



The Impact of Factors on the Use of Web 2.0 Tools in Preschool Education: Teacher Perspectives

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ABSTRACT

Understanding the usage patterns and influencing factors of Web 2.0 tools among teachers is crucial for effective technology integration in education. This study aims to examine "The Utilization of Web 2.0 Tools in Early Childhood Education: An Analysis Based on Teachers' Views on Usage Patterns and Influencing Factors" through qualitative analysis using a semi-structured interview form.

The sample of the study consisted of 20 preschool teachers working in Kocaeli province. Data collection was conducted through specific questions directed to the teachers. These questions encompassed their demographic information, professional experiences, educational background, as well as their experiences and attitudes towards Web 2.0 tools. Additionally, the focus was on how teachers use Web 2.0 tools in their lessons, the content of the training they received, challenges they encountered, suitability of the classroom environment, usage during remote education processes, and the effects of Web 2.0 tools.

After the completion of the data collection process, the collected data was analyzed using qualitative data analysis techniques such as descriptive analysis and thematic analysis. Descriptive analysis aimed to summarize the data numerically and identify themes, while thematic analysis was employed to group similar topics and create meaningful categories.

The research findings encompass teachers' usage patterns, experiences, attitudes, and recommendations regarding Web 2.0 tools. The results can contribute significantly to teacher education, technology integration, and relevant practices in the field of early childhood education. Moreover, the limitations and contributions of the study are stated, emphasizing that the obtained findings provide insights into the usage patterns and influencing factors of Web 2.0 tools among teachers in educational settings.

Introduction

Web 2.0 technologies have revolutionized the way users interact, create, and share content on the internet (O'Reilly, 2008). These technologies encompass a range of web-based applications, including social media platforms, blogs, wikis, and video sharing websites, which enable individuals to actively participate in content creation and collaboration (Kim et al., 2009). In the field of education, teachers can leverage these Web 2.0 tools to engage students, enhance learning experiences, and foster collaborative work (Alexander, 2006).

Web 2.0 technologies provide users with an environment that promotes communication, interaction, sharing, and user-focused systems (Siemens, 2008). Users can create diverse content such as encyclopedias, blogs, dictionaries, groups, and even personalized social networks (Parameswaran & Whinston, 2007). Specifically, groups formed on social networking platforms like Facebook facilitate interaction, discussions on specific topics, and collaboration on joint projects (Raman, 2009).

Teachers strive to provide effective instruction by integrating pedagogical knowledge (PK), content knowledge (CK), and technological knowledge (TK) (Mishra & Koehler, 2006). The Technological Pedagogical Content Knowledge (TPACK) framework emphasizes the importance of teachers possessing an understanding that allows them to effectively integrate technology into instructional environments based on their pedagogical and content knowledge (Mishra & Koehler, 2006). The three elements of TPACK—technology, pedagogy, and content knowledge—should dynamically interact with each other.

However, prospective teachers often encounter challenges in incorporating technology, pedagogy, and content knowledge into their teaching practices, and they may feel inadequately prepared to use technology in their instructional activities. Confidence plays a vital role in this context, with studies suggesting that perceiving computers as useful for the teaching profession and having high self-confidence in computer use are significant factors influencing prospective teachers' computer use (Andersson et al., 2005).

Simultaneously, the widespread use of new technologies in education, coupled with the growth of the internet, has transformed the access to information and eliminated limitations of time, space, and cognition (Çelik, 2019; Telli Yamato, 2014; Kaplan & Üncel, 2020). Web technologies have played a crucial role in this transformation, with educational materials being transferred to the web, giving rise to "Web-Based Education" (Karaca & Aktaş, 2019; Aytekin & Rüzgar, 2004).

Web 2.0 technologies offer educators significant opportunities in terms of productivity and feedback. The term "Web 2.0" has been defined in various ways, but it generally refers to technologies that facilitate collaboration, sharing, and user-generated content, thereby enhancing interaction in a user-centered web environment (Zimmer, 2007). Through features like rapid information dissemination via RSS, trend setting through blogs, knowledge sharing through wikis, and dynamic information creation through podcasts, Web 2.0 tools foster convergence among multiple users, interaction, and user-generated content.

These second-generation web tools enable users, including students, to create, read, and update content quickly and cost-effectively, eliminating time and space constraints (Sutter, 2009). Given the importance of contemporary educational approaches like social constructivism and information literacy, as well as the acquisition of skills such as group work and problem-solving, the pedagogical potential of Web 2.0 tools becomes significant (Zimmer, 2007). Effective and efficient utilization of these technologies by educators contributes to enhancing the quality of education.

This study aims to investigate the proficiency level of teachers in using Web 2.0 technology-based applications in the educational process. The objective is to provide assistance to teachers in effectively and efficiently using Web 2.0 tools in educational environments. The research findings will be shared with academics and teachers actively involved in the teaching and learning process, with the goal of promoting the effective use of these tools in educational activities.

To achieve this objective, a quantitative research design is employed to examine potential variations in teachers' usage proficiency of Web 2.0 tools across different variables. It is expected that the quantitative nature of this study, combined with its multifaceted approach involving participant teachers, will contribute to monitoring technological developments in the field of education and the future utilization of web technologies by educators.

The preschool period is recognized as a critical stage for learning, where education plays a pivotal role (Ministry of National Education, 2014). During this period, it is essential to develop children's creative and critical thinking skills, provide experiential learning opportunities, cater to diverse experiences, engage parents actively, and consider individual differences and needs (Ministry of National Education, 2014). Consequently, the proper use of technology holds significant importance in early childhood education, ensuring that children are introduced to technology while considering its positive and negative aspects. The aim is to foster technologically literate individuals.

Research on teachers' and children's attitudes towards technological tools provides valuable insights for formulating educational policies and strategies. By integrating technology as a rich content material in the learning process and embracing e-learning materials that align with information technology advancements, students can access learning materials without limitations of time and space.

In conclusion, this study endeavors to explore teachers' proficiency in using Web 2.0 tools, aiming to promote effective utilization of these tools in educational activities.

Use of Technological Tools and Resources in Preschool Education

The use of technological tools and resources in preschool education has become an indispensable part of the modern education system. In research conducted in this field, it has been observed that the use of technological tools and resources in preschool education has positive contributions to students' learning processes (Özdemir, 2020). Furthermore, it has been observed that technology use increases students' motivation and active participation in the lessons (Efe Aslan, Hark-Söylemez, Oral, & Efe, 2014: 33).

The attitudes of preschool teachers towards the use of technological tools and resources have also been examined in studies conducted in this field. The studies have shown that teachers' attitudes towards technology use have a direct impact on students' learning processes (Karadağ & Kılıç, 2020). Additionally, the importance of teachers' ability to use technological tools and resources is emphasized (Yalın & Yılmaz, 2019).

However, there are also some criticisms regarding the use of technology in preschool education. These criticisms include concerns about technology negatively affecting students' social and emotional development, technology use distracting students' attention, and even causing addiction (Akkoyunlu & Tuğrul, 2002).

Considering all these factors, it becomes important to examine the attitudes of preschool teachers towards the use of technological tools and resources. This will help determine the competencies and deficiencies of teachers in this area and provide the necessary training accordingly.

The Use of Web 2.0 and Web 3.0 Tools in Preschool Education

Research on the use of Web 2.0 and Web 3.0 tools in preschool education demonstrates that these tools can be effectively utilized in education. For instance, Öztürk and Bayrakçeken (2020) emphasized in their research that teachers can support students' language development by using Web 2.0 tools. Similarly, Çalışkan and İmamoğlu (2018) showed that the use of Web 3.0 tools by teachers is effective in enhancing students' creative thinking, problem-solving, and critical thinking skills.

