Virtual_national Congress of E_learning at Millennium Medical Sciences Universities

Investigating the Application of New Technologies in Dental Education: A Systematic Review

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ABSTRACT

Background: Information technology can train and develop competencies to help dentists and dental students. The use of IT in dental schools has created a good opportunity. This research has been written with the aim of investigating new technologies and their applications in dental education.

Methods: This systematic review has been done using library studies and literature reviews in 2021 by using the PRISMA checklist in order to extract and collect appropriate articles. Keywords like "dental education", "educational technology", "dentistry", and "technology" had been searched in databases (PubMed, Springer Link, Scopus, Science Direct, Web of Science, ProQuest, and Google scholar search engine). Eligible studies were those that were original / non-original, related to dental education, published from 2016 to 2021, full text, and English. At the end, out of the 200 studies that were found, 23 studies were reviewed and analyzed.

Results: Analysis of 23 studies showed that technologies such as digital simulation, VR/AR combined with haptic technology can be very useful for teaching skills. According to these studies, distance education (34.7%) (n=8), dental technology (30.4% (n=7), VR/AR (17.3% (n=4), mobile learning (8.2% (n=2)), serious games (4.1% (n=1), and blended learning (4.1% (n=1) have all been found to be useful and effective in dental education. These technologies are mainly used for teaching motor skills training, studying human anatomy, analyzable results, and distribution. Other innovations offer many opportunities to make pre-clinical education and treatment of patients with dental phobias more efficient.

Conclusion: Technologies have revolutionized the field of dentistry, and digital workflows have become commonplace in everyday dental work. Continuous adaptation to technology and investment in education keeps different specialties at the forefront of dentistry. It seems that in future studies, RCTs will be useful for carefully examining the impacts of each technology on dental education.

Keywords: Education, Dental technology, Dental dentistry

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Third-millennium Challenges in Virtual Learning Contexts: A Systematic Review in Developing Countries

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ABSTRACT

Background: Although virtual learning is the best way to continue education during an epidemic, developing countries face challenges. This study aimed to identify the challenges of virtual learning in developing countries.

Methods: This systematic review was conducted in January 2021. The PRISMA 2020 guideline was followed and the query "(Virtual-Learning OR E-Learning OR online learning) AND (challenges)" was searched in seven databases: Scopus, ISI, ScienceDirect, Emerald, Pubmed, Ovid SP, and Google Scholar to retrieve records within the title, keywords, and abstract fields with no date restrictions. The initial search of databases resulted in 325 papers. After duplications were removed, 269 papers were left, followed by the elimination process, which includes applying inclusion and exclusion criteria. Inclusion criteria were: published in a peer-reviewed journal; written in English; the focus of this article was on the challenges in virtual learning contexts in developing countries rather than it being mentioned merely as the context; not news articles, conferences, or letters to the editor. In total, 32 papers remained and were included in the final analysis. A narrative synthesis method was used to combine the findings from different articles, such as the title, journal name, publication date, country, type of article, research design, participants, and the challenges of virtual learning.

Results: The results showed that the most critical virtual learning challenges in developing countries were in six items: Technical (lack of proper telecommunications infrastructure, lack of necessary electronic standards, hardware and software, and reduced information security); cultural (attitude toward second-rate education);Virtual-learning skills (unfamiliarity with the virtual learning environment and low hardware and software literacy); Psychiatric factors (fear and anxiety when confronted with the virtual learning environment and distractions); Quality of education (difficulty in assessing the quality of learning and lack of effective student-teacher interaction); and Ethical concerns (information plagiarism, lack of intellectual property rights, and copyright law) were why most e-learners and e-tutors in developing countries were dissatisfied with virtual learning.

Conclusion: According to the results, these challenges hinder the full realization of the benefits of virtual learning and the opportunities arising from its adoption in developing countries. Therefore, national and organizational virtual learning authorities need to seek ways to address these challenges.

