Since my major is English, using web 2.0 tools helps me a lot. That’s why I try to create a word game for students to use it constantly. But sometimes the lesson seems to be out of my direction and it can become the lesson of the students. When children get too immersed,

the lesson can turn into a game activity rather than a topic. In fact, sometimes it is impossible not to see that even their responsibilities towards the lesson have decreased...” He expressed his views on the threats of web 2.0 tools.

Discussion and Conclusion

In this study, the strengths and weaknesses of the web 2.0 applications used in the teaching process were determined through SWOT analysis, and the opportunities and threats were revealed. It has been determined that web 2.0 applications used in the teaching process increase student success and strengthen the process in terms of ensuring permanence in their learning. In the literature, there are many studies that reveal the success-enhancing effect of web 2.0 tools in the teaching process (Göker & İnce, 2019; Gündoğdu, 2017; Iwamoto, Hargis, Taitano & Vuong, 2017; Uysal, 2020; Yıldırım, 2020). Therefore, it is understood that the positive effect of web 2.0 applications on student success is supported. In addition, it has been determined that web 2.0 tools increase the efficiency of the lesson and are effective in learning the concepts as the strengths of the web 2.0 tools within the scope of the study. Atıcı and Yıldırım (2010) draw attention to the fact that web 2.0 tools are applications aimed at helping to understand basic concepts and ensuring that the learned information is permanent. Benefiting from web 2.0 applications in the teaching process is expressed as the strengths that the process provides

an enjoyable learning environment for students. Likewise, it reveals that studies based on many web 2.0 tools in the literature make the teaching process enjoyable (Bolatlı & Korucu, 2018; Elmahdi, Al-Hattami & Fawzi, 2018; Fırat&Köksal, 2017; Gürleroğlu, 2018; Timur, Timur, Arcagök & Öztürk, 2020).

The overlap with the strengths of the web 2.0 tools reached in the study shows that the contribution of web 2.0 applications to education; It is examined in four dimensions: productivity, motivation, learning and learning to learn (Byrne, 2009). In a study conducted by Korucu and Karalar (2017), web 2.0 tools; It is concluded that it makes important contributions to the teaching process, is not dependent on time or place, is easy to use, and its contents are easy to prepare and attract attention. At this point, it is understood that the opportunities and strengths reached in the current research overlap with each other. In addition, the creation of collaborative social enrichment by web 2.0 tools (Dohn&Dohn, 2017) is in parallel with another strong aspect revealed in our research. Jena, Bhattacharjee, Gupta, Das, and Debnath (2018) emphasize that web 2.0 tools have an important place on student performance compared to traditional methods, along with providing a collaborative environment for individuals. It is stated as strength of such technologies that they can create an active learning environment by putting the student at the center of teaching. Pürbudak (2020) describes web 2.0 as a group of applications where active participation of users is likely. It has been determined that Web 2.0 tools can help students focus attention by increasing their interest in the lesson. On the other hand, it can make important contributions to the teaching process in visual and auditory sense. His ability to embody abstract concepts and to appeal to multiple senses and multiple intelligence areas beyond presenting visual elements are counted among his strengths. At this point, it can be deduced that teachers may think that web 2.0 tools can create a virtual laboratory environment, and that students can look for a door to learn by experimenting and observing. It can be stated that the students think that the concepts that they cannot make sense of in their minds can be learned by being animated by these tools. It has been

determined as one of the strengths of the teaching process, which is carried out with the use of web 2.0 tools, that the students' anxiety decreases and their self-confidence increases. Korkmaz, Vergili, Çakır and Erdoğan (2019) found that the web 2.0 tool used in their study decreased students' anxiety. At this point, it is understood that the web 2.0 difficulty aspect obtained in the current study is supported. On the other hand, in the current study, it is also pointed out that these applications based on web technologies have positive effects on student motivation. There are studies in the literature that measure the positive effect of motivational support web 2.0 tools that support the aforementioned strengths (Mete & Batıbay, 2019; Yapıcı&Karakoyun, 2017). Elmas and Geban (2012) state that web 2.0 tools will provide important contributions to students in terms of designing the desired content, as well as addressing all senses at the same time by reading, hearing and seeing. On the other hand, it also emphasizes the fact that these applications will make lessons fun and support students in being good technology users. With the use of web 2.0 tools in the teaching process, the opportunity to meet new technologies with students arises and students' interaction with technology is increased. O'Reilly (2007) states that web 2.0 technologies allow them to grow up as technology users. Benefiting from these applications in teaching environments is seen as a valuable step in the development of learning and teaching (Wright & Akgüngöz, 2018). In this context, within the scope of the study, it has been clearly demonstrated that web 2.0 applications have strong aspects that show many positive effects in the teaching process.

In the study, it was revealed that with the web 2.0 tools, both students and teachers could easily share the contents they designed during the teaching process. Pointing out that web 2.0 tools are user-friendly applications, it is stated that many materials can be easily accessed, content is developed and content can be shared (Elmas, & Geban, 2012). In addition, the advantage that the prepared materials can be stored and used again and again when needed stands out. It reveals the importance of this opportunity in terms of educators preparing the materials at a suitable time and bringing them together with the students during the lesson or for the students who did not understand

in the lesson to concentrate on these materials later.

