

Studies in Mathematics Education in an SSCI Indexed Journal: Suggestions for the UK based on the Turkey Example

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As of 2022 in Turkey, there are eight SSCI-indexed academic journals, only one of which aims at publication within the scope of educational research. Since the researcher's field of study is mathematics education, examining the articles on mathematics education in this journal motivated him to conduct this study. Therefore, this study aims to explore the mathematics education studies published in an SSCI-indexed journal in Turkey. Through this means, I intend to inform all my colleagues about mathematics education studies in Turkey's most prestigious academic journal, which adopts the principle of publishing educational research. According to the findings, it is possible to say that it is the only journal with the SSCI index in the field of education in Turkey and that 8% of the research between 2007-2022 in this journal is related to mathematics education.

Keywords: Turkey; United Kingdom; mathematics education; ssci index

Introduction

Today, in the context of Education, the publication of a scientific article in an SSCI-indexed journal means that the study has been published in a reputable journal (Russ-Eft, 2008), which usually suggests technical quality of the publication. As of January 29, 2023, there are 3563 SSCI-indexed journals in the web of science master journal list, 349 of which are published with the aim and scope of educational research. There are eight SSCI-indexed journals in Turkey, and only one of them, *Education and Science Journal*, which publishes in Turkish and English, includes educational research. Besides the studies on mathematics education, studies in the context of education, such as science education, social studies education, educational administration, psychology education, foreign language education, etc., are published in the related journal. Mathematics education is one of them. Since the researcher's field of study is Mathematics Education, being interested in the mathematics education studies of this journal and contributing to the literature by providing descriptive information about these studies to his colleagues motivated him to undertake this study. Therefore, answers to the following questions were sought in this study: In all the issues between 2007-2022 of an SSCI-indexed journal publishing with the purpose and scope of educational research in Turkey,

- a) What is the distribution of studies on mathematics education?
- b) What is the distribution of studies in terms of sampling, data collection tools, and research methods?

Method

Various documents can be examined in qualitative document analysis, including books, academic journal articles, and corporate reports (Morgan, 2022). Any text-based document can serve as a source for qualitative analysis (Patton, 2002). For this reason, in order to obtain data, the researcher designed a publication classification form, selected the articles with the purposeful sampling method, and used the document analysis method, one of the qualitative research techniques, throughout the research. Data obtained from the articles were interpreted according to their frequencies and shown using graphics and tables. While researching the studies to be examined in this study, "Mathematics Education," "Pre-Service Mathematics Teacher," "Mathematics Course," "Mathematics," "Mathematics Teacher," and "Mathematics Curriculum" keywords are used.

Findings

The finding from the first research question is given in Figure 1. According to the finding, the least number of articles were published in the journal in 2007 (32 articles). The journal included four mathematics education studies in the same year. By 2014, the journal had published five times more articles compared to 2007,