Keywords: Virtual learning, Challenges, Developing countries, muinnellim-driTh

Innovative E-Approach: Using the Flipped Classroom Strategy in Medical Higher Education

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ABSTRACT

Background: Flipped Classroom (FC) is a potential electronic approach that encourages active learning and increases student performance while reducing failure in education. It is necessary to evaluate the acceptance of this innovative approach among medical students. The aim of this study was to apply the flipped classroom method to medical higher education students according to the technology acceptance model.

Methods: This study was a cross-sectional study in which 110 medical students from Tabriz University of Medical Sciences were selected as the sample population by the available sampling method from March to December 2018. The data collection tool was a research questionnaire whose validity and reliability were confirmed. Data were analyzed using SPSS v16 software.

Results: The data show that perceived mental norms and pleasure have a direct and significant effect on the perceived usefulness of the FC approach ($\beta=0.32$, $P<0.05$; $\beta=0.7$, $P<0.01$). It is also found that PU ($\beta=0.67$, $P<0.01$), perceived ease of use ($\beta=0.51$, $P<0.01$), and self-efficacy ($\beta=0.43$, $P <0.01$) had a direct and significant effect on FC acceptance.

Conclusion: The FC model is an approach that encourages active learning and improves student performance. In this study, five determinants that affect success FC acceptance has an impact on being identified. This study showed FC is an effective, attractive, and enjoyable approach. The study of other technology acceptance models on the success of this method is suggested in future studies.

Keywords: Flipped classroom, Medical, Education, Technology acceptance model, Strategy, E-approach, Higher education

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Project-Based Learning in Online Medical Classes: The Walkway to Learn the Medical English Language Efficiently

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ABSTRACT

Background: Since the outbreak of the Covid-19 pandemic, online education has gained more momentum. Despite its advantages, virtual learning has some drawbacks. To compensate for these shortcomings, many innovative approaches have been proposed; one of them is Project-Based Learning (PBL). The present study aimed at investigating the effect of PBL on students' performance in a general English course.

Methods: The participants of this study were 55 Iranian freshmen medical students who registered in the General English Course at the Birjand University of Medical Sciences. They were selected based on convenience sampling. The classes were held virtually, twice a week for 24 sessions during the spring semester of 2020. All the students in the class were asked to do a term project in the form of making English language videos about a medical topic. The recorded classes, observations, and semi-structured interviews with the students about the advantages of doing projects were the sources of data. The collected data were analyzed through thematic analysis and validated through member checking.

Results: The data analyses resulted in five main themes about the advantages of PBL in the areas of students' "autonomy", "engagement", "learning", "motivation", and "evaluation". PBL helped the students to be more autonomous, and improved their engagement. Furthermore, it helped them learn new words about the diseases and improve their knowledge of their major. It also made the students more motivated and helped the teacher figure out how well they did during the term instead of just relying on the final exam.

Conclusion: Considering the advantages of PBL, it is suggested that other researchers incorporate this approach into their teaching in other contexts or in teaching other courses and share their findings. Examining the effects of students' gender and other personal characteristics on their perception of PBL could be another area for further research.

Keywords: Project-based learning, Virtual classes, Medical students, English language

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A Virtual Grand Round in Medical Education: A Literature Review Based on Medical Universities Experiences

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ABSTRACT

Background: This study tries to review the experience of universities in detecting patterns that have been followed in holding Grand Rounds by them and achieving the set of factors needed to hold this event with high quality.

Methods: In this literature review study, 268 titles of English articles were collected between 1960 and 2021 in the international databases of Cochrane, ERIC, PubMed, Scopus, Science Direct, Embase, and Web of Science. The key words included "Grand Round", "Medical Grand Round", "Virtual Grand Round", and "digital Grand Round". Based on the PISISMA diagram guide, after "quality review", eight articles remained in the study. Traditional content analysis methods were used to extract data, which was then inductively classified as a four-phase-ADDIE model, which includes Analysis, Design, Implementation, and Evaluation. In other words, the ADDIE model is used as a guide in determining the quality status of the virtual grand design of other studies.