The use of Web 2.0 and Web 3.0 tools in preschool education enriches students' learning experiences and enables them to learn interactively. However, it is crucial for teachers to possess sufficient knowledge about technology use when utilizing these tools. Öztürk and Bayrakçeken (2020) mentioned in their study that teachers lack adequate technological knowledge when using Web 2.0 tools. Therefore, teachers need to receive training on the effective use of Web 2.0 and Web 3.0 tools to enhance their technological competence in using these tools.

Research on Preschool Teachers' Attitudes towards the Use of Web 2.0 and Web 3.0 Tools

There are several studies conducted to determine preschool teachers' attitudes towards the use of Web 2.0 and Web 3.0 tools. For example, İpek and İpek (2016) conducted a study to measure preschool teachers' attitudes towards the use of Web 2.0 tools. The research found that teachers had a positive attitude towards using Web 2.0 tools, but the level of proficiency was not sufficient.

Similarly, Baştuğ and Şahin (2017) conducted a study to determine teachers' attitudes towards the use of Web 2.0 tools in preschool education. The research revealed that teachers generally displayed a positive attitude towards using Web 2.0 tools, but they had reservations about the use of some specific tools.

In addition, Çakır (2019) conducted a study to measure preschool teachers' attitudes towards the use of Web 3.0 tools. The research found that teachers generally had a positive attitude towards the use of Web 3.0 tools, but they lacked sufficient education and knowledge about using these tools.

These studies indicate that while preschool teachers generally have a positive attitude towards the use of Web 2.0 and Web 3.0 tools, there is a need for further training and support to enhance their proficiency in using these tools effectively.

Research on Preschool Teachers' Attitudes towards Technology Use

The attitudes of preschool teachers towards technology use are an important topic in today's education systems. Many studies have shown that teachers' attitudes towards technology use have an impact on students' technology use and learning outcomes.

In one study, the impact of teachers' attitudes towards technology use on students' technology use and learning outcomes was examined. The study found that teachers' willingness to use technology positively influenced students' attitudes towards technology use and learning (Oguz & Yurdugül, 2021).

Another study examined the attitudes of preschool teachers towards technology use and their role in educational activities, as well as the attitudes of students towards technology use. The research revealed that teachers' attitudes towards technology use have an impact on students' attitudes towards technology use and learning, and increasing teachers' technology use positively influences students' attitudes towards technology use (Duran & Akkoyunlu, 2019).

These studies highlight the importance of preschool teachers' attitudes towards technology use and how they can influence students' attitudes and learning outcomes. It is crucial for educators to have positive attitudes and a willingness to embrace technology in order to effectively integrate it into the preschool educational setting.

Method

Research Design

This study employs a qualitative research design to examine the usage of Web 2.0 tools by preschool teachers in education and the factors influencing their usage based on teacher opinions. The research aims to gain a comprehensive understanding of teachers' experiences, attitudes, and recommendations regarding the use of Web 2.0 tools. A semi-structured interview approach is utilized as the data collection method, allowing for in-depth exploration of teachers' perspectives.

Participant and Sample Selection

Qualitative studies generally work with small samples that are analyzed in-depth in their own context (Miles & Huberman, 2016, p. 27). Therefore, purposive sampling method was used while forming the study group of the research. In purposive sampling, researchers purposefully select individuals and research sites in order to learn about or understand the main phenomenon (Creswell, 2017, p. 267). The participants in this study were selected using a purposive sampling method. The participants for this qualitative study were purposefully selected to ensure a diverse range of perspectives and experiences related to the research topic. The sample consisted of 20 individuals who met specific criteria based on their knowledge, expertise, and involvement in this subject.

From this pool, a purposive sampling approach was employed to deliberately select participants who could provide rich and comprehensive insights. Criteria such as age, gender, professional background, and level of expertise were considered to ensure a varied and representative sample. The aim was to capture a range of perspectives, experiences, and viewpoints that would enhance the depth and breadth of the data collected.

A sample of 20 preschool teachers working in the Kocaeli province volunteered to participate in the study. The selection of participants was based on their willingness to participate and their suitability to address the research objectives. Among the participants, 17 (85%) were female, and 3 (15%) were

male. The average age of the participants was 35.4, ranging from 25 to 50 years old. They had varying years of experience in the teaching profession, ranging from 2 to 29 years, with an average of 11.5 years. In terms of career stage, 11 participants (45%) were teachers, 7 participants (50%) were specialist teachers, and 1 participant (5%) was a head teacher. Regarding education level, 15 participants (75%) held a bachelor's degree, and 5 participants (25%) held a master's degree.

Data Collection Process

The data collection process involves conducting semi-structured interviews with 20 preschool teachers who work in Kocaeli province and voluntarily participated in the study. The participants consist of 17 females (85%) and 3 males (15%), with an average age of 35.4 years and varying years of professional experience ranging from 2 to 29 years. The participants include teachers, specialist teachers, and a head teacher, holding bachelor's or master's degrees.

The semi-structured interview form is developed based on a literature review and adapted to the context of professional development and Web 2.0 tool usage in preschool education. The interview questions cover demographic information, professional experiences, educational background, and teachers' experiences and attitudes towards Web 2.0 tools. Specific aspects explored include the integration of Web 2.0 tools in lessons, training received, challenges faced, classroom suitability, usage during distance education, and impacts of Web 2.0 tools.

Data Analysis

The collected data is analyzed using qualitative data analysis techniques, specifically descriptive analysis and thematic analysis. Descriptive analysis involves summarizing the data and identifying common themes. Thematic analysis focuses on identifying patterns, grouping similar topics, and creating meaningful categories. These analysis methods help achieve the research objectives and provide insights into teachers' usage patterns, experiences, attitudes, and recommendations regarding Web 2.0 tools.

Limitations

This research has several limitations. Firstly, the study sample comprises only 20 preschool teachers from public and private preschool education institutions in Kocaeli province during the 2022-2023 academic year. The findings may not fully represent the views of preschool teachers in other regions. Additionally, the study relies on the data collected through semi-structured interviews, which may be subjective and influenced by individual perspectives. It is also important to note that the study focuses on the opinions and experiences of teachers, and other stakeholders such as students and parents are not included in the research. These limitations should be considered when interpreting the findings.

Assumptions

Several assumptions underlie this study. Firstly, it assumes that the participating preschool teachers will provide honest and detailed responses during the semi-structured interviews, ensuring the reliability of the collected data. Secondly, it assumes that the participants possess a basic level of familiarity and experience with Web 2.0 tools, allowing for meaningful interpretation of their views and usage patterns. Lastly, it assumes that the interview questions used in the study are capable of eliciting relevant and insightful responses, as they were developed based on a thorough literature review and adapted to the specific context of early childhood education and Web 2.0 tool usage.

Findings

The collected data will be presented according to the question headings directed to the participants.

6. What are the Web 2.0 tools that you are familiar with?

Participants were asked about the Web 2.0 tools they are aware of. Based on the responses provided by the participants, the most commonly known Web 2.0 tools are listed below:

Tool Name	f
Canva	15
Google Tools (Form, Drive, Lens, vb.)	10
YouTube	8
Zoom	8
Wordwall	7
Kahoot	6
Padlet	6
Augmented Reality	5
Wikipedia	5

According to the table, Canva is the most well-known tool among 15 participants. This is followed by Google Tools with 10 participants, and YouTube and Zoom with 8 participants each. Additionally, some participants are familiar with Wordwall, Kahoot, and Padlet software.

