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Impact of Online E-learning During the Pandemic Period

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ABSTRACT:

During the COVID-19 pandemic, online learning has become one of the important ways of higher education because it is not confined by time and place. How to ensure the effectiveness of online learning has become the focus of education research, and the role of the "online learning community" cannot be ignored. In the context of the Internet of Things (IoT), we try to build up a new online learning community model: First, we introduce the Kolb learning style theory to identify different online learning styles; Second, we use a clustering algorithm to identify the nature of different learning style groups; and Third, we introduce the group dynamics theory to design the dimensions of the questionnaire and combine the Analytic Hierarchy Process (AHP) method to identify the key influencing factors of the online learning community. We take business administration majors and students in universities as an example. The results show that as a machine learning method, the clustering algorithm method is superior to the random construction method in identifying different learning style groups, and our method can well judge the importance of each factor based on hierarchical analysis and clarify the different roles of factors in the process of knowledge transfer. This study can provide a useful reference for the sustainable development of online learning in higher education.

Introduction:

During the COVID-19 pandemic, online learning has become the only alternative to traditional teaching methods in higher education. However, online learning lacks timely face-to-face feedback and interaction, and it is difficult to establish close links between individuals. Therefore, ensuring the efficiency of online learning has become a mainstream topic in the research field of education. This is closely related to online learning communities, student awareness, and technological developments. Let us start with a review of the relevant background. The continuous innovation of information technology has greatly affected people's learning, work, and life style. Online education, because of its convenient and open characteristics, is increasingly changing learning behaviors. In 2019, China's online education market grew by 21.47% year on year, reaching 346.8 billion yuan (data from CNNIC); in 2020, the Ministry of Education issued the Guiding Opinions on Doing a Good Job in the Organization and Management of Online Teaching in Colleges and Universities during the Epidemic Prevention and Control Period and put forward the slogan of "teaching and learning without stopping."

Online learning has officially become an irreplaceable way for teachers and students to share classes. The online learning community is a major component of the online education system. It uses social networks as a carrier to establish learning cooperation relationships among participants to exchange experiences, share resources, and pursue the common development of individuals and groups. However, in educational practice, there are a large number of "invisible participants" and "marginal participants" in the online learning community who lack learning enthusiasm and initiative and have a negative impact on the effectiveness of online learning. It is an urgent problem for higher education to excavate the influencing factors of the efficiency improvement of the online learning community, improve the participation of learners, and promote the long-term development of the online learning community.

Business administration is based on the basic theories of management and economics and the use of modern management methods and means for effective enterprise management and management decisions. Business administration is a major widely offered by universities all over the world. With the acceleration of the process of global economic integration and the deepening of the economic system reform of various countries, a large number of business administration talents with modern management concepts and skills are needed, which provides a very broad prospect for the development of students in this major. In the new era, colleges and universities pay attention to training students' practical ability, social adaptability, and job competitiveness. Students majoring in business administration generally reflect the characteristics of active thinking, an outgoing personality, good communication, and so on. The career orientation also puts forward higher requirements for the comprehensive quality of the major. Therefore, this article takes the major of business administration as the research object, through learning style and cluster analysis, independently constructing the online learning community, and explores the influencing factors of its development based on the theory of group dynamics, then proposes targeted online learning community development strategies so as to dynamically combine the structural level design with the strategic level adjustment and promote the online learning efficiency of professional courses in universities.

Definitions

Online learning

Online learning is a style of education in which students learn complete programmes of work via electronic and online media only, so that they can completely control the time, pace, and place of their learning (*Oxford English Dictionary*). In other words, all learning happens out of school. However, in this review many studies reported what they called online learning, when in fact they had the pupils in school using the school internet system to access some form of web-based program under the supervision of the teacher. This is not what we consider to be online learning, and such projects have been categorised as computer-assisted instruction (CAI).

