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Exploring Self-Regulated Learning in Teacher Education: A Bibliometric Analysis and Systematic Literature Review

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ABSTRACT

This study reviews research published in the SCOPUS database between 2005 and 2023 on the significance of Self-Regulated Learning (SRL) in Teacher Education (TE) and strategies for its enhancement. In the first phase, a quantitative bibliometric analysis was conducted to identify influential authors, contributing countries, and the co-occurrence of author keywords. The second phase followed a systematic literature review, applying inclusion and exclusion criteria to the documents exported from the SCOPUS database. After data extraction, the initial sample was further examined to identify experimental studies, resulting in nine studies selected for the final review. The findings highlight the effectiveness of various interventions by analysing specific components of SRL that proved beneficial for prospective teachers, the learning environments created, and the strategies developed to enhance SRL practices. Results indicate that teacher education students emphasized self-efficacy beliefs and the effectiveness of collaborative learning through motivation and metacognition. The study concludes with suggestions for future research and practical applications.

1. Introduction

Teacher education and training have received increased emphasis in recent educational policy documents, highlighting the importance of developing lifelong learning competencies and promoting continuous professional development. A strong knowledge base in teacher education is essential, along with professional noticing that accounts for the situated facets of teacher competence and robust professional development measures (Kaiser & König, 2019). Supporting this multifaceted role of teaching professionals, research focused on enhancing self-regulated learning (SRL) skills and competencies among prospective teachers has gained significance over the past two decades. Teachers' SRL skills and beliefs positively influence their students' strategic, motivated, and independent learning habits, while teachers' beliefs can also limit the promotion and effectiveness of SRL instructional practices in the classroom (Paris et al., 2001; Lawson et al., 2018; Yan et al., 2018). These studies underscore the need to integrate SRL practices into teacher education programs, suggesting the development of both teachers' knowledge and their beliefs in the effectiveness of SRL strategies to ensure successful implementation in future classroom. Based on this rationale, the present study aims to conduct a bibliometrically informed systematic review, including a content analysis of interventional designs, of studies on self-regulated learning in teacher education published in the SCOPUS database during the period 2005–2023.

Objectives of the Study

1. To trace the work trajectory of self-regulated learning in teacher education from 2005 to 2023 published in SCOPUS.
2. To conduct a meta-synthesis of Educational Interventions in Self-

Regulated Learning in Teacher Education selected through bibliometric guidance.

3. To recommend effective practices for the enhancement of Self-Regulated Learning in Teacher Education.

2. Materials and Methods

The present study has followed a bibliometric analysis in Phase -I to locate the most relevant research articles related to the studies conducted in Self-Regulated Learning and Teacher Education from the years 2005 to 2023 in the SCOPUS database bibliometric analysis provides data reflecting the development of a research field and the conceptual framework of a scientific domain (Oladinrin, et.al. 2023). This study employed Vosviewer Software for the bibliometric analysis. The inclusion and exclusion criteria applied in Phase - I of the study have led to nine experimental studies leading to the meta-synthesis of the learning environment implemented in them for the enhancement of SRL in teacher education programs.

The study used a systematic literature review methodology to gather data on Self-Regulated Learning (SRL) in teacher education. In Phase-I, the data was sourced from SCOPUS using the keywords "Teacher Education" and "Self-Regulated Learning." The search was customized for the study's purpose, including publication period (2005-2023) and English language articles. The exclusion criteria excluded review articles, book reviews, and conference proceedings. The results included 107 research articles, which were further analysed for experimental design, resulting in eleven experimental studies. Nine of these were open-access articles that were chosen for a systematic literature review in Phase-II. A detailed explanation of the methodology followed in the study is diagrammatically illustrated in Figure 1.