Categories of Web 2.0 Tools	f
Educational tools	60
Photo, video, and animation editing tools	32
E-book and presentation tools	14
Gaming and entertainment tools	10
Communication tools	9

The table above provides the numbers of all Web 2.0 tools used, categorized by their purpose and categories. The educational tools category has the highest count, indicating that participants are more familiar with tools for educational purposes. Among these tools, Google Tools (f:10) are reported as the most frequently used for educational purposes, followed by YouTube (f:8) and Wordwall (f:7). Among the photo, video, and animation editing tools, Canva (f:15) is the most commonly used software. In the category of e-book and presentation tools, Wordart (f:4) is reported as the most frequently used tool.

7. Do you use web 2.0 tools in your lessons? (If yes, please specify which tools)

Based on the participants' responses, the web 2.0 tools they use in their lessons are presented below:

Tool	f
Wordwall	7
Youtube	6
Canva	6
Pinterest	4
Augmented reality applications	4
Kahoot	3
Zoom	3

The analysis of the data indicates a tendency among preschool teachers to utilize Web 2.0 tools. Out of the total of 20 participants, 17 reported incorporating Web 2.0 tools in their teaching practices. Among the various tools, Wordwall was the most popular choice, with 7 participants using it to create interactive games and activities. YouTube and Canva were also commonly utilized, each by 6 participants. YouTube served as a preferred platform for sharing and utilizing video content, while Canva provided graphic design tools for creating visual materials.

Pinterest (f:4), augmented reality applications (f:4), and Kahoot (f:3) were other frequently preferred tools. Additionally, a few participants (f:3) reported utilizing different Web 2.0 tools according to their preferences. It is noteworthy that the teachers who did not use Web 2.0 tools had a work experience of 17 years or more, suggesting a potential correlation between age and tool usage. However, Participant 4, despite having 18 years of work experience, actively employed Canva software, indicating its popularity among preschool teachers.

To summarize, the data indicates a general inclination among preschool teachers to incorporate Web 2.0 tools, with Wordwall, YouTube, and Canva being the most commonly employed tools. These tools significantly contribute to enhancing lesson interactivity and facilitating the creation of visual materials.

During the discussions, participants highlighted the challenge of ensuring student participation and engagement while utilizing Web 2.0 tools. Effective planning and implementation strategies are necessary to actively involve students in the learning process.

Privacy and safety concerns were also expressed by some participants regarding the use of Web 2.0 tools. They emphasized the importance of protecting students' personal information and maintaining a secure online learning environment.

These challenges underscore the significance of providing sufficient support and resources to assist teachers in effectively navigating and overcoming obstacles associated with the integration of Web 2.0 tools in education.

8. What is your experience with receiving education, courses, or lessons on Web 2.0 tools during your undergraduate studies, before starting your profession? If you have taken any courses, lessons, or training related to Web 2.0 tools, could you provide information about its content and quality?

Content and Quality	f
Took a course, no specific content	1
Designing games with PowerPoint	1
Lesson on the use of Web 2.0 tools	1
Did not take any courses	17

When examining the participants' experience with receiving education or courses on Web 2.0 tools before starting their profession, it was found that only 2 participants (10%) had received such training. The remaining participants (90%) had not received any education or courses on Web 2.0 tools.

Based on this data, it can be concluded that the majority of participants have not received formal education on Web 2.0 tools. However, some participants mentioned that they gained knowledge about the use of Web tools during their undergraduate education.

When examining the participants' introduction to Web 2.0 tools, it was found that 1 participant (5%) had the experience of designing games using PowerPoint during their undergraduate studies and, influenced by this activity, they carried out individual game design projects.

9. Did you participate in any in-service training related to Web 2.0 tools after starting your profession? If you did, could you provide information about the content of these trainings?

In-Service Trainings	Frequency
Did not take any courses	12
Course on the use of Web 2.0 tools	4
Creating digital teaching materials	1
Modeling in education	1
New approaches in education	1
I don't remember	1

When examining the participants' experiences with in-service training related to Web 2.0 tools, it was found that 35% of the participants had participated in such training. One of these participants mentioned attending the "Creating Digital Teaching Materials with EBA Web 2.0 Tools" course and gaining knowledge about creating digital teaching materials. Another participant mentioned receiving training on modeling in education through in-service training. Additionally, one participant stated that they acquired knowledge about web 2.0 through the "New Approaches in Education" course.

Regarding the content of in-service training related to Web 2.0 tools, it was found that different topics were covered. Focus was given to topics such as creating digital teaching materials, modeling, and new approaches in education. It was also mentioned that participants were informed about how and for what purposes web 2.0 tools can be used.

When examining the participants' participation in in-service training related to Web 2.0 tools, it was found that 35% had received training, 60% had not participated in any in-service training program, and 5% did not remember whether they had received training in this regard.

Based on this data, it can be observed that the majority of participants did not participate in in-service training related to Web 2.0 tools. However, those who participated in in-service training gained knowledge about the use and applications of web 2.0 tools. It was also mentioned that during the pandemic, some participants attended webinars on online education and had the opportunity to become more familiar with web 2.0 tools.

Overall, it is observed that the majority of participants did not receive formal education or courses on web 2.0 tools during their introduction to these tools. Instead, some participants gained experience with web 2.0 tools through individual efforts and factors such as the pandemic.

10. What difficulties do you experience in using Web 2.0 tools? Can you share the challenges you face in detail?

Code	f
No problems	9
Need education	5
Limited hardware	2
Language barrier	2
Limited tools	2
No time	1
Time-consuming	1
Negative impact of virtual environment	1
Not using	1
Not effective	1
Not suitable for offline use	1

When examining the difficulties participants face in using web 2.0 tools, it becomes clear that there are different experiences. While some participants state that they don't face any challenges, others have shared difficulties in various areas.

One participant expressed that they don't understand how to guide students in using web 2.0 tools due to their age group. Another participant mentioned that the reason they cannot engage in group work with students is the lack of sufficient computers.

Factors such as limited tools, requiring foreign language skills, and limited hardware are among the challenges reported by some participants. Additionally, some participants mentioned struggling to familiarize themselves with new web 2.0 tools and expressed a need for education in this regard. Some of the teachers' views are as follows:

P17 "Preschool applications are limited, many of which require a foreign language. It is necessary to do research on the use of applications."

P5 *“To adapt Web 2.0 tools to my lessons, I have to use images rather than written materials. This may require more time to do even a simple matchmaking exercise. Because it takes me more time to find the individual pictures than I want to download them to the computer and upload them to the application I’m working on.”*

However, some participants have expressed that they do not encounter any issues and can effectively use web 2.0 tools. They particularly emphasize benefiting from online training platforms and improving themselves through them. P20 states that *“I do not have difficulty using the web 2.0 tools I know, but I have difficulty using different tools. I need a tutorial on this”*

In conclusion, it is evident that participants have varying experiences in using web 2.0 tools. While some use them seamlessly, others face various challenges. Improving education and technological infrastructure can enable participants to use web 2.0 tools more effectively.

11. What kind of in-service training do you think is needed to use Web 2.0 tools more effectively? How do you expect the content of these trainings to be?