It has been revealed in this study that different web 2.0 tools offer the opportunity to be used as a measurement tool in the teaching process and to be effective in evaluating the student. It has also been emphasized that quizzes can be made on the subject. Similarly, Uysal (2020) points out that with various web 2.0 applications, process-oriented evaluation can be made beyond classical assessment and evaluation, and learning products put forward by students can be evaluated in addition to exam grades. In addition, the opportunity to give instant feedback takes the measurement and evaluation quality one step further. The fact that teachers do not spend additional time to calculate the evaluation scores and that the score is quickly shared with the students with the point value entered in the applications creates an opportunity for the teachers. Benefiting from web 2.0 applications regardless of space and time can be shown among the most important opportunities it can offer to the teaching process. Especially in the online education process, the distance between the teacher and the learner makes this opportunity even more valuable. Uysal (2020) and Çelik (2021) emphasize this opportunity by stating that students who become independent about space thanks to web 2.0 tools have a flexible working opportunity. In addition, these tools are economical, strengthen the communication network with students, and easy file sharing with students can be seen as other opportunities. It is considered among the opportunities expressed by the teachers that it can be shaped in accordance with the curriculum acquisitions followed in the teaching process and thus facilitate the in-class planning.

The fact that there is an access problem due to the internet connection, or that a power outage may cause a problem, which is expressed as a deficiency in the web 2.0 tools by the teachers, has been seen as both a threat and a weakness. Such a problem that can be experienced during the lesson can be perceived as a threat when the teaching process can be stopped. However, not starting or continuing the course with these problems can also be stated as a weakness. As if supporting the current finding obtained in a study conducted by Arı (2019), it was determined that teachers may experience many problems such as technical problems, malfunctions and connection

lines during the use of technology-based tools they use during the course process. It is seen as another weakness that there is difficulty in the materials prepared with some web 2.0 tools and the material design process takes a lot of time. This situation can be justified by the fact that the teacher does not have sufficient knowledge. The teacher may need to watch videos or browse sample materials to prepare materials in these tools. This process can cause difficulties and waste of time for the teacher. It has also been stated that the use of web 2.0 technologies may exceed the time allotted to the course. It has been determined that the time planned by the teachers for each subject is not sufficient in the lessons where the web 2.0 tool is used and they spend more time on the determined subject. Facing loss of time in the teaching process; Class size, the class level of the students, or the teacher's lack of adequate usage equipment may be justified. Not being suitable for all levels of students and not allowing everyone's access are also considered as weaknesses by the teachers.

The biggest advantage of web 2.0 tools is that they create a student-centered teaching environment, as the curriculum aims. However, although it puts the student in the center by making it active, it can produce negative results if it can put the student in the foreground too much. In some cases, it may cause the teacher to lose classroom management and damage the teacher-student relationship. Therefore, it has been pointed out that it is inevitable for the teacher to minimize his influence and to reduce the impact of teaching. On the other hand, it was stated that it may cause students to focus on the web 2.0 tool rather than the course and distract them from the subject. This opinion of the teachers may be related to the fact that in some cases, web 2.0 tools are perceived as purely games by students, because they compete with them or create a noisy classroom environment. Timur et al. (2020), in their study, determined that teachers think that web 2.0 tools can disrupt the course flow in some cases and distract them from the context of the course. It would not be wrong to say that both studies intersect at this point. It was also emphasized by the teachers that the continuous use of such web technologies in the lessons could create technology addiction in the students. In addition, it has been included among the threats that these tools

may cause some security problems because they can benefit from some sites provided that they are members. One of the external factors expressed is that teachers require technology proficiency. At this point, web 2.0 tools have an important place in terms of supporting our teachers in terms of technology and using different tools while preparing materials (Elmas&Geban, 2012; Şengür,2020).

Recommendations

In line with the findings obtained as a result of the study, recommendations are given in this section. Within the framework of the study, SWOT analysis of web 2.0 applications used in the teaching process was carried out. It has been revealed that web 2.0 tools create an efficient and dynamic learning environment by making many contributions to the course process in terms of both teachers and students. In this context, it can be recommended that educators and academicians reflect the many strengths of these tools in the teaching process to their learning environments. In this context, it can be suggested that web 2.0 tools can be used in classroom environments where students with low academic success and a shy attitude are present. It is also possible to make suggestions such as using web 2.0 tools in lessons with a narrower subject area, applying them in groups, and applying them on subjects that are separated for a long time in the curriculum in order not to waste time in the course process. In order not to waste time in the process of creating teaching materials, it is recommended that both the teacher and the students examine or try the web 2.0 tool to be used beforehand. In order to prevent problems that may occur in classroom management and communication, it can be recommended that the aforementioned web 2.0 tools should not be applied frequently in very low-level classrooms. In addition, using the many opportunities offered by web 2.0 applications to the teaching process, the educator and the learner will be able to carry the acquired qualifications to a more valuable point. Web 2.0 tools; It is recommended for students to use it in the assessment and evaluation process in order to reduce test anxiety, go beyond traditional assessment methods, and get instant feedback. A few suggestions for the SWOT analysis used in the study are also

presented here. Before the SWOT analysis, it can be suggested that individuals practice on a current example in order to gain experience about this analysis. Because in this method, individuals have opportunities with strengths; they had difficulty in distinguishing between weaknesses and threats with clear lines. It is considered important that researchers who will conduct research on SWOT analysis should pay attention to this issue.

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Author Details

Kevser Arslan, Expert, Dr., PhD Student, Department of Mathematics and Science Education, Yıldız Technical University, Istanbul, Turkey, **Email ID**: arslankevser96@gmail.com.

Dr. Fatma Coştu, Department of Mathematics and Science Education, Marmara University, Istanbul, Turkey, **Email ID**: fatmacostu@gmail.com.