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Review Article

Evaluation of Dental Student's Preferences for Digital Resources

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Abstract

Background: This study examines dental student's usage habits, platform preferences and perceptions of reliability regarding digital educational resources.

Methods and Findings: A descriptive and analytical cross-sectional study was conducted with third-, fourth- and fifth-year students at the Faculty of Dentistry. Data from a structured questionnaire administered via Google Forms were analyzed using SPSS v25.0 software. In addition to descriptive statistics, Kruskal-Wallis, Mann-Whitney U and Chi-square tests were applied; the significance level was set at $p<0.05$.

Results: Most of the 333 students who participated in the study said they used digital resources more than once a week. YouTube was the most frequently used platform, while AI-based chatbots such as ChatGPT stood out, particularly for exam preparation and summarizing topics. Although 61% of participants found digital resources reliable, approximately half remained uncertain about their accuracy. A significant difference was found between grade level and digital resource usage ($p<0.05$), while no difference was found in age and gender.

Conclusion: Dental students use digital resources extensively in their educational processes. However, concerns about content reliability and insufficient verification habits highlight the need to integrate digital literacy and ethical awareness training into the curriculum.

Keywords: Artificial Intelligence; Dental Education; Dental Students; Digital Technology; Youtube; Social Media; Practitioner

Introduction

Developing digital technologies has fundamentally transformed learning and teaching approaches in higher education. In dentistry, which requires theoretical knowledge and practical skills, digital resources have become essential tools supporting students' academic and clinical performance [1]. Recent studies have revealed that the level of readiness for online learning in dental education is a critical variable for both students and faculty members and this level has increased significantly in the post-pandemic period [2]. Thanks to these resources, access to information has accelerated and learning processes have diversified and become more individualized [3]. Digital literacy skills are decisive in effectively using digital resources, encompassing information, evaluating information and critical thinking processes [4,5].

Students have frequently preferred YouTube, online course platforms and artificial intelligence-based applications in recent years. Video-based platforms such as YouTube, in particular, offer dental students the opportunity to visually observe and comprehend clinical applications, thereby contributing to the learning process by transcending the limitations of traditional teaching methods. Jung, et al., evaluated the information quality and reliability of root canal treatment-related videos on YouTube; their findings suggest that this platform could serve as a resource for dental students in their clinical learning process [6]. Similarly, Gross, et al., examined the content quality and educational value of YouTube-based video lectures used in dental education; these findings indicate that the platform could be a potential learning resource for students and professionals [3].

Artificial intelligence-powered tools are also becoming increasingly visible in dental education [7]. Large language model-based systems such as ChatGPT contribute to students' learning processes by defining terms, summarizing topics, analyzing cases or generating practical solutions to clinical scenarios. However, Sarhan, et al., emphasized that AI chatbots can provide

personalized learning and clinical decision support in endodontics education. Still, limitations such as accuracy, ethical concerns and misinformation production must be carefully addressed [8]. In this context, questions such as how often dental students use digital resources, for what purposes, which platforms they prefer and to what extent they trust these resources become essential. This study aims to reveal dental students' digital resource usage habits, their preferred platforms and their views on the future integration of these resources into education. Accordingly, the study's H_0 hypothesis is that there is no significant difference between digital resource usage and demographic variables.

Methods and Findings

This descriptive and analytical survey-based study is designed per the guidelines of STROBE (Strengthening the Reporting of Observational Studies in Epidemiology). The research was conducted per the principles of the Declaration of Helsinki. Participants were informed about the study and informed consent was obtained voluntarily. The study population consisted of third-, fourth- and fifth-year students enrolled at the Faculty of Dentistry, XX University, during the 2024-2025 academic year. Participation is voluntary. The data was collected through a structured survey form created online via Google Forms.

Survey

- Demographic information (gender, grade level),
- Access to and frequency of use of digital resources,
- Preferred types of digital content,
- Level of satisfaction with digital educational materials,
- Views on the future of digital education

It consists of a total of 18 multiple-choice questions. The questions were prepared based on a literature review and revised with expert input. The survey questions are also presented in Table 1 in the article. The survey link was shared with students online and responses were collected during the specified period. Participants' identity information was not recorded; responses were processed anonymously. The collected data was transferred to Excel. It was analyzed using descriptive statistics.