Review of Literature:

From the perspective of online and offline integration in higher education, the role of educational technologies in the transition from face-to-face to online teaching and learning activities and five challenges to transitioning to online education experienced by higher education institutions such as synchronous/asynchronous learning tool integration, access to technology, faculty and student online competence, academic dishonesty, and privacy and confidentiality, were identified (Turnbull et al., 2021). The problems, challenges, and advantages of using e-learning systems instead of traditional education in higher education were revealed, and surveys and empirical tests on teachers and students at the University of Benghazi were conducted (Maatuk et al., 2022). Five trends affecting online learning were summarized as follows: the intersection of different learning modes; super-large-scale popular learning; the openness of education and political game; the interaction between students, teachers and students, and students and content; and the diversification of digital technologies (Mark et al., 2022).

Limitations of E-Learning

- Online Learning May Create a Sense of Isolation. Everyone learns in their own manner. ...
- Online Learning Requires Self-Discipline. ...
- Online Learning Requires Additional Training for Instructors. ...
- Online Classes Are Prone to Technical Issues. ...
- Online Learning means more screen-time.

Research

This analysis of 1355 full papers proved to be time-consuming, but we would urge that future attempts take the trouble to encompass all five areas, since they are obviously interlinked. Our definitions and coding system have proved reliable and future research may seek to adopt them. Equally obviously, this systematic review will need updating as time goes by. We hope that future research will acknowledge the difficulties we have encountered in undertaking this review and seek to find ways of resolving them. The heterogeneity of effect sizes and their lack of attribution to specific school sectors is an example of such a difficulty. Some system of analysis of study quality is very necessary, but such quality analyses are very various and the choice must be both detailed and informative, but also practically feasible and reliable. Researchers must guard against the Hawthorne effect and longer-term follow-up of effectiveness needs to feature in many more studies, together with more evidence on implementation integrity.

Further research is needed into the balance between national and local government delivered CPD (which might be compulsory) and that stemming from individual teachers or groups of teachers from one or many schools investigating a range of public, freeware and private CPD opportunities and making their own decisions about what to pursue and implement in their classrooms. The first option might have coherence and leadership, while the second might be more up-to-date and relevant to classroom practice. Our results suggest that more research on how to deliver CSCL, games and CAI outside of the school environment is also sorely needed. Why middle schools perform so poorly is in need of investigation, as is why interventions which attempt to bridge sectors tend to do poorly. Science and mathematics are popular areas but less effective, and research should explore why—perhaps science and mathematics interventions tend to have weaker underlying pedagogy.

The gender disparity merits further investigation, and this should be coupled with investigation of self-efficacy, since the two seem likely to be connected. Disadvantaged and ethnic minority pupils do better than one might expect, but these labels are not explanatory—it would be helpful to detail what features of them are causally linked to performance in digital interventions. Research should also investigate the longevity of devices and internet connections made available to disadvantaged pupils, with associated exploration of the full range of multiple uses to which the devices are put when made available. Research might also investigate the difference in perceptions of traditionally ‘low-ability’ pupils (as defined by the school), their successful performance on digital interventions, and the implications that might have for pupil self-efficacy and adjusting school perceptions. Research might also explore changing patterns of teacher self-efficacy and resistances to deploying digital interventions—there tends to be a good deal of focus on what motivated teachers can do, but there also needs to be investigation of less-motivated and/or conservative teachers, who form a significant part of the workforce. Finally, in the special needs area, emotional and behavioural difficulties, visual impairment, dyslexia/specific learning difficulty and gifted studies were all weaker, and research should seek to investigate why this is and how it may be remedied. Future research work should also consider an analysis of types of pedagogy underlying the different types of digital technology. We urge authors of individual studies to describe their intervention in sufficient detail as to make it replicable.

Conclusion :

Online Learning Environment is highly effective and facilitates the comprehensions and assimilation of concepts in Physics. From the scores obtained it can be inferred that girls and boys have achieved equally when taught through online learning environment. Students should be given an opportunity to learn through online classroom, where they can interact with the content, and gets space to share learning objects. Similarly they also get an opportunity to collaborate with their peers in creating knowledge. In Online learning environment teacher can explain abstract concepts with the help of animation and graphics, thus developing imagination among students.

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