The desired training programs	f
Web 2.0 tools training for early childhood education	13
Robotics coding for early childhood education	1

We evaluated the opinions of the participants regarding the content and features of in-service training they need to effectively use web 2.0 tools. According to our findings, most participants expressed the need for training related to the effective use of web 2.0 tools in early childhood education institutions. P5 states that *“An educational arrangement can be made in which tools for pre-school are handled more. And it would be nice to be able to access these trainings whenever we want. Because it takes some time to learn and apply each application to our lessons. It is not possible to learn in a limited time.”*

Characteristics of Desired Training Programs	f
Suitable for early childhood education	17
Hands-on training	4
Easy to use and functional	2
Effective usage	2
New approaches	1

Most participants (17 participants) expressed the need for training programs focused on suitable web 2.0 tools for early childhood education. A few participants (2 participants) emphasized the importance of training programs that focus on effective usage of the tools, while another few (2 participants) highlighted the need for the tools to be easy to use and functional. Additionally, 4 participants requested hands-on training and detailed explanations about the tools. P20 states that *“I especially need a face-to-face training on web 2.0 tools, where I can develop pre-school course materials.”*

Furthermore, some participants suggested offering training programs specifically on introducing application programs related to robotic coding for early childhood education.

P9 states that *“Trainings can be given on the introduction of the application program related to robotic coding for pre-schoolers.”*

In conclusion, participants are requesting in-service training programs targeting early childhood teachers to enhance their effective use of web 2.0 tools. These training programs should primarily focus on suitable tools for early childhood education, provide hands-on experience, and be user-friendly. Additionally, offering training on areas such as robotic coding is recommended. These findings indicate the interest of early childhood teachers in utilizing web 2.0 tools and suggest that tailoring the training content to their specific needs will yield more effective results.

12. What do you think about the suitability of your classroom environment for the use of Web 2.0 tools? What are your recommendations on this matter?

The Suitability of the Classroom Environment	f
No smartboard	13
Classroom not suitable	7
No computers	4
Inefficient projection device	4
I do not recommend	3
Classroom suitable	2
Old and slow computer	1
Slow internet	1
No projection device	1

There are different opinions among the participants regarding the suitability of the classroom environment for the use of Web 2.0 tools. Many participants (13 participants) have expressed that their classrooms are not suitable for Web 2.0 tools. The main reasons for this are the lack of smartboards and computers (11 participants), the inefficient functioning of the projection device (3 participants), and slow internet connection (2 participants). The participants have stated that these shortcomings hinder the effective use of Web 2.0 tools. P3 states that *“The use of Web 2. Tools in the classroom environment is not effective due to the inadequacy of technological tools. I recommend that classroom environments be prepared accordingly.”*

As for the participants' recommendations, the lack of smartboards and computers is the most frequently mentioned issue. Many participants have suggested the use of smartboards in classrooms. It has been recommended that smartboards be installed at an appropriate height in early childhood education classrooms and that they enhance student interaction. Additionally, suggestions have been made to increase the availability of computers and other technological resources, ensure the proper functioning of projection devices, and improve the speed of the internet network.

On the other hand, some participants have expressed that the classroom environment is suitable for Web 2.0 tools. These participants have mentioned that they create diversity for children with the applications they can currently use. Additionally, teachers who use different approaches such as nature-based learning have not made recommendations regarding the suitability of the classroom environment for Web 2.0 tools. P15 states that *“My class is suitable for this. However, I am teaching using nature-based learning. So it's hard to make a recommendation.”*

In conclusion, the findings of this study indicate that participants generally believe that the classroom environment is not suitable for the use of Web 2.0 tools. Factors such as the lack of smartboards and computers, inefficient functioning of projection devices, and slow internet connection hinder participants from using Web 2.0 tools effectively. In this case, some recommendations can be developed to make the classroom environment suitable for Web 2.0 tools. These recommendations include:

- Addressing the lack of smartboards and computers: The most common recommendation among participants is to install smartboards in classrooms. Smartboards can enhance student interaction and facilitate the use of Web 2.0 tools. Additionally, adding more computers to classrooms can be suggested.
- Enhancing the efficiency of projection devices: The inefficient functioning of projection devices hinders the effective use of Web 2.0 tools. Therefore, regular maintenance and timely replacement of projection devices are important. Efficiently working projection devices can be used in the presentation and sharing of interactive teaching materials.
- Accelerating internet connectivity: Slow internet connection can limit the use of Web 2.0 tools. To address this issue, schools need to improve their internet infrastructure and provide higher-speed connections. Increasing internet speed will facilitate teachers' and students' access to online resources.
- Training and support: Providing teachers with training and support is crucial for the effective use of Web 2.0 tools. Teachers should receive training on how to use Web 2.0 tools, select appropriate applications, and create effective teaching materials. Additionally, a technical support team should assist teachers and provide support for problem-solving.
- Considering alternative solutions: To increase the suitability of the classroom environment for the use of Web 2.0 tools, alternative solutions can be explored. For example, access to Web 2.0 applications can be provided using mobile devices, or portable tablets can be used in classrooms. Such solutions can enhance the classroom environment's suitability for Web 2.0 tools.

These recommendations can serve as a starting point to enhance the suitability of the classroom environment for the use of Web 2.0 tools. However, it is important to note that each school and classroom have different needs. Teachers should utilize local resources and experts to determine the most suitable solutions for their school's infrastructure and students' requirements.

13. Did you use Web 2.0 tools during remote learning processes? If yes, please explain which tools you used and for which skills and achievements you used them.

Usage status	f
Yes	13
No	6

65% of the participants (13 participants) stated that they have used Web 2.0 tools in their remote learning processes, while 30% (6 participants) mentioned that they have not used them. The participants who did not use Web 2.0 tools provided reasons such as not being assigned to use them, not participating in remote learning processes, and lack of experience.

Purpose of Use	Tool	f
Remote Education	Zoom, Skype	2
Assessment of Learning Outcomes	Kahoot, Wordwall	2
Cognitive Development Skills	Jigsaw planet, Wordwall	1
Asking Questions	Kahoot	1
Sharing Educational Videos	Zoom	1

Reinforcing Knowledge	Wordwall, Jigsaw planet, Canva	1
For all learning outcomes and indicators	Youtube, Wordwall	1
Motor Skills Development	Wordwall	1
Increasing Family Engagement	Zoom	1

These findings indicate that the majority of participants actively used Web 2.0 tools during the remote learning process for various purposes. The effective use of Web 2.0 tools in instruction can enhance student engagement, provide learning materials, and facilitate the assessment of learning outcomes.

14. What are the effects of using Web 2.0 tools are as follows?

a) In terms of integrating technological pedagogical and content knowledge for preschool teachers;

Code	f
Supporting learning	6
Technology integration and interaction	5
Increasing communication and collaboration	4
Teacher training and professional development	2
Student motivation and engagement	1
Creativity and creating original content	1

The effects of using Web 2.0 tools in integrating technological, pedagogical, and content knowledge of preschool teachers were examined based on the opinions of the participants. Findings were obtained considering the views and experiences of the participants as follows:

Increasing Communication and Collaboration: Participants stated that the use of Web 2.0 tools enhances communication and collaboration. Teachers can strengthen interteacher communication through sharing information via social networks.

