

# Research Trends in Educational Technology: A Review of Studies Published in Five Social Science Citation Indexed Journals From 2010 to 2019

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## ABSTRACT

The researchers of this study selected five journals in the field of education and conducted a series of analyses regarding publications dating from 2010 to 2019 to investigate the research trends and characteristics in the field of educational technology. By using the analytic tool Content Analysis Toolkit for Academic Research (CATAR), the researchers in this study conducted bibliometric analysis and breakdown analyses to summarize major contributing countries, educational institutions, most productive authors, and most cited papers; moreover, they used co-word analysis to reveal the representative items within each cluster. The findings in this study can provide implications and references for educators and researchers in the field of educational technology when selecting variables for their studies and technologies for their students.

## KEYWORDS

Bibliometric Analysis, Educational Technology, Research Trends

## 1. INTRODUCTION

Technology changes daily human life at a rapid pace, and impacts every field of work, including education. From chalk and blackboard in classroom, to slide projector and interactive projector, all these could be considered as forms of technology (Arnold & Sangrà, 2018). When modern technology is applied systematically to an organized educational process, it can be used in three domains, such as tutor, teaching tool, and learning tool (Lazar, 2015). By focusing on the benefits of the chosen tools and applications, teachers and administrators can acknowledge the value of Educational Technology when it is properly integrated into programs or curriculum. Nowadays, educators are more and more familiar with tools that can be used in distance education, educational games, and simulations; many researchers also pay more attention to the effects that technology can bring about (Morrison et al., 2010; Waxman et al., 2013). Many studies suggest the use of technology could inspire positive effects among students, such as improve academic performance, increase students' competitive capabilities, and elevate learning motivation (Clark, Tanner-Smith, & Killingsworth, 2016; Lai & Bower, 2019;

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Merchant et al., 2014), therefore the growth and trends in the field of Educational Technology deserve attention and discussions.

In addition, the definition of technology itself could lead to numerous ramifications. In some recent studies, educational technology is defined as tools that help learners gain cognitive knowledge, enhance communication skills and develop problem-solving abilities (Lee, Yeung, & Cheung, 2019; Warner, Bell, & Odom, 2018). Based on this definition, the emphasis would fall on computer-related technology (Doyle et al., 2019). However, from the initial collaboration with personal computers in the 1980s, through the explosive development with the Internet in the 1990s, and into the age of multimedia content with portable devices, the advancements in Educational Technology in recent years have been astonishing (Pedro, de Oliveira Barbosa, & das Neves Santos, 2018). In the past, the focus of Educational Technology was on computers; after the popularization of smartphones, other interactive devices are also included in the technologies that support both teaching and learning (Jack & Higgins, 2019).

Not only the instruments of learning are being revolutionized by technological advancements, so are the pedagogies and mindsets of educators. With the ongoing development of technology, both learners and teachers need adjustments and creativity in order to best utilize the benefits that technology can bring.

Academic journals are an essential platform to disseminate and exchange professional thinking and knowledge among scholars. They have become a medium for researchers and practitioners to learn the known and to identify the unknown. As pointed out by Shafique (2013), “Studying the kind and content of the knowledge produced by a field can inform about the justification and contribution of the field as well as its evolution and future prospects.” Thus, examining articles published in academic journals can help determine the influential literature and research trends about Educational Technology, to quickly understand the newly emerging topics in this field. Moreover, such retrospection can reveal the predominant evolutions of the field and provide an overview of the knowledge structure of the domain (Chen et al., 2020; Li, Antonenko, & Wang, 2019).

Bibliometrics offers an objective and data-driven set of methods and measures to investigate the cumulated efforts over years of contributions from scholars within a field (Borgman and Furner, 2002). It relies on statistical analysis and provides visualization of article data by examining the citation patterns and revealing the most common keywords, linking keywords and terms via co-word analysis. Numerical and visual keyword frequency data provides useful insights regarding the trends and issues that have been the focus of empirical studies. Importantly, it can be employed to obtain a better understanding of what has been investigated in the past and further make predictions about what will happen in the future. Bibliometric analysis has been widely applied in scientific research trend analysis, as well as identification of emerging topics within a particular research area (Chen et al., 2020; Chou, Wu, & Tsai, 2019). It is increasingly recognized as an invaluable and effective technique for evaluation of academic outputs within a specific research field (Moed, De Bruin, & Van Leeuwen, 1995); Notably, bibliometric analysis is a popular choice for evaluating the academic outputs of a specific publication source.

This study selected five journals in the field of Educational Technology and conducted a series of analyses regarding publications dating from 2010 to 2019 to investigate the research trends and characteristics. By using an analytic tool called Content Analysis Toolkit for Academic Research (CATAR), the study conducted bibliometric and breakdown analysis to answer the following questions:

1. What is the geographical distribution of these publications and are they concentrated in certain regions?
2. Which educational institutions support studies in Educational Technology and their geographical distribution?
3. Who are the most productive authors and most cited references within the selected journals with respect to Educational Technology?

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