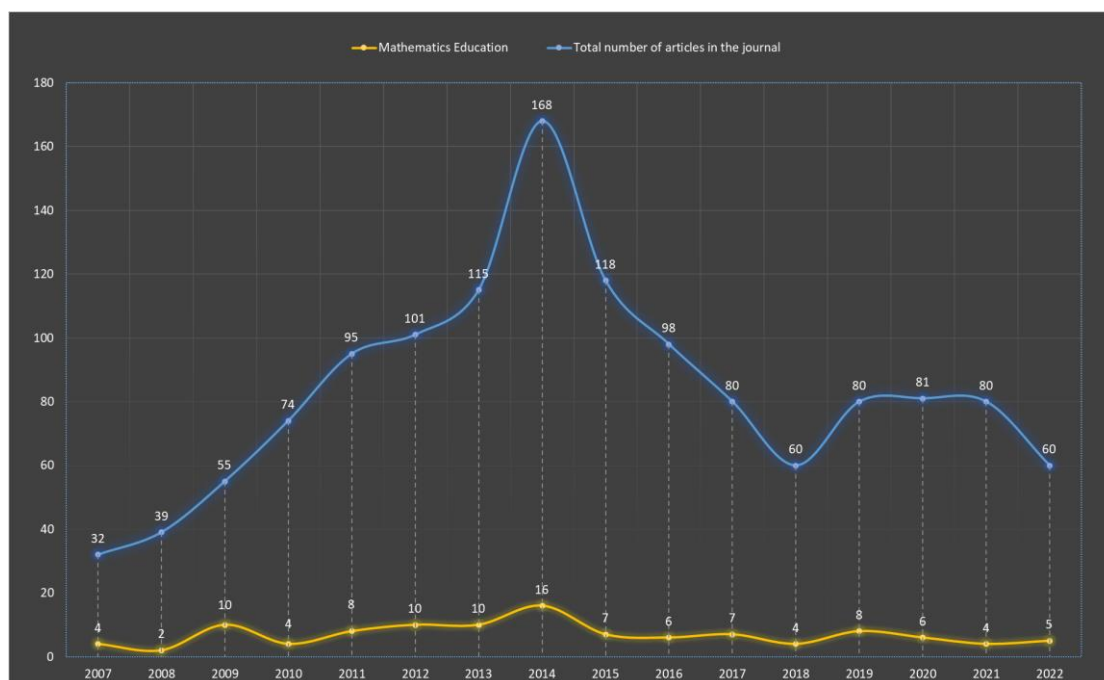


Figure 1. Distribution of mathematics education studies

reaching the highest number of articles between 2007-2022 (168 articles). However, the increase in the number of studies on mathematics education -including the period of 2007-2022- was not at the same rate, but only sixteen. Another finding from Figure 1 is that the graph indicating the change in the number of mathematics education studies functions almost like a constant function graph. A total of 1336 articles, including mathematics education articles, were published between 2007 and 2022 in the reviewed journal. A total of 1336 articles were published between 2007 and 2022 in the reviewed journal. 111 of these articles are related to mathematics education. Accordingly, between 2007-2022, 8% of the studies in this journal were concerned with mathematics education.

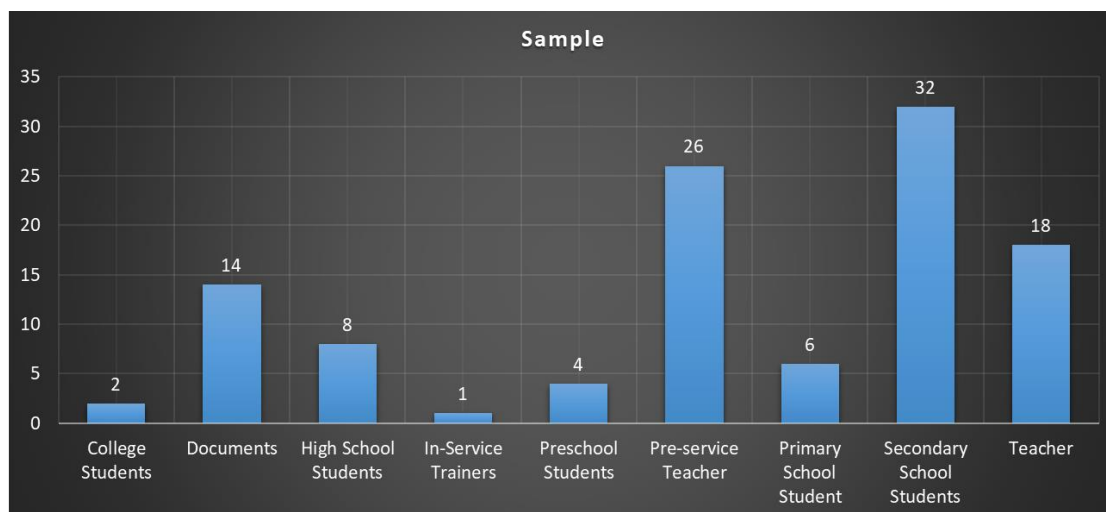


Figure 2. Distribution of the Sampling Types

Findings from the second research question are exhibited in Figure 2, Figure 3, and Table 1. These findings pertain to sample distribution, data collection tools and research methods. When Figure 2 is examined, it is seen that secondary school students (9-13 aged) are used as samples in most mathematics education studies (32 articles). The least number of studies were conducted with in-service trainers (1 article).