Results: Analysis is always one of the main phases of the ADDIE model, so the information in this main theme was essentially divided into two sub-themes: "teaching facilities" and "conditions" in which all the measures taken to assess the feasibility of the course were included. In the "implementation" theme, just one article described the complete format of holding a virtual grand round emphasizing the teaching method, case type, and presentation platform. In the "evaluation" theme, all eight articles evaluated the results of the virtual course in some way using student perspectives. A deeper review of the experiences showed that no specific and complete instructional design model was used to design and implement this program.

Conclusion: In this review, it was found that the documented experiences regarding holding this program in virtual mode are very limited. Besides, the lack of applying an instructional model effectively makes the citation challenging.

Keywords: Grand round, Medical grand round, Virtual grand round, Digital grand round

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Monitoring and Evaluating the Quality of e-Learning in the School of Medicine during the Covid-19 Pandemic

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ABSTRACT

Background: Many universities have turned to e-learning during the Covid-19 pandemic around the world. Ensuring the quality of higher education, especially in medicine, is considered one of the tasks of the education system, which is essential for both traditional methods and e-learning. The aim of this study was to monitor and evaluate the quality of e-learning conducted using the university's LMS system for courses offered in the BS section and ICM section of medicine during the Covid-19 pandemic.

Methods: The present study was an evaluation study using a goal-based approach that was conducted by a descriptive cross-sectional method in which the entire 76 specialized courses offered in the first semester of 2021 at Bandar Abbas medical school were monitored and evaluated in terms of compliance with the curriculum, course plan, and quality of the uploaded contents by the trained experts. For evaluation, they randomly selected three sessions of teaching content and assessed the course contents with a checklist (whose validity and reliability were approved by experts). The Checklist consisted of two parts: 1-Assessment of different parts of the LMS 2-comparison of PPT files with the standard format. For scoring, a six-point Likert scale was used (0 to 5). These scores were considered in the three ranges: 5> desired >3.33 >relatively desired >1.66 >undesired >0. For monitoring, in the event of more than a three-day delay in uploading the content, the teacher was followed up.

Results: Sixty percent of e-learning courses presented a course plan that was completely in accordance with the curriculum. The uploaded educational content of 46.1% of the courses was desired, 38.2% of the courses was relatively desired, and 15.8% of the courses was undesired.

Conclusions: In the general review, the e-learning courses offered were at a relatively desired level. Due to the new e-learning in medical schools, there is a need to monitor e-learning sessions during the course.

Keywords: E-Learning, Medical school, Curriculum, Course plan, Monitoring, Program evaluation

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Knowledge Services, Pathways towards an Entrepreneurial University

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ABSTRACT

Background: The complexity of today's world is constantly creating new challenges for higher education institutions, and they must continually be consistent and accountable to maintain standards of excellence and compete in international education markets. Being or becoming an entrepreneurial higher education institution is a response to these challenges. There is no "unique" approach, but there are different ways in which higher education institutions behave in an entrepreneurial and creative way. Another concept in today's knowledge-based economy is knowledge-based services that produce and disseminate knowledge and are critical to innovation processes. The purpose of this article is to show that more knowledge is needed and to explain how universities can become more entrepreneurial by changing how they provide knowledge.

Methods: This article is based on the results of a literature review in the fall and winter of 2020 and is in line with the doctoral dissertation that is currently being done in the "Virtual School, Medical Education and Management, Shahid Beheshti University of Medical Sciences." After 1989, a review of the limited, focused literature on service innovation, with an emphasis on knowledge-based service innovation, was done.

Results: Service innovation is multidimensional and interactive in nature and can be examined from both technological (information and communication technology developments) and non-technological (organizational innovations) aspects. Accordingly, knowledge-based services include services based on professional knowledge and technology knowledge. Information and communication technology is the focus of technology knowledge-based services. Other technology-related technical service activities are also important.