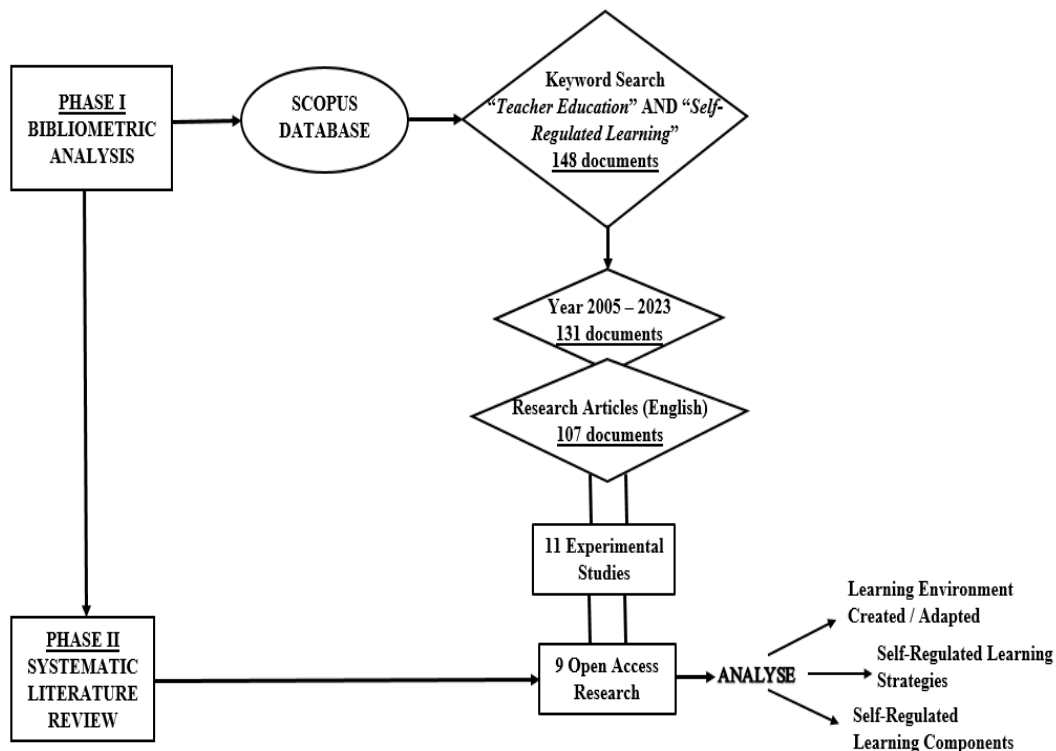


Figure 1. Methodological framework illustrating the Two-phase process of Bibliometric mapping and Systematic Literature Review employed in the study.

3. Results and Discussion

Phase I—Bibliometric Analysis

From Figure 2. It is evident that there is a remarkable increase in the number of studies published in the research area “Self-Regulated Learning and Teacher Education”. The highest number of articles were published in SCOPUS in the year 2021. This can be interpreted as the influence of COVID-19 Pandemic which has compelled the learners in all the educational levels to shift to Online mode of teaching-learning activities, increasing the need for the practice of Self-Regulated learning strategies such as Self-reflection, self-directed learning, effort regulation, and self-reported learning in online mode.

The Author productivity in the area of Self-Regulated Learning in Teacher Education is analysed using the indicator of co-authorship in the Vosviewer Software for bibliometric analysis which aims to identify the authors with higher productivity based on their research work and citations gained for the same. It is visible that the researchers Hanna Jarvenoja and Sanna Jarvela have published the highest number of articles and have the highest number of citations for their work. The researcher Jonna Malmberg stands out of the trend as the number of articles published was limited but the citations gained by those articles were comparatively higher than other researchers with the same number of articles.