Statistical Analysis

Descriptive statistics were used in the evaluation of the data. Accordingly, frequency distributions (n, %) and tables were created to report students' frequency of digital resource use, preferences and views on digital education. Since parametric assumptions were not met in examining differences according to grade level, gender and other demographic variables, non-parametric statistical methods were used. The Kruskal-Wallis test was used for intergroup comparisons, while the Mann-Whitney U test was used for pairwise comparisons. The chi-square test (χ^2) was applied to compare categorical variables. In cases involving repeated measurements, analysis was performed using the Friedman test. The level of significance was accepted as $p < 0.05$. All statistical analyses were performed using IBM SPSS Statistics 25 software (IBM Corp., Armonk, NY, USA).

Question No	Question Content	Answer Options
S1	Which year are you currently studying in?	3rd Year / 4th Year / 5th Year
S2	What is your gender?	Female / Male
S3	What is your age range?	20 or below / 21–23 / 24–26 / 27–29 / 30 and above
S4	How often do you use interactive resources during your education?	Never / Rarely / A few times a month / A few times a week / Every day
S5	Which digital educational resource do you use most frequently in your dental education?	YouTube / ChatGPT or other AI tools / Online course platforms / University digital resources / Social media
S6	For what purposes do you use ChatGPT or similar AI tools?	Summarizing lecture notes / Simplifying complex topics / Assisting with homework and projects / Conducting clinical case analyses / I prefer not to use it

S7	How useful are dental education videos on YouTube for you?	Not useful at all / Slightly useful / Moderately useful / Useful / Very useful
S8	Do you compare the information you learn from interactive resources with textbooks or academic sources?	Never / Rarely / Sometimes / Most of the time / Always
S9	What is your opinion about the reliability of the information obtained from interactive resources?	Unreliable / Generally unreliable / Neutral / Generally reliable / Very reliable
S10	In your opinion, in which areas will AI-based platforms be more effective in dental education in the future?	Clinical case analyses / Patient communication scenarios / Digital textbooks and summaries / Preparation for theoretical exams / I don't think they will be effective
S11	How do you evaluate the information you learn from ChatGPT or similar tools in practical courses?	I actively use and apply it / I sometimes use it but find it partially useful / I use it but have doubts about its reliability / I rarely use it / I never use it
S12	When you have difficulty understanding a topic, which source do you primarily consult?	Academic books / YouTube / ChatGPT / Faculty members / Lecture notes and student groups
S13	What is your biggest concern when using interactive resources?	Uncertainty about the accuracy of information / Wasting time / Negative attitudes from professors or school / Moving away from traditional learning methods / I have no concerns
S14	In which courses do you use interactive resources more frequently?	Theoretical courses / Clinical practices / Preclinical practices / I use them equally in all / None
S15	How have your study methods changed with the use of interactive resources?	I study more efficiently / My study time decreased and my learning improved / I use more visual and interactive content / I continue to study using traditional methods / No change
S16	How do you use AI-supported resources during exam preparation?	Solving questions / Summarizing / Memorization / Collecting information from multiple sources / Entertainment purposes only / I don't use them
S17	As a dental student, what do you think about the future of interactive resources in education?	They will replace traditional education / They will integrate with traditional education and become more effective / They will remain as supplementary resources / I don't find them very reliable / Not necessary
S18	What is the biggest difficulty you face when using interactive resources?	Uncertainty about accuracy / Limited Turkish content / Overload of information / Technical issues / I don't face any difficulties

Table 1: The questionnaire developed for this study consists of items evaluating students' demographic characteristics, digital resource preferences and their experiences related to these resources.