Conclusion: If universities really want to contribute to economic and social development, they must act as KBS providers and strive to adapt to a model of innovation in which knowledge-based services play a more prominent role. It is important to explain the complete model of entrepreneurial universities by focusing on the dimensions, concepts, opportunities, challenges, and requirements for knowledge service innovation, and then apply it to medical universities in a way that fits their needs.

Keywords: Entrepreneur, Services, Service innovation, Knowledge –intensive service innovation, Entrepreneur university

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Methods for Evaluating the Quality of Digital Educational Game Design: A Review Study

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ABSTRACT

Background: Digital Game-Based Learning (DGBL) is a student-centered learning strategy that combines educational content with computer games and engages students in learning activities using simulations. The objective of this review is to use the existing methods and patterns as a guide in applying the evaluation of digital educational games.

Methods: A systematic review was conducted of studies published in English with free access to the full text of the article and without time limit on June 9 and was conducted by searching for keywords ("Quality Evaluation" OR "Evaluative Checklist" OR "Evaluation Framework" OR "Program Evaluation" OR "Evaluation") AND ("Digital Game" OR "game-based learning" OR "Digital Game-Based Learning") in the title, abstract, and keywords of studies in valid scientific databases, including Cochrane, Web of Science, Scopus, PubMed, and Embase. Inclusion criteria were English-language studies that provided a method, standard, or tool for assessing the quality of digital educational games and articles published in reputable scientific journals; and access to the full text of articles and studies that, based on the title and content, provided a possible answer to the question. Exclusion criteria were abstracts without full text, the absence of one of the keywords in the title or text of the articles, and studies that did not provide any scientific, theoretical, laboratory, or statistical evidence. Titles and abstracts were screened independently based on eligibility criteria. Complete texts were then retrieved and screened by two researchers independently based on eligibility criteria. Disputes were resolved by discussion between the parties. The checklist was used to extract data such as study title, first author name, year of publication, country, methods, and tools for evaluating the quality of digital educational games. A total of 840 related studies were identified; finally, 12 main articles were selected.

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Results: In general, in most studies, three types of evaluation should be conducted for digital educational games, which include assessing user learning, the quality of game elements and features, and the resources on which the learning strategy is based. Evaluation of training strategies is either analytical (inspection evaluation by a group of experts) or experimental (evaluation by end users when using the training strategy). Evaluation of game elements and features is generally done as a single purpose in each study by design (checklist, form, or questionnaire); Among the important indicators studied in these evaluations include: users in terms of age and skill level, user friendliness, motivation, attitude, interactivity, skill building, stability of effectiveness, clear goals, accessibility, reusability, support systems, visual appeal, The enjoyment of the game is determined by the type of game, the organization of the content, and the page layout. And end-user learning assessment, which generally measures changes in users' level of awareness before and after using the game, is assessed using a questionnaire, game score, or practical skills assessment; In some studies, user acceptance evaluation has also been evaluated with a questionnaire. Also, we found only one recipe for measuring the effectiveness of games that can illuminate the path of evaluators.

Conclusion: The results of the study showed that there are three types of evaluation for the effectiveness of digital educational games, which include the evaluation of user learning, educational strategy resources, and game features .Most game evaluations were intended to be single-purpose performances of the same game ,and there was no clear pattern for evaluating the overall quality of digital games. Future studies should come up with a minimum framework for evaluating digital games independent of educational content.

Keywords: Digital games, Quality evaluation, Digital educational games, Game-based learning, Evaluation

Nursing University Students' Experience of Online Education in the COVID-19 Pandemic: A Content Analytic Study

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ABSTRACT

Background: The world has been confronted with the most realistic experiment of the revolutionized form of education, e-learning, as a result of the COVID-19 pandemic. Thus, the present researchers intended to explore and report the most frequently cited barriers and benefits of e-learning during the pandemic among nursing students at Hormozgan University of Medical Sciences.