Supporting Learning: Web 2.0 tools are effective in supporting learning. It was indicated that the diversity of activities is increased by using various tools and content, and learning outcomes are communicated more effectively. Additionally, teachers can provide students with quick access to information by using Web 2.0 tools. P10 states that *"If applied pedagogically in a time-controlled manner, it would be beneficial to apply web 2.0 tools without affecting students' attitudes towards screen addiction."*

Technology Integration and Interaction: Participants expressed that Web 2.0 tools facilitate technology integration and increase interaction. Teachers emphasized the importance of being familiar with current technology and stated that the use of Web 2.0 tools enables effective communication of learning outcomes through different sensory channels. P15 states that *"We can show the right applications to children who are intertwined with technology."*

Teacher Training and Professional Development: Participants stated that Web 2.0 tools contribute to teacher training and professional development. Teachers mentioned that by using Web 2.0 tools, they have the opportunity to provide diversity and versatility in presenting, content creation, and evaluation stages. Furthermore, the use of Web 2.0 tools overcomes time and space limitations and enhances communication by sending links to parents. P11 states that *"It provides diversity and versatility for the stages of presenting the achievements, creating content, and evaluating. Thanks to the links I send to the parents, the dimension of time and space is exceeded."*

Creativity and Original Content Creation: Participants noted that Web 2.0 tools support creativity and facilitate the creation of original content. It was expressed that Web 2.0 tools provide convenience in the processes of creating presentations, videos, and content.

Student Motivation and Engagement: Participants expressed that Web 2.0 tools increase student motivation and engagement. It was stated that Web 2.0 tools help maintain children's attention and with the presentation of appropriate content, students participate more actively.

In conclusion, it is evident that Web 2.0 tools have various positive effects on the work of preschool teachers. These effects include enhancing communication and collaboration, supporting learning, facilitating technology integration, supporting teacher training and professional development, promoting creativity and original content creation, and increasing student motivation and engagement. These findings emphasize the importance of effective use of Web 2.0 tools in preschool education.

b) In terms of students' lesson motivation, readiness, and comprehension of knowledge/skills;

Code	f
Student Motivation and Engagement	7
Supporting Learning	7
Readiness and Learning Skills	6
Technology Integration and Interaction	3

The majority of participants stated that Web 2.0 tools increase student motivation and encourage participation. They mentioned that these tools capture students' attention and interest, leading to more active engagement in lessons. P3 states that *"Since it attracts the attention and interest of students, it positively affects their motivation and readiness."*

It was found that Web 2.0 tools have a positive impact on students' readiness and learning skills. The use of visual elements makes the learning process more interactive and enjoyable, helping students grasp concepts more easily. P11 states that *"It enables students to learn at their own pace and to be more willing by actively developing positive attitudes towards the activities. They also take responsibility for learning."*

Teachers emphasized that Web 2.0 tools enhance students' mastery and acquisition of skills. By allowing students to learn at their own pace, these tools foster active participation in activities and encourage students to take responsibility for their learning.

Some teachers mentioned that Web 2.0 tools promote collaboration and group work among students. In activities where students are at the center, these tools facilitate meeting the individual interests and needs of students, creating a more interactive learning environment.

In conclusion, it can be observed that Web 2.0 tools enhance student motivation, readiness, and mastery/acquisition of skills among preschool students. These tools offer advantages such as capturing students' interest, creating interactive learning environments, and providing visual support.

c) In terms of influencing the quality of early childhood education;

Code	f
Improving the Quality of Education	13
Active Student Engagement	5
Ensuring Lasting Knowledge	3
Saving Time and Effort	2
Promoting Creative Thinking	2
Increasing Technological Literacy	1

Increasing the Quality of Education: The majority of participants believe that web 2.0 tools enhance the quality of education. It is emphasized that these tools support original and creative thinking. Furthermore, it is mentioned that employing various teaching methods can increase students' engagement, interest, and motivation. P17 states that *"Develops differentiated learning methods. In this way, it goes beyond the traditional learning model."*

Active Student Engagement: Many participants believe that active student engagement contributes to the improvement of education quality. Ensuring lasting knowledge and encouraging active participation of students are highlighted as important factors in enhancing the quality of education. P11 states that *"It supports the holistic development of the child with various disciplines by putting the child at the center...."*

Promoting Creative Thinking: Some participants emphasize that web 2.0 tools support students' creative thinking skills. It is believed that this contributes to the enhancement of education quality. P3 states that *"...I think that Web 2.0 tools increase the quality of education as they support original and creative thinking."*

Ensuring Lasting Knowledge: Some participants express that web 2.0 tools assist in the retention of information in a more lasting way. Additionally, it is mentioned that improving the quality of education is crucial for ensuring lasting knowledge.

Increasing Technological Literacy: One participant points out that children are naturally exposed to technology, and not utilizing these tools may hinder their acquisition of digital literacy.

Saving Time and Effort: A few participants highlight that web 2.0 tools save time and effort. Furthermore, advantages such as providing a secure observation environment and achieving cost savings are mentioned.

These findings reflect the participants' perceptions of the positive impact of web 2.0 tools on the quality of education. It is observed that an approach focusing on promoting active student engagement, supporting creative thinking skills, and ensuring lasting knowledge is embraced. Additionally, practical benefits such as increasing technological literacy and saving time and effort are emphasized.

15. Which skill levels can web 2.0 tools be effective in imparting to students?

Code	f
Developing cognitive skills (understanding, comprehension)	7
Developing problem-solving skills	6
Developing analytical and critical thinking skills	6
Developing research and exploration skills	4

Developing communication skills	4
Developing collaborative learning skills	3
Developing psychomotor skills	2
Developing creativity skills	2
Facilitating reinforcement of learned material	1
Providing the ability to use technology effectively and correctly	1

Participants expressed that Web 2.0 tools contribute to the development of various skill levels in students. The most frequently emphasized skill level is cognitive skills (understanding, comprehension), and the impact of Web 2.0 tools on developing these skills is a significant finding. Participants noted that Web 2.0 tools support analytical and critical thinking skills as well as problem-solving skills.

Developing research and exploration skills, developing collaborative learning skills, and developing communication skills are other highlighted skill levels.

Developing psychomotor skills and developing creativity skills are less emphasized skill levels.

The benefits of Web 2.0 tools in supporting students' independent learning skills, providing the ability to use technology effectively and correctly, improving communication skills through social connections, facilitating the control of students' prior knowledge, reinforcing learned material, developing algorithmic thinking skills, enhancing attention and focus skills, and fostering quick decision-making skills were mentioned by very few participants.

16. If you could use Web 2.0 tools more effectively, which activities do you think you would make more impactful?

a) Morning Warm-up Activities (What kind of activity would you design?)

Code	f
Morning Exercise	3
Attention-Boosting Activities	3
Movement Based on Visuals	2
Cognitive Development Activities	1

Participants believe that if they could use Web 2.0 tools more effectively, it would be important to diversify morning activities. Morning exercise is the most frequently emphasized activity among the participants. Teachers plan to use Web 2.0 tools to engage students in fun morning exercise routines. P5 states that *"The first thing we do at the start of the day is to greet and then do the morning exercise. We can do morning exercise with Just dance application. Or we can start a conversation by asking each other questions like daily/interesting/funny etc. that we prepared with wordwall."*

Attention-boosting activities are another important focus among the participants. Teachers are considering designing attention activities using Web 2.0 tools to enhance students' readiness. Movement based on visuals is suggested by some participants as a type of activity. Teachers plan to use Web 2.0 tools to implement movements based on visuals or spinning wheels. Cognitive development activities are recommended by some participants as a type of activity. Teachers plan to use Web 2.0 tools to design activities that enhance students' cognitive skills and to tailor morning activities to the specific topic being covered in the lesson.

b) Art Activities (What kind of activity would you design?)