Results

A total of 333 dental students participated in the study. The distribution of participants according to their class levels is shown in Fig. 1. The distribution of participants according to gender is shown in Fig. 2. Most students participating in the study were aged 21-23 and the distribution of participants was balanced in terms of gender and grade level. When digital resource usage was examined, many students reported using these resources several times a week. The most frequently used resources were YouTube, online course platforms and AI-based tools. YouTube's contribution to education was rated as "very useful" at a higher rate by 4th-grade students; this finding was supported by a statistically significant difference between classes ($p < 0.05$). Participants' patterns of questioning the accuracy of information when using digital content varied. Most students indicated that they occasionally verified information, but a significant proportion stated that they used content without checking it. The perception of source reliability is generally favorable. The majority of students rated digital content as reliable or somewhat reliable. However, this perception was not significantly associated with demographic variables such as gender, grade level or age ($p > 0.05$). Digital resources were most frequently used in clinical lessons. However, it was confirmed by intergroup statistical analysis that third-year students used these resources less frequently ($p < 0.05$). Uncertainty about the accuracy of information was the most common concern among students regarding digital resources. Reasons such as time loss and distraction ranked second, while a few participants stated they had no particular problems.

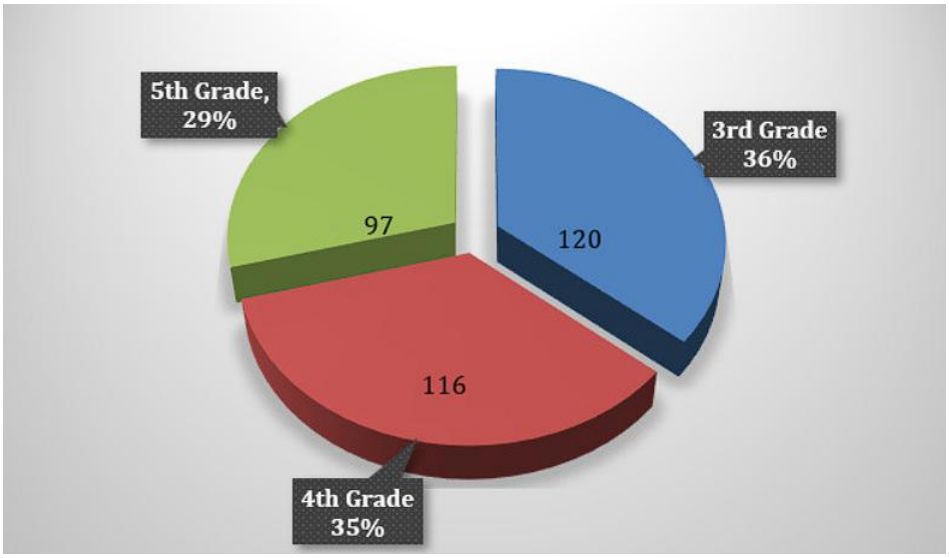

Figure 1: Distribution by grade level.

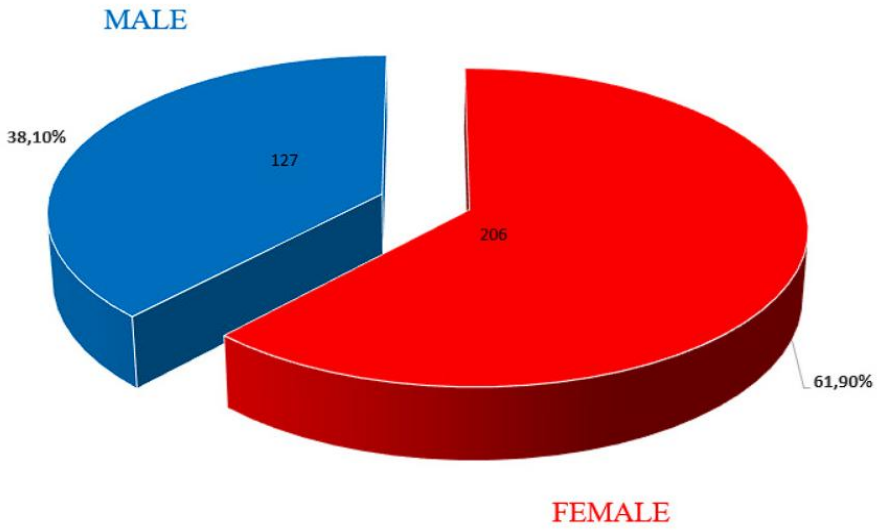

Figure 2: Distribution by gender.