Figure 3 shows the findings regarding the data collection tools used in the mathematics education studies. Accordingly, only the likert type scale was used in most of the studies (26 articles). The least preferred ones were the studies carried out with tests, interviews, documents, open-ended questions, observation, worksheets, video and their different double or triple combinations.

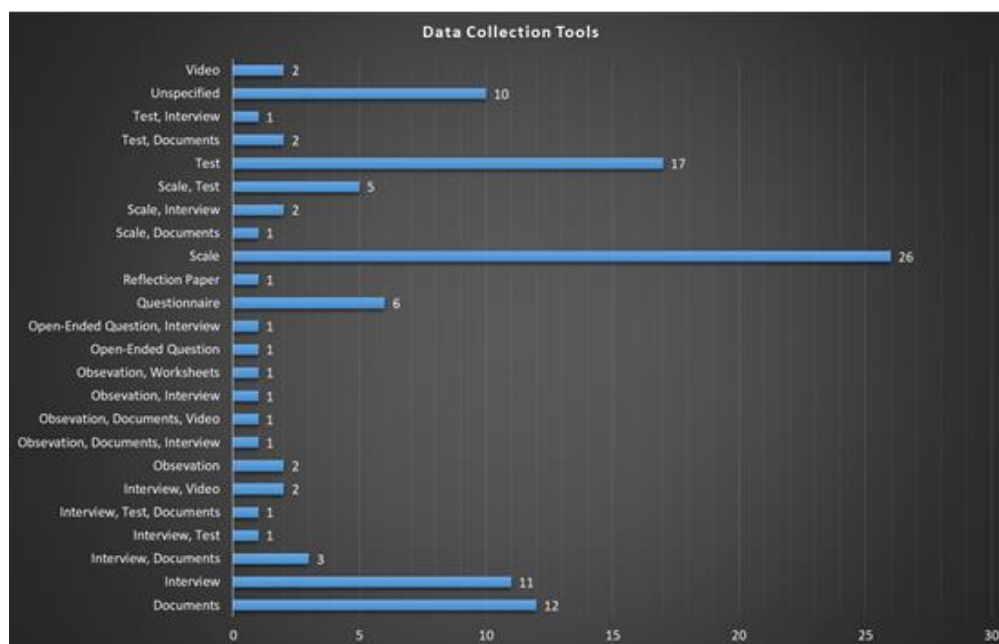


Figure 3. Distribution of data collection tool

The findings regarding the methods preferred in the studies are presented in Table 1. According to the findings obtained from Table 1, it is evident that quantitative research methods are preferred the most, whereas survey methods are opted for the least in mathematics education studies. The designs/patterns adopted in the methods used and the percentage distributions of the methods are given in the same table in detail. Another remarkable finding in this section is that most studies explicitly mention the method, but the pattern is not expressed clearly. In summary, 20% of the studies on mathematics education were conducted using mixed, 32% quantitative, 41% qualitative and 7% survey methods.