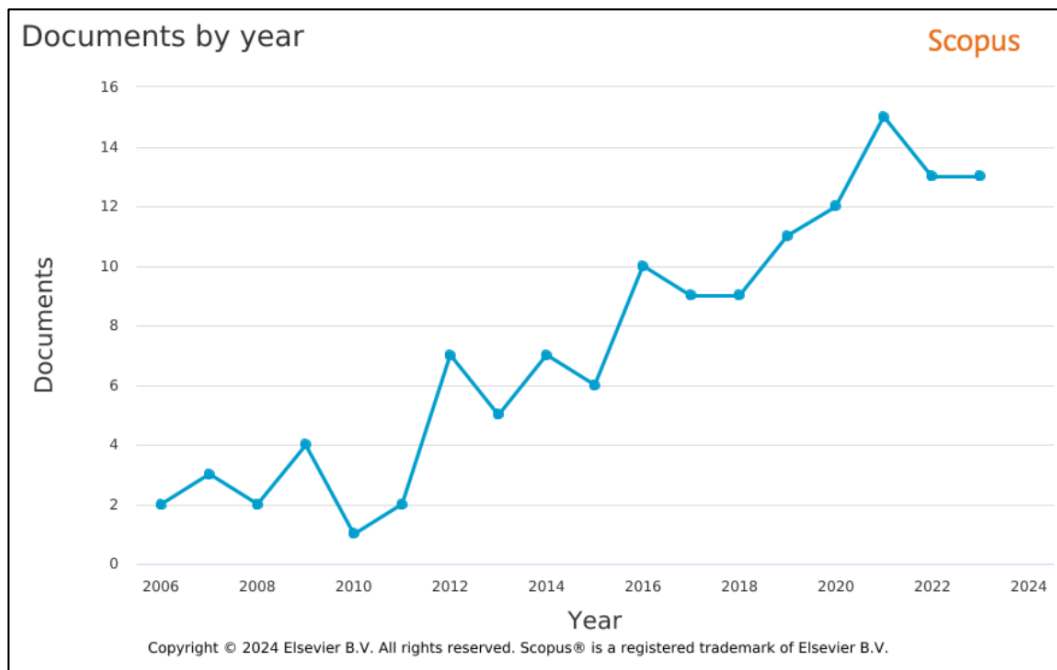


Figure 2. Number of documents published in each year since 2005.

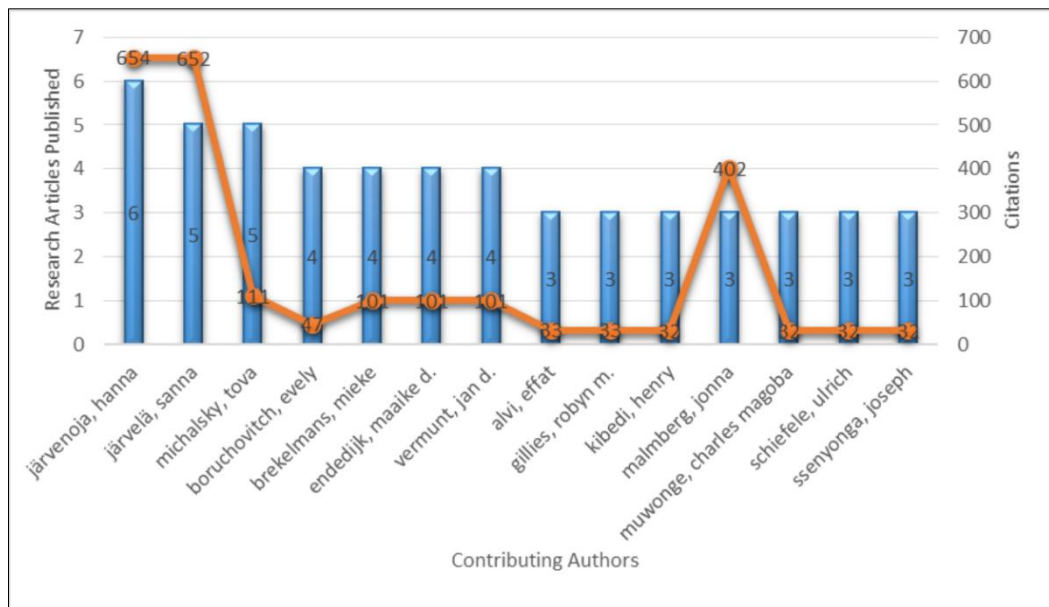


Figure 3. Author Productivity analysis by analysing the number of Articles presented and citations gained.