Methods: The present qualitative research employed a content analysis approach and recruited 26 nursing students from Hormozgan University of Medical Sciences. These subjects were selected purposively in 2021. The inclusion criteria were affiliation with the nursing faculty for a bachelor's degree, willingness to take part in the interview, and signing an informed letter of consent to participate in the research. Unstructured interviews were used to collect data through face-to-face visits paid by one of the present researchers. The data collection took 3 months to complete. A conventional content analysis followed. As for ethical considerations, the participants were assured of the confidentiality of their information and the anonymity of the data. To ensure the internal validity of analytic results, the member control method was used, and to increase external validity, rich descriptions of data were used. The reliability of the data was increased by planning the data entry process during the data collection and extraction stages.

Results: The analysis revealed five main themes: educational communication, student evaluation, class, and exam attendance, learning the material, and benefits. Besides, 8 categories were extracted, including failed student-teacher communication, failed student-student communication, uncommon and misunderstood evaluation, anxiety and stress, distance from active learning, sources, no physical attendance, and non-educational activities. There were several sub-categories for failed teacher-student communication, including absence in class, difficulty communicating, misunderstanding, one-way instruction (by not engaging students), and the teacher's unawareness of students' strengths and weaknesses. The subcategories of failed student-to-student communication were unfamiliarity with classmates and less group or team work. The new forms of evaluation, mismatch of teaching and testing, lack of time to answer essay-type final exam questions, and limited access to materials were the subcategories of uncommon and misunderstood evaluation. Difficulty entering the class or exam hyperlinks and low internet connectivity were the subcategories of anxiety and stress. Also, the distance from active learning category had several subcategories, including no questions and answers in class, distractions, inadequate attention to material, underestimation of materials, poor-quality materials, and poor critical thinking. The subcategories of educational benefits were access to audiovisual files, a lower risk of COVID-19 infection, and chances for doing non-educational activities.

Conclusion: The present findings can help health educationalists and authorities better understand students' expectations of learning, and the benefits and barriers of e-learning. Thus, they will be able to tackle the existing challenges and make the required plans.

Keywords: Experience, Nursing students, E-learning, Qualitative research, COVID-19

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Comparison of the Effects of Electronic Learning and Blended Learning on the Empowerment of the Caregivers of Cancer Patients under Chemotherapy

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ABSTRACT

Background: Cancer is a chronic disease that affects a person and his/her family. E-learning is a common method of educating patients and caregivers. The present study aimed to compare the impact of electronic learning and blended learning on the empowerment of the caregivers of cancer patients under chemotherapy.

Methods: This clinical trial was performed in the main chemotherapy center of Shiraz University of Medical Sciences during October 2018-December 2020. A total of 123 caregivers of cancer patients who were under chemotherapy were selected through simple random sampling based on drawing into two intervention groups and one control group. The empowerment of caregivers was evaluated using the caregivers' empowerment questionnaire in all three groups at the beginning of the study, immediately after the intervention, and one month after the intervention. The data were analyzed by descriptive and statistical tests in SPSS software version 22.

Results: The comparison of knowledge scores between the two intervention groups shows no significant difference between the two intervention groups (P=0.3). Comparison of attitude scores demonstrated that the group intervention one had a better attitude than the two other groups after intervention (P=0.003). The mean performance score increased in both intervention groups with a significant difference (P=000). No significant differences were observed between demographic data and knowledge, attitude, and performance of three groups (P>0.05).

Conclusion: Our results indicated that electronic and blended learning types affected the attitude and performance of patient caregivers. Therefore, blended learning could be applied as a means of enhancing the empowerment of caregivers. Empowering caregivers to care for patients undergoing chemotherapy using electronic methods is an effective step for providing proper care and reducing the problems for caregivers and patients. Many studies confirm this result.

Keywords: Cancer, Chemotherapy, Blended learning, Electronic learning