Table 1. Distributions of Methods and Designs/Patterns

Method	Design/Pattern	f	F	%
Mixed	Case Study	2	22	20
	Correlational	1		
	Descriptive	2		
	Experimental	2		
	Experimental, Phenomenology	1		
	Unspecified	14		
Quantitative	Case Study	2	36	32
	Causal Comparison	1		
	Correlational Survey	1		
	Cross-Sectional Survey	1		
	Descriptive	5		
	Descriptive, Correlational	1		
	Experimental	5		
	Quasi-Experimental	1		
Unspecified	17			
Qualitative	Case Study	11	45	41
	Descriptive	4		
	Experimental	2		
	Grounded Theory	1		
	Phenomenology	1		
	Relational Survey	1		
	Unspecified	25		
Survey	Correlational Survey	3	8	7
	Cross-Sectional Survey	2		
	Descriptive	1		
	Unspecified	2		

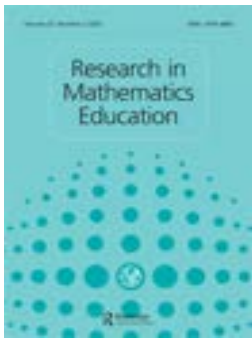
Suggestion

According to 2022 official figures, there are 19 million 155 thousand 571 students and 1 million 139 thousand 673 teachers in Turkey -excluding university students- (MEB, 2023). One of the most striking results of this research is that only one SSCI-indexed journal focuses on educational research in such a country with almost a student army. Another result is the significance ascribed to mathematics education studies in this journal. In other saying, it is noteworthy that papers on mathematics education are relatively few. We somehow understand and interpret nature. But do we understand correctly? As Galileo said, we apprehend whether this knowledge is accurate thanks

to mathematics. Therefore, the number of studies in mathematics education can be increased. Since little is known about the place attributed to mathematics education in SSCI-indexed education journals in other countries, inevitably, the information to be provided with the comparative adequacy of the studies on mathematics education in the SSCI-indexed education journal in Turkey remains an intuitive dimension. In this respect, I suggest an analysis of the studies on mathematics education in SSCI-indexed education journals of other countries such as the UK be made. In this manner, the opportunity for comparative research on quality mathematics education studies of different countries can be obtained. In an SSCI-indexed education journal, the reasons for the high-quality mathematics education studies to be included in country A more than in country B and less than in country C can be investigated. In this case, are the socio-economic conditions of the relevant country, expectations from education, or education policies can be counted among the parameters affecting this situation? For example; In this study, articles were encountered in which in-service trainers were used as a sample in a small number, scales were used mostly as a data collection tool, and the survey method was used the least as a method. So, the most used method, data collection tool, or sample in quality studies on mathematics education in any country - for instance, the UK- can be explored. Then, by combining these studies, implications about the status of qualified studies on mathematics education worldwide can be made.

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BSRLM day conference proceedings

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Proceedings of the Day Conference

These summaries are of research papers presented at the Day Conference held at the UCL on Saturday 4th March 2023. Full papers are available at <http://www.bsrlm.org.uk/publications/proceedings-of-day-conference>.

Content

Incorporating STEM learning scenarios in mathematics teaching: a study on the effectiveness of a professional development programme

Özdemir Tiflis¹ and İpek Saralar-Aras²

1 Brunel University London, 2 Ministry of National Education



This study evaluates the effectiveness of a STEM education professional development programme for mathematics teachers. The goal of the programme was to improve their understanding of STEM education and learning scenarios. The research involved 267 mathematics teachers participating in specific learning sessions on STEM education and various STEM learning scenarios. The study highlights the importance of teachers' perspectives on STEM education and how their awareness affects instructional practices and incorporation of STEM lessons in their syllabi.

PGCE mathematics students' responses to some multiplicative reasoning items

Dietmar Küchemann

King's College London

This paper discusses PGCE students' responses to some multiplicative reasoning items,

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intended for use in secondary school. Some items involving similarity and enlargement turned out to be quite challenging.