Code	f
Developing Imagination	5
Drawing	2
Origami Activities	2
Painting Works	2

Participants believe that if they could use Web 2.0 tools more effectively, art activities would have a significant impact on developing children's imagination.

Developing imagination is the most frequently emphasized type of activity among the participants. They plan to use Web 2.0 tools to provide activities that support students' imagination.

Show and create is a suggested activity format by some participants. They intend to guide students in creating or designing original artwork using Web 2.0 tools.

P1 states that *“Children's self-designed works there are difficulties in creating original products”*

Painting works is a mentioned type of activity among the participants. They plan to use Web 2.0 tools to offer activities where students can paint shapes or engage in cutting and folding activities. Origami activities are suggested by some participants as an activity type. They consider designing origami activities for students using Web 2.0 tools. Drawing is a suggested activity type by some participants. They plan to use Web 2.0 tools to provide activities where students can animate their drawings or create animated drawings.

Following specific instructional videos is suggested by some participants as an activity format. They plan to use Web 2.0 tools to encourage students to follow along with instructional videos available on platforms like YouTube. P5 states that *“There are so many videos on platforms like Youtube that show and explain how to do anything.”*

c) Science Activities (What kind of activity would you design?)

Code	f
Experiments	5
Space/Planets	3
Concept Maps	2
Educational Content	2
Understanding Our Bodies	1
Puzzles	1
Recognizing Seasons	1
Recognizing Living Beings	1
Exploring Nature	1

Participants believe that if they could use Web 2.0 tools more effectively, science activities would help students learn science topics more effectively.

Experiments are the most commonly emphasized activity among participants. They plan to use Web 2.0 tools to provide students with opportunities to conduct simple experiments or interact with simulated experiments. P5 states that *“This is how we can embody the concept of space and earth for children. Or we can explain and show experiments that we have difficulty in implementing or that are not possible in the classroom, with interactive animations.”*

Understanding our bodies and recognizing living beings are suggested activities by some participants. They plan to use Web 2.0 tools to offer activities such as augmented reality applications or puzzles that help students identify body organs and living beings.

Concept maps and educational content are suggested activities by some participants. They plan to use Web 2.0 tools to provide concept maps, slides, or educational videos to help students understand science topics.

Space and planets are suggested as an activity by some participants. They plan to use Web 2.0 tools to present information about space and planets through 3D animations, interactive animations, or introductions to celestial bodies.

Puzzles are suggested as an activity by some participants. They plan to use Web 2.0 tools to provide puzzles related to science topics.

Recognizing seasons is suggested as an activity by some participants. They plan to use Web 2.0 tools to offer activities that help students recognize seasons.

d) Math Activities (What kind of activity would you design?)

Code	f
Addition and Subtraction Exercises	9
Matching Exercises	4
Number Recognition Exercises	2

Participants believe that if they could use Web 2.0 tools more effectively, math activities would help students develop their math skills more effectively.

Addition and subtraction exercises are the most emphasized type of activity among the participants. They plan to design activities using Web 2.0 tools to help students improve skills such as addition, subtraction, and number matching.

Matching exercises are suggested by some participants as a type of activity. They plan to provide activities using Web 2.0 tools that involve matching numbers and finding the correct number.

Number recognition exercises are suggested by some participants as an activity topic. They plan to offer activities using Web 2.0 tools that focus on helping students recognize numbers.

Game-style activities are suggested by some participants as a type of activity. They are considering designing game-style activities using Web 2.0 tools to improve math skills.

Tools like Wordwall and Learning Apps are suggested by some participants. They plan to use Web 2.0 tools to provide activities such as number matching, finding the correct number, addition, and subtraction.

Activities like Sudoku are suggested by some participants as a type of activity. They are considering using Web 2.0 tools to provide activities that enhance logical and numerical skills, such as Sudoku.

P5 states that *"We can use these tools in almost every field of Mathematics. For example, after learning the addition/subtraction or pattern in a concrete way, you can design a suitable game with wordwall for repetition and practice, or the games available on the RoomRecess website can be used."*

e) Reading and writing Activities (What kind of activity would you design?)

Code	f
Phonics Activities	8
Matching Activities	3
Pencil Grip Skills	2
Connect the Dots Activities	2
Pattern Activities	1

Participants believe that if they could use Web 2.0 tools more effectively, preparatory activities for reading and writing would help students develop their reading and writing skills more effectively.

Phonics activities are the most emphasized type of activity among participants. They plan to design activities using Web 2.0 tools that aim to introduce sounds and letter formations to students.

Matching activities are suggested by some participants as an activity type. They plan to offer activities using Web 2.0 tools where students can match sounds, letters, and concepts.

Pencil grip skills are suggested by some participants as a focus for activities. They plan to design activities using Web 2.0 tools that help students improve their pencil grip skills.

Connect the dots activities are suggested by some participants as an activity type. They plan to offer activities using Web 2.0 tools where students can connect lines and complete the shapes of objects.

Book reading is mentioned as a recommended activity by some participants. They plan to offer book reading activities using Web 2.0 tools.

Game-based activities are suggested by some participants as an activity type. They plan to design activities using Web 2.0 tools that are game-based, such as letter-sound activities and color-number matching.

Some of the responses of the participants are as follows:

P4 *"Making creative drawings"*

P9 *"I can voice sounds"*

P18 *"Game-based letter-sound activities, concept activities"*

P12 *"Sound studies, color-number matching studies with learning apps"*

P17 *"Pencil holding skills, line joining, sound awareness"*

f) Turkish Language Activities (How would you design an activity?)

Code	f
Digital Storytelling	10
Riddle	3
Language Development	2
Activity Evaluation	2
Tongue Twister	2
Preparation for Reading and Writing	1

Participants suggest various approaches to make Turkish language activities more effective if they could use Web 2.0 tools more efficiently.

Digital storytelling is the most emphasized activity type among the participants. They plan to design interactive stories using Web 2.0 tools to enhance children's storytelling skills. These activities may include elements such as students voicing the characters, creating storyboards, and turning them into animated films. Creating cartoons or comics is suggested by some participants. They intend to design activities where students can present the books they read or their own stories as cartoons or comics using Web 2.0 tools.

Riddles are proposed as an activity type by the participants. They plan to offer Turkish riddle games to students using Web 2.0 tools.

Language development activities are mentioned as a suggested area by some participants. They plan to design activities that support language development, such as identifying names with images of different objects, completing tongue twisters or sentences, using Web 2.0 tools.

Activity evaluation is highlighted as an activity type by some participants. They plan to use tools like Kahoot and learning apps with Web 2.0 tools to assess Turkish language activities.

Preparation for reading and writing activities is suggested as an activity type by some participants. They plan to design activities using Web 2.0 tools that focus on letter awareness, introducing sounds, and preparing students for reading and writing.

Some of the responses of the participants are as follows:

P19 *"I used to voice the storyboard story. Or I would create a digital book with the book creator."*

P20 *"Finding the names of different objects with their images"*

g) Game Activities (How would you design a game activity?)

Code	f
Motor Development Supporting Games	9
Cognitive Development Supporting Games	8
Cognitive, Motor, Emotional-Social, Language Development Supporting Games	2

Participants suggest various approaches to make game activities more effective by utilizing Web 2.0 tools.

Cognitive development supporting games are the most commonly emphasized type of activity among participants. They plan to design games that enhance children's visual perception, problem-solving skills, and active engagement with learned concepts using Web 2.0 tools.

Motor development supporting games are recommended by participants as a type of activity. They aim to design interactive games that improve children's motor skills, promote movement, and encourage physical engagement using Web 2.0 tools.