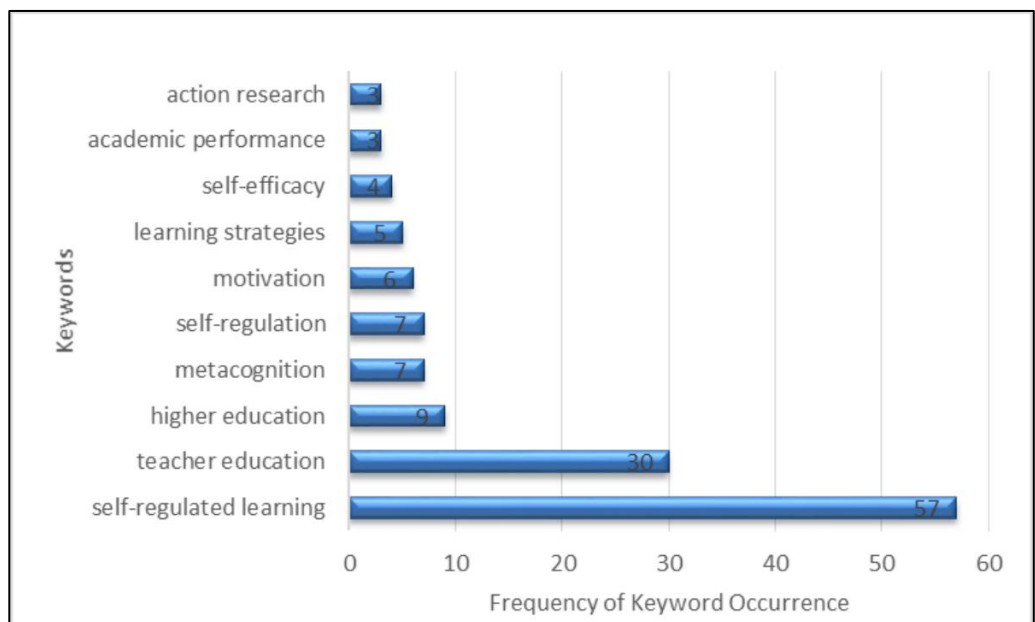
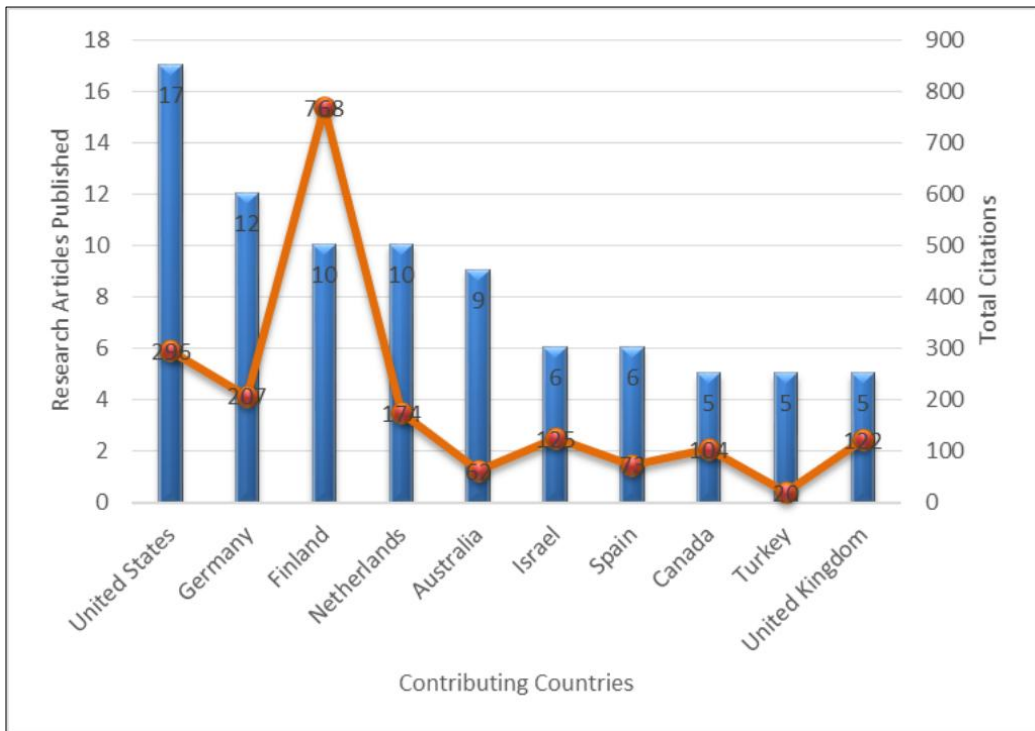


Figure 5. Author Keyword occurrence analysis.