Primary school teachers tackling social justice issues whilst teaching mathematics: Findings from the Primary Maths & Social Justice research project

Pete Wright¹, Caroline Hilton² and Joel Kelly³

1 University of Dundee, 2 IOE, UCL's Faculty of Education & Society, 3 The Blue School, CofE

We report on the initial findings from a participatory action research project involving a collaboration with six teacher researchers in two primary schools in Greater London. The project aimed to explore how teachers can maintain and build on their interest in addressing social justice issues through their teaching of mathematics, and to consider how to help students develop their critical understanding of mathematics and collective mathematical agency.

Oh! - is that how you do it? Learning from cross-phase collaborative work in the Years 5-8 Continuity project

Mary Stevenson¹, Alison Hopper², Ruth Richmond³ and Zoe Nye⁴

1 National Centre for Excellence in the Teaching of Mathematics, 2 Mathematics in Education and Industry, 3 Tudor Grange Academy Trust, 4 Bishop Grosseteste University

We report on work of the Years 5-8 Continuity project, which runs across England in Maths Hubs, led by the National Centre for Excellence in the Teaching of Mathematics (NCETM). The aim of this project is to strengthen primary to secondary transition by focusing on curriculum and pedagogical continuity in mathematics over Years 5 to 8. Early findings indicate that cross-phase engagement with colleagues through focused and sustained professional activity is having a positive impact on practice and school/departmental approaches.

Mentors' views on challenges faced – and lessons learnt – while mentoring mathematics student teachers in FE during the Covid-19 lockdowns

Natheaniel Machino

University of East Anglia

This report is part of a study which seeks to gain an insight into the role of mentoring in the mathematical and pedagogical knowledge development of mathematics student teachers in further education colleges. The report is an analysis of mentors of further education mathematics student teachers' responses to anonymised survey and interviews.

Investigating the impact of using natural history videos on the teaching and learning of primary mathematics

Ems Lord¹, Liz Woodham¹ and David Millington²

1 University of Cambridge, 2 The Natural Curriculum

The Natural Curriculum is an online resource that uses BBC natural history videos to inspire primary school learners in both literacy and mathematics. In collaboration with NRICH, the project has designed and tested four online problem-solving math lessons for primary-aged learners, which showed positive impacts on pupil engagement and learning. Some challenges were identified in how the primary mathematics curriculum is perceived by some learners.

School mathematics education in Ukraine: challenges and prospects

Volodymyr Proshkin

Loughborough University

We report on the main trends in the development of school mathematics education in Ukraine in the context of existing problems and possible ways to solve them. We also represent the research results on the mathematical literacy level of 15-year-old students and the development of STEM education.

Learning from a hundred years of teaching about fractions and decimals

Rose Griffiths

University of Leicester

Two pivotal changes in the 1970s altered the balance of teaching about common fractions compared to decimal fractions in the UK and elsewhere: the move to decimal systems for money and measurement, and the advent of cheap electronic calculators. This paper examines some key ideas, gleaned from teacher-guidance from 1917 to 2021, which have helped shape new guidance for primary teachers through a Nuffield-funded research and development project.

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Mehmet Kasım Koyuncu

Istanbul Sabahattin Zaim University

This study examines the mathematics education studies in an SSCI Indexed Journal in Turkey and includes suggestions for other countries.

Towards an enactivist methodology for analysing a large video data set

Alistair Bissell

University of Bristol

This article begins to outline an enactivist methodology for working with a large video data set. I share some representations of data and show how these could be used to select sections of video for further, more detailed, analysis.

Duo Virtual Reality and tangible artefacts in geometry education review

Liyong Huang and Taro Fujita

University of Exeter

The aim of this project is to strengthen students' spatial/geometric thinking by investigating the use of new technologies (VR) for teaching mathematical geometry. In this paper, we have reviewed 20 selected papers from Web of Science, and the results of the current study suggest that teaching through a combination of VR and physical objects, combining virtual reality simulations with physical manipulatives, creates an interaction between the teaching environment and the learner, providing a positive impact and higher efficiency in the teaching of geometry in future classrooms.

Disclosure statement

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