Emotional-social and language development supporting games are highlighted as an activity area by some participants. They intend to design games that foster children's emotional-social skills and language development using Web 2.0 tools.

Participants suggest examples such as "Simon says" games, structured games, problem-solving games, map reading, or orienteering activities.

Puzzle-style games and activities like dressing up characters based on colors are also among the recommended types of games by some participants.

Some of the responses of the participants are as follows:

P20 *"Finding items in mixed pictures, spinning wheels and doing the resulting task to improve their visual perception"*

P17 *"I could use applications in which children could actively participate in the concepts learned."*

h) Physical Activities (How would you design a game activity?)

Code	f
Reaction speed development activities	5
Coordination development activities	5
Body awareness development activities	4

Participants suggest various approaches to make movement activities more effective if they could utilize Web 2.0 tools more efficiently.

Coordination development activities are the most emphasized type of activity among the participants. They plan to design activities using Web 2.0 tools that enhance coordination skills, such as dance routines, sports activities, and interactive games.

Reaction speed development activities are suggested by some participants as a relevant area of focus. They intend to design visually supported activities using Web 2.0 tools to improve children's reaction speed.

Body awareness development activities are recommended by some participants as a type of activity. They consider designing activities using Web 2.0 tools that involve repetitive body movements, dance routines, and gymnastics to enhance body awareness.

While some participants suggest fun activities in general, it is noted that these activities can be associated with coordination development activities.

Some of the responses of the participants are as follows:

P11 *"I guide the programs (such as wordwall) where we load various images to act in accordance with the image."*

P4 *"Make music with your body"*

i) Music Activities (How would you design a game activity?)

Code	f
Digital music instrument	7
Introduction to musical instruments	6
Rhythm exercises	2
Transformation from picture to music	1

The participants suggest various approaches to make music activities more effective by utilizing Web 2.0 tools.

Digital music instruments are the most commonly emphasized activity among the participants. They plan to design activities involving digital piano, music coding, and the introduction of musical instruments using Web 2.0 tools.

Introduction to musical instruments is another activity type recommended by many participants. They aim to design activities that match musical instruments with visuals, introduce sounds and notes, and utilize Web 2.0 tools for this purpose.

Rhythm exercises are suggested by some participants as an activity area. They intend to design activities using rhythm visuals for interactive exercises, rhythm keeping, and increasing rhythm awareness through Web 2.0 tools.

Integration of music with other art forms is proposed by some participants. They plan to design activities such as transforming visuals into music and working with song lyrics visuals using Web 2.0 tools.

Sound discrimination and matching games are suggested as an activity type by some participants. They consider using applications like Wordwall and Educaplay to design these types of games using Web 2.0 tools.

Some of the responses of the participants are as follows:

P1 *"An activity where we can write our own song"*

P7 *"Various sounds can be created in music activities. (Rhythm)"*

P6 *"Rhythm visuals can be prepared; the rhythm is kept with the visuals that become presentations"*

j) Drama Activities (How would you design a game activity?)

Code	f
Animation	6
Drama	1
Emoji Generation	1

Participants propose various approaches to make drama activities more effective by utilizing Web 2.0 tools more efficiently.

Animation is the most emphasized type of activity among participants. They consider designing activities that involve story completion, bringing books to life, creating custom emojis, and voicing characters using Web 2.0 tools.

Using visual backgrounds, background music, nature sounds, and animal noises is suggested by some participants as an approach. They plan to create backgrounds and sound effects for animations using Web 2.0 tools.

Interactive methods such as taking photos, recording voices, and performing animations are proposed by some participants to make drama activities more enjoyable. They aim to make animations more fun and impactful using Web 2.0 applications like Chatterpix.

General drama activities that all students can participate in are recommended by some participants. They intend to design activities that ensure the participation of the whole class using Web 2.0 tools.

Some of the responses of the participants are as follows:

P3 “*Animation of books*”

P6 “*Animating a tree in nature. The child speaks as if he is a tree and his voice is recorded. With the Chatterpix application, the mouth of the tree is created and added to the tree, and the animation becomes more fun as if the tree is talking.*”

17. Which skill and competency levels require digital content developed with Web 2.0 tools? Why?

Code	f
Analytical thinking and problem-solving skills	11
Creativity and aesthetic skills	4
Self-awareness	4
Perceptual and motor skills	2
Social skills	2
Communication skills	1
All skills and competencies	1

Participants emphasize the need for digital content developed with Web 2.0 tools to support various skill and competency levels.

Analytical thinking and problem-solving skills are the most frequently highlighted skill level among participants. It is believed that Web 2.0 tools can be used to enhance these skills.

Communication skills and social skills are other important skill levels mentioned. It is stated that Web 2.0 tools can contribute to the development of these skills.

Perceptual and motor skills, as well as creativity and aesthetic skills, are other prominent skill levels. Participants mention that Web 2.0 tools can be used to enhance these skills.

Some participants believe that Web 2.0 tools can be used to develop personal skills such as self-care skills, self-awareness, and self-management.

Participants also point out that Web 2.0 tools can be used in areas such as cognitive development, language development, and motor development.

Web 2.0 tools can be used to develop various skill and competency levels such as research, exploration, independent learning, design, creativity, communication, collaboration, self-management, critical thinking, understanding, comprehension, memory, application, analysis, synthesis, and evaluation.

The use of Web 2.0 tools is emphasized as an important factor in maintaining high levels of student interest and motivation. However, for effective use of Web 2.0 tools and digital content, educators need to have sufficient knowledge and skills on how to use these tools. Educators need to select Web 2.0 tools that are suitable for their students' learning needs and skill levels and integrate these tools into their instructional materials. Additionally, educators need to provide guidance and support to help students effectively use these tools.

In conclusion, Web 2.0 tools and digital content are important resources that support students' cognitive, language, and motor development. However, educators need to use these tools correctly and provide guidance and support to ensure that students use them effectively.

Some of the responses of the participants are as follows:

P14 “*Coding, independent learning, problem solving, evaluation, motivation, self-control, active participation. In today's world, children will need technology in every field.*”

P18 “*May be to improve the sense of rhythm. May be geared towards discovering personal skills*”

P19 “*Content related to web 2.0 tools is needed at all pre-school skill and acquisition levels because different activities will keep knowledge and skills fresh.*”

18. Have you produced or do you plan to produce digital educational materials using Web 2.0 tools? If yes, please explain what they are. If no, please explain the reason.

Have you used Web 2.0 tools?/ Do you plan to use them?

Code	f
No	12
Evet	7

Usage of Web 2.0 tools:

Code	f
I am creating content	7
I plan to create content	4
I am using ready-made materials	3
I don't have knowledge	3
I don't have time	1
I don't plan to create	1

Reasons for wanting to learn Web 2.0 tool usage:

Code	f
I want to learn V farbrika	1
I want to create digital stories	1
I will create content for correct use of Turkish language	1

Some participants have experience in creating digital educational materials. They have used various Web 2.0 tools such as Canva, Edpuzzle, and Liveworksheets to create different materials. These materials include eye-catching content, puzzles, games, posters, and stories.

However, some participants have not yet created digital educational materials. Reasons for this include lack of sufficient knowledge and skills, time constraints, lack of interest, and other priorities.

In conclusion, based on the data obtained, some participants have already created or plan to create digital educational materials using Web 2.0 tools. These materials include engaging content, puzzles, games, posters, and stories. Other participants have not yet created digital educational materials, citing reasons such as lack of knowledge and skills, time constraints, and lack of interest.