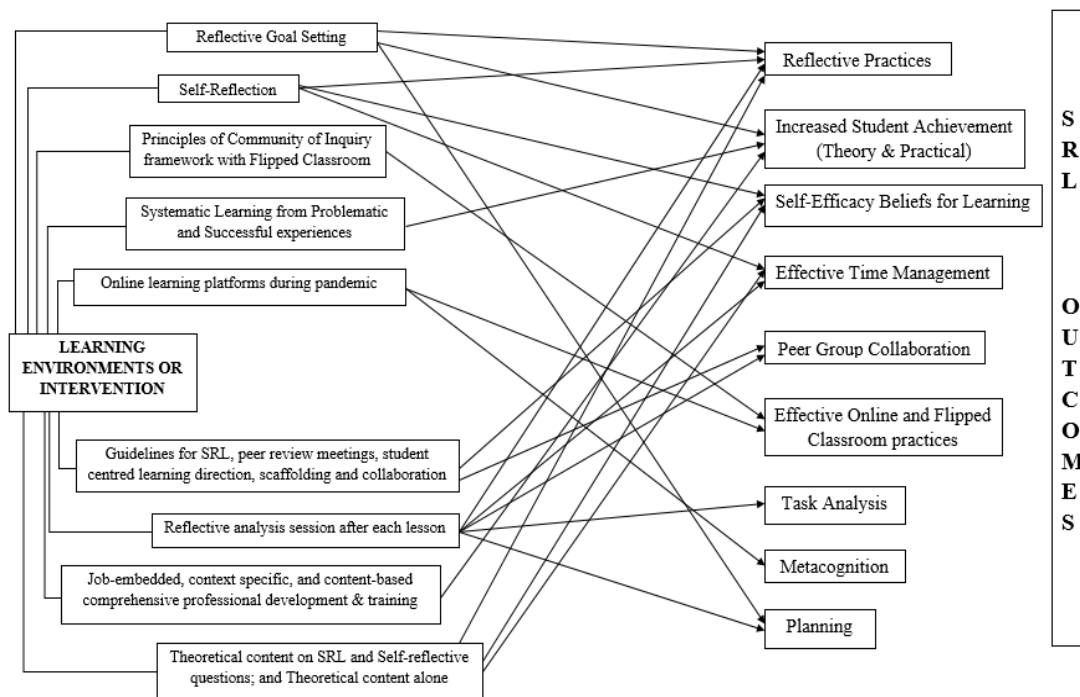


Figure 6. Interventions and the most effective outcomes addressed in the process of enhancement of Self-Regulated Learning in Teacher Education.

Figure 4 Gives the information on the most contributing and influential nations in the area of Self-regulated Learning in Teacher Education. These results were drawn by conducting the Country Co-authorship analysis using the Vosviewer Software. Results indicate the influence of Finland with a citation rate of 768 for the 10 research articles published during the period 2005-2023.

Figure 6. depicts the types of interventions attempted and the consequent outcomes on SRL future teachers, from the analysed experimental interventions. For instance, it shows that the experimental interventions dealt with the SRL strategy “Reflective Practices” the most, while the least representation is given to “Task-Analysis” and the SRL Component “Metacognition”. More importantly, it depicts a conceptual

framework on how elements and practices in a teacher preparation learning environment can influence self-regulated learning (SRL) behaviour outcomes in student teachers. For example, the findings from this systematic review, summarised in the figure suggest the following:

- Collaborative learning environments with flipped classrooms can lead to better academic performance (theory and practical application), increased confidence in learning (self-efficacy), and proficiency in these specific learning styles.
- Analysing past experiences helps student teachers become aware of their thought processes (metacognition).

- Online platforms can encourage effective time management skills for navigating online learning.
- Professional development tailored to real-world scenarios can boost student achievement and potentially equip them with online and flipped classroom practices if included in the training.
- Reflective practices allow student teachers to set goals, track progress, and adapt strategies, ultimately building self-efficacy and metacognition.
- Context-specific professional development provides the knowledge and skills necessary for effective learning and time management.
- Setting goals and reflecting on progress helps develop confidence in learning abilities (self-efficacy) and fosters awareness of one's learning process (metacognition).

4. Conclusion and Recommendations

Research on self-regulated learning (SRL) has evolved from mid-19th-century writings to become a prominent topic in education, with future research likely to focus on self-directed learning and the use of software technologies to enhance SRL (Winnie et al., 2017). Teachers can foster SRL in classrooms by providing information and opportunities that help students become strategic, motivated, and independent learners (Paris & Paris, 2001).

Analysis of published works in this field indicates that many researchers have produced review articles, which in turn attracted others working in SRL, contributing to increased citations. The systematic literature review applied to meta-syntheses of selected experimental studies in SRL in teacher education has revealed effective strategies that can be applied in both theoretical and training sessions of teacher education programs.

Reflective practices have emerged as one of the most effective strategies. Extending course credits may lead to lower dropout rates by enabling students to engage more deeply with their studies while managing finances and social commitments (Dekker et al., 2021). Reflective practices also support the development of prospective teachers' self-efficacy by positively influencing their time management skills, thereby improving students' motivational expectancy and SRL opportunities in training schools (Ganda & Boruchovitch, 2018).

Conventional flipped classrooms have already proven effective in developing SRL in teacher education (Kustandi et al., 2020). Further exploration of Community of Inquiry (COI)-based flipped classrooms has demonstrated enhanced effectiveness in both theoretical and training sessions of teacher education programs (Taghizade et al., 2023).

However, SRL strategies such as task analysis, planning, and the metacognitive components of SRL have not been explored in depth, limiting understanding of their effectiveness in transforming teachers into practitioners and implementers of self-regulated learning.

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