Internet of things and higher education: opportunities and challenges
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Abstract
Nowadays, information technology, has affected the production, distribution, and use of knowledge-based processes. Among other things, the Internet of Things as a network of objects connected to each other can bring new capacities in all fields. The aim of the present research is to examine the opportunities and challenges that the Internet of Things can have in relation to the higher education system. For this purpose, the systematic approach and the Chelkland SSM method were used. By refer to several internal and external scientific information databases, 25 related articles were identified. Then, without any sampling, all of these articles were studied by the researchers and their contents are divided into four categories: the introduction of the internet of things, the role of the internet of things in educational functions, the opportunities of the internet of things for higher education and the challenges of the internet of things in higher education, and they were organized in the dimensions of the input, process and output of the higher education system. The findings of the research indicate that the internet of things, by providing advanced information services, provides a flexible and measurable system for academic community that can be used to personalize training and reinforcement of learning, better management of educational processes, and more effective logistic management etc. The use of the internet of things will also challenge higher education, which violation of privacy, security issues, and rising costs are some of these challenges.

Conclusions
The findings of this study showed that the use of the internet of things in educational systems, including universities, has many strengths on the one hand and helps to develop technology systems, update technology and facilitate educational reform, and on the other hand, faces challenges and limitations in educational systems. In the dimension of the input of the higher education system, the internet of things can be integrated into the supply chain of higher education in a way that links the input, output, and process of the university. In the dimension of the process, the internet of things in issues like the interaction and participation of students, the assessment of students’ mental and physical health, classroom management, the attendance and absence, time management, faculty management and energy saving, book search, improvement of security in the university space, providing real and meaningful learning, individual growth and development for both the university teacher and the student can help higher education systems. And in the dimension of the output, internet of things, can be a subject of research and the field of study and therefore Job opportunity. But on the other hand, the challenges of interne of things for higher education include: security and privacy challenges, high costs to set up and frequent updates, constantly requiring internet connectivity, comparability, and self-organizing.