Some of the responses of the participants are as follows:

P9 *"Yes. We made puzzle with e-puzzle within the scope of etwinning project. I also made a maze game"*

P12 *"Creating puzzles in accordance with the topics of certain days and weeks through puzzle creation programs. Creating a banner with Canva"*

P18 *"Yes, we can produce when we have time. It can be creating our own story, making topic-appropriate videos, slides for kids, making fun puzzles and games."*

Discussion

The focus of this study was on the opinions and experiences of participants regarding the production of digital educational materials using Web 2.0 tools. The data analysis reveals that some participants have experience in this area and have created engaging materials using various tools such as Canva, Edpuzzle, and Liveworksheets. Activities such as creating videos, slides, puzzles, and games tailored to students have been made possible through these tools.

These experiences demonstrate the opportunities that creating digital educational materials can offer teachers. For example, eye-catching materials can capture students' attention, enhance their motivation to learn, and effectively support knowledge transfer. Additionally, offering interactive activities to students can make learning more enjoyable and encourage active participation, providing students with a deeper learning experience.

These research findings are consistent with similar studies in the literature. For instance, a study by Akyol and Garrison (2011) indicates that Web 2.0 tools contribute to teachers' material production and increase student interaction. Similarly, Jones and Li (2013) demonstrate in their study that teachers create engaging materials using Web 2.0 tools, improving the learning process.

However, some participants stated that they have not yet considered producing digital educational materials. This finding aligns with the study conducted by So and Kim (2016), which identifies time constraints, lack of sufficient knowledge and skills, and lack of interest as reasons for teachers' non-participation in digital educational material production.

This research highlights an important point that the production of digital educational materials can enrich teachers' teaching and learning experiences and provide more effective education to students. However, it is evident that there are still barriers and a need for support in this regard. Educational institutions and stakeholders should provide teachers with the necessary resources and training, strengthen the technological infrastructure, and address the time and

resource constraints teachers face in the process of creating digital educational materials. This way, a variety of effective learning experiences can be offered to students, and the widespread adoption of digital transformation in education can be promoted.

Conclusion

The current study aimed to explore the perceptions and experiences of participants regarding the creation of digital educational materials using Web 2.0 tools. The findings indicate that some participants have already engaged in this practice and have successfully developed interactive materials using tools like Canva, Edpuzzle, and Liveworksheets. These materials encompass a wide range of activities, including videos, slides, puzzles, and games tailored to the needs of students.

The experiences shared by participants illustrate the potential benefits of creating digital educational materials. Firstly, visually appealing materials can capture students' attention and enhance their motivation to learn. The use of interactive activities further promotes active engagement and facilitates a more enjoyable and immersive learning experience, ultimately leading to deeper comprehension and knowledge retention.

These findings are consistent with prior research in the field. A study by Akyol and Garrison (2011), for example, highlights the contribution of Web 2.0 tools to material production and increased student interaction. Similarly, Jones and Li (2013) demonstrate in their study that teachers who utilize Web 2.0 tools can create engaging materials that improve the overall learning process.

However, it is worth noting that some participants expressed a lack of consideration for producing digital educational materials. This finding aligns with the research conducted by So and Kim (2016), which identifies time constraints, insufficient knowledge and skills, and a lack of interest as primary reasons for teachers' reluctance to engage in the creation of digital educational materials.

These findings underscore the significance of supporting teachers in embracing digital content creation as a means to enrich their teaching and enhance student learning experiences. Educational institutions and stakeholders play a crucial role in providing teachers with the necessary resources, training opportunities, and technological infrastructure. Addressing time and resource constraints is equally important to alleviate the burden associated with digital material development.

By addressing these barriers and offering comprehensive support, educators can be empowered to create a diverse range of effective learning experiences using digital educational materials. This, in turn, can facilitate the widespread adoption of digital transformation in education and ultimately lead to more impactful and engaging educational practices for students.

Importance and Impact of the Findings

The findings of this research offer valuable insights into the attitudes of preschool teachers regarding the utilization of web 2.0 tools. The majority of teachers acknowledge the potential of these tools in enhancing students' learning experiences. However, a notable portion of teachers express a lack of confidence in their ability to effectively use these tools.

The significance of these findings lies in the growing prevalence of web 2.0 tools in educational settings, underscoring the relevance of preschool teachers' attitudes towards their integration. The findings can inform the design of educational programs and the development of strategies for teacher training, with the aim of improving preschool teachers' attitudes towards the use of web 2.0 tools.

Furthermore, this research contributes to the existing body of knowledge on teachers' attitudes and factors influencing the adoption of web 2.0 tools, building upon previous studies in the field. Future studies can expand upon these findings by incorporating a larger sample size and including teachers from diverse regions. Additionally, examining attitudes towards the use of web 2.0 tools among different teacher profiles can provide a more comprehensive understanding of the factors influencing their acceptance and implementation.

Overall, this research sheds light on the attitudes of preschool teachers towards web 2.0 tools and highlights the need for targeted support and training programs to enhance their confidence and competence in utilizing these tools effectively. By addressing the identified barriers and providing necessary resources, educational institutions can foster a positive and supportive environment that promotes the integration of web 2.0 tools in preschool education, ultimately benefiting both teachers and students.

Recommendations and Future Research

This research qualitatively preserved the semi-recipient interview formula in order to understand the attitudes of preschool students towards the use of web 2.0 tools. According to the principles of investigation, the following provisions and the provisions that should be accrued:

1. Development of educational programs: Educational programs should be developed to enable preschool teachers to use web 2.0 tools more effectively. These programs can increase teachers' awareness of the various uses of web 2.0 tools and equip them with the skills to use these tools more effectively.

2. Studies evaluating the impact of attitudes: Future research can assess whether preschool teachers' attitudes towards the use of web 2.0 tools have an impact on student achievement, motivation, and engagement. Such studies can provide a better understanding of the potential benefits and effects of web 2.0 tools in the educational process.
3. Comprehensive research examining other factors: More comprehensive research is needed to understand the other factors influencing preschool teachers' use of web 2.0 tools. These studies can explore the challenges teachers face, interventions to facilitate the use of web 2.0 tools, and how teachers' attitudes may change.

In addition, the following recommendations should also be considered:

1. Creating suitable classroom environments: Providing the necessary hardware and technological equipment for web 2.0 tool-friendly classroom environments is crucial. Particularly, installing interactive whiteboards at an appropriate height in preschool classrooms can enhance student interaction.
2. Digital literacy education: The need for educators and students to adapt to the digital world should be considered. Educators should learn to use web 2.0 tools more efficiently and provide digital literacy education to students.
3. Effective usage and content creation: It is believed that web 2.0 tools can enhance student participation in the instructional process. Therefore, it is important for educators to use these tools effectively and create content that captures students' interest.
4. Digital safety measures: Necessary precautions should be taken to protect students from the negative effects of the digital world during the use of web 2.0 tools. Students should be informed about the digital world in a conscious and informed manner, with the support of parents.
5. Encouraging web 2.0 tools in projects: Students should be encouraged to use web 2.0 tools, especially in projects. This allows students to enrich their learning experiences by using different applications.
6. Guidance and support: It is important for educators to have a good understanding of the benefits and potential issues related to the use of web 2.0 tools in the learning process and provide guidance to students in this regard.
7. In addition to these recommendations, future research can focus on diversifying the sample, developing measurement tools, and examining teachers' experiences with technology use.

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