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Presenting a Paradigmatic Pattern of Cloud Computing Adoption in Educational Institutions by Expanding the Technology Readiness Theory with a Grounded Qualitative Approach

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Abstract

Purpose: This study investigated the paradigmatic pattern of cloud computing adoption in educational institutions by expanding the technology readiness theory.

Methodology: This research is of a qualitative type that was conducted by applying the grounded theory. The scope of the study was Golestan province's education department and the statistical population of the research were experts in the field of research, which sampling from them was done in a purposive and snowball sampling methods. The data collection tool in this research was a semi-structured interview that after 13 interviews reached theoretical saturation. To determine the validity, the acceptability criterion was used and to determine the reliability was used the internal agreement method with a value of 76.4%. The data were analyzed through three stages of open, axial and selective coding.

Findings: The findings showed that 55 subcategories were identified in 8 main categories with a grounded theory approach; So that for the causal conditions was identified one main category of empowering education managers and teachers, for the background conditions was identified two main categories of strengthening cloud learning infrastructures in organizational education and forming support learning associations, for intervening conditions was identified two main categories of security and trust, for central phenomenon was identified one main category of educational management system, for strategies was identified two main categories of curriculum system development and use of cloud service technology in the field of e-learning and for the consequences was identified on main category of consequences. Finally, the paradigmatic pattern of cloud computing adoption in educational institutions by expanding the technology readiness theory with a grounded qualitative approach was drawn.

Conclusion: The paradigmatic pattern of cloud computing adoption in educational institutions by expanding the technology readiness can help specialists and planners of educational systems in improving educational conditions.

Detailed abstract

Purpose: Due to the global pandemic, almost all educational institutions have updated their teaching and learning methods. In the past few years, home teaching and online learning approaches have been the norm. The learners who used to rely on conventional techniques have been forced to switch to technology due to tough conditions. Despite this uncertainty, the adoption of technology in education has accelerated, as has the adoption of cloud computing technology. The online education has opened a new path for higher education around the world. Due to the closure of university campuses and schools, teachers and students are now teaching and learning remotely and digitally. Today, complex global conditions have progressed in such a way that information technology has become one of the most fundamental issues in organizational studies. The technology acceptance model is one of the first acceptance theories that allow the exploration of independent factors and computing adoption in educational institutions model variables. Thus, researchers and managers can identify why a particular system may not be acceptable in order to take appropriate corrective steps. A key goal of the technology acceptance model is to provide a basis for tracking the effect of external factors on internal beliefs, attitudes, and tendencies. The technology readiness index (TRI) is a new measure designed to measure an individual's technological readiness. The e-learning is one of the technologies that, in line with new strategies, has made learning easier with the help of application software and virtual learning environment. Many organizations that want to hold such trainings do not have the technical ability and the necessary cost to build and maintain these systems. In the current situation, this type of training is combined with many of the latest technologies to provide better services with less complexity to users than traditional methods. Therefore, in order to solve the problem, these institutions are looking for new solutions. A new solution proposed to solve these problems is the use of "cloud computing" services. The cloud educational environment is of special importance in the field of education and is related to formal education and education outside the educational environment. The cloud computing is a new paradigm that can provide the necessary infrastructure to help organizations run applications as a suitable service through a web browser on the Internet. The cloud computing is a large number of controlled and measurable virtual infrastructures that have the ability to host programs, and the customer of this service, according to its use, pays for the service and more generally changes the structure and nature of the systems of organizations data and in a special way causes changes in the development of telecommunications. In this regard, the e-learning can use cloud computing to provide the required infrastructure and also provide a suitable platform to improve efficiency, scalability and increase access. Therefore, The Covid-19 outbreak has effect almost all aspects of life including education and technology has almost completely replaced the traditional face-to-face teaching and learning environment. The cloud computing is widely used in education, especially in higher education, for online access and sharing of educational resources, educational information, notes, lectures and academic assessments. Therefore, this study investigated the paradigmatic pattern of cloud by expanding the technology readiness theory.

Methodology: This research is of a qualitative type that was conducted by applying the grounded theory. The scope of the study was Golestan province's education department and the statistical population of the research were experts in the field of research, which sampling from them was done in a purposive and snowball sampling methods. The data collection tool in this research was a semi-structured interview that after 13 interviews reached theoretical saturation. Sampling the first was done purposive and according to criteria such as at least 10 years of service and at least a master's degree, and then they were asked to introduce other experts as suggested samples to the researcher and the process of sampling and interviewing them it continued until the research reached saturation. Most of the samples of this research are male (10 people equal to 76.92 percent) and have an age of 31-39 years (6 people equal to 46.15 percent), a service history of 20 years or more (6 people equal to 46.15 percent) and PhD education (8 people were equivalent to 61/54 percent). To determine the validity, the acceptability criterion was used and to determine the reliability was used the internal agreement method with a value of 76.4%. The data were analyzed through three stages of open, axial and selective coding.

Findings: The findings showed that 55 subcategories were identified in 8 main categories with a grounded theory approach; So that for the causal conditions was identified one main category of empowering education managers and teachers, for the background conditions was identified two main categories of strengthening cloud learning infrastructures in organizational education and forming support learning associations, for intervening conditions was identified two main categories of security and trust, for central phenomenon was identified one main category of educational management system, for strategies was identified two main categories of curriculum system development and use of cloud service technology in the field of e-learning and for the consequences was identified on main category of consequences. Finally, the paradigmatic pattern of cloud computing adoption in educational institutions by expanding the technology readiness theory with a grounded qualitative approach was drawn.

Conclusion: The paradigmatic pattern of cloud computing adoption in educational institutions by expanding the technology readiness can help specialists and planners of educational systems in improving educational conditions. According to the findings of this research, there are suggestions for using cloud-based learning and training services, which some of them can be mentioned: New systems should be prepared before implementing the cloud-based training system in education. Investing in the development of virtual space should be used. In order to see positive results in the field of current research, students need support and encouragement, design management of diverse and numerous platforms to use teaching facilities, and relevant officials need to generate new experiences and new ideas in the field of cloud services and educational needs assessment.