Discussion

Digital technologies are becoming increasingly prominent in dental education. This study aims to reveal dental students' usage habits, attitudes and evaluations regarding the reliability of digital resources. The results indicate that students intensively use digital platforms alongside traditional methods during their education. In our study, “ease of access” and “time flexibility” emerged as the primary reasons students preferred digital resources. This finding is consistent with previous research showing that digital learning environments offer students significant advantages in ease of access and time management [9]. YouTube, in particular, contributes significantly to the learning process by facilitating the understanding of complex clinical procedures thanks to its easy accessibility and audiovisual content. Similar findings have been reported in the literature; Kruse, et al., reported that YouTube is the most frequently used digital resource for students in acquiring practical skills. However, the fact that YouTube content lacks academic oversight and has distracting qualities can create limitations in learning processes [10]. Another important finding of the study is that students heavily use artificial intelligence-based chatbots (e.g., ChatGPT) for individual learning purposes such as exam preparation, summarizing topics and explaining concepts. While these tools offer quick information access, they pose accuracy and source transparency issues. Indeed, Claman, et al., study indicates that AI-based systems can provide valuable contributions to educational processes, such as personalized learning, case analysis and content production; however, it emphasizes that risks such as the accuracy of the content to be produced, lack of transparency and model errors must be carefully addressed [11].

The uncertainty surrounding the reliability of digital content is also evident in the fact that a significant portion of students do not always verify information using academic sources. This situation highlights the need to develop digital literacy and critical evaluation skills. Ghasemian, et al., reported that students often use digital content without subjecting it to critical screening; current findings are consistent with these results. Educational programs must teach not only the use of digital tools but also content verification and ethical responsibility awareness [12]. The class level variable is a key factor in using digital resources. It has been observed that students in higher classes use these resources more frequently and more strategically. Luo, et al., similarly noted that digital resources are used more purposefully and selectively as the level of education increases [13]. In line with these findings, the hypothesis that “digital resource usage is independent of demographic variables” was rejected for variables except age and gender. This indicates that digital resource usage develops depending on the learning process and may be independent of individual demographic factors.

In general, digital resources play a complementary role in dental education. However, the reliable and effective use of these resources in education is not only dependent on their accessibility but also on academic oversight, pedagogical guidance and ethical awareness. Therefore, educational programs must go beyond viewing digital resources as a technical skill and adopt a holistic approach based on critical thinking and accuracy verification.

This study has some limitations. First, the research was conducted at a single center; data from different faculties and regions could allow for a more comprehensive generalization. Since participants' responses were self-reported, social desirability bias and recall errors are possible. Future studies using multi-center and mixed-method designs will contribute to a more comprehensive and in-depth understanding of students' perceptions and experiences of digital resources.

Conclusion

This study has revealed that dental students extensively use digital resources in their educational processes and generally exhibit a positive attitude toward these resources. YouTube, in particular, contributes to understanding clinical procedures by providing audiovisual support. At the same time, artificial intelligence-based chatbots have come to the fore in individual learning processes such as exam preparation and topic summarization. However, the lack of scientific review of the content and the fact that students do not always verify the information with academic sources pose significant limitations in terms of reliability and accuracy. Digital tools play a complementary role in dental education. However, to increase the reliability of these tools and ensure their effective use, educational programs need to be restructured to foster digital literacy, accuracy control and ethical responsibility awareness.

Conflict of Interest Statement

All authors declare that there are no conflicts of interest.

Informed Consent Statement
Informed consent was obtained from the participant involved in this study.

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Authors' Contributions
All authors have contributed equally to this work and have reviewed and approved the final manuscript for publication.

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Ethical Statement
Not applicable.

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