

Systematic Literature Review on Self-Regulated Learning (SRL) in Pre-Service Student Teachers

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Abstract— Potential teachers are more prepared to incorporate innovative approaches and meet their educational goals owing to the training they get on self-regulated learning abilities. In order to find out how prospective teachers see self-regulated learning and how their opinions vary depending on criteria such as their digital literacy and online involvement, the present study conducts a systematic evaluation of the literature. The researchers have examined research papers published in the Scopus database between 1994 and 2024 in order to do this comprehensive analysis. The Vosviewer and Litmap tools were utilized by the researcher to get pertinent publications on Self-Regulated Learning (SRL) in Pre-Service teachers' training, which served as the foundation for this investigation. The study of the literature demonstrated that teacher candidates' perceptions of SRL were significantly impacted by digital literacy and online involvement. The education industry has placed a premium on adaptation and self-regulation with the introduction of hybrid mode program delivery. It's critical to match teacher training methods with SRL in light of the benefits of SRL in teacher preparation. Gaining insight from the viewpoints of student motivation, engagement, and demographics is equally crucial. Global teacher preparation requires SRL-based teacher training.

Index Terms- Self-Regulated Learning, Pre-Service Student Teachers, Vosviewer, Training Program

I. INTRODUCTION

The mechanisms by which individuals personally activate and maintain thoughts, feelings, and behaviors that are methodically geared towards the accomplishment of personal objectives are referred to as self-regulated learning (SRL). By establishing personal objectives, students build self-directed feedback loops that allow them to assess their performance and modify how they operate. Supportive motivational ideas are also crucial since self-regulated individuals need to be proactive in order to create objectives and participate in a self-regulatory cycle.

Despite popular belief, self-regulation is not limited to individualized learning since it encompasses self-initiated social learning activities including asking for assistance from trainers, educators, and colleagues.

Although the importance of SRL has been acknowledged in the recent trends of education, it has remained neglected in terms of teacher trainees and pre-service teachers training. With NEP 2020, the focus of SRL research has highlighted the need of training the teacher trainees on Self Regulated Learning skills to inculcate the SRL skills among the students. Despite the important role of SRL in contemporary education, insufficient attention has been paid to teachers' and Pre-service student teachers' capabilities and intentions in promoting SRL in the classroom. Recently, the focus of SRL research has shifted from directly teaching SRL skills to training educators to facilitate students' development of these skills. How teachers might best support students' SRL abilities is yet undetermined, though.

Proficiency in self-regulation techniques enables pre-service trainee teachers to effectively opt for, update, and innovate novel methods to accomplish their educational goals. They are competent at setting up and scheduling, finding and employing the tools and resources they require and monitoring and revising their work. They also exhibit more self-assurance and resilience in the face of hurdles in their academic careers. Thus, it is essential that pre-service teachers have the ability to learn in a self-regulated manner. These abilities are vital to their academic development as well as to passing on these techniques to prospective learners.

Considering the need of SRL in the recent global educational environment, teacher training shoulders an important responsibility of training the teacher

training with SRL skills so that they can inculcate the same in their prospective students. This will facilitate students to adept effective learning strategies. The focus of this research study is to explore views and perceptions of pre-service teachers about promoting Self Regulated Learning in the education sector.

II. RESEARCH GAP

Numerous research has been done on self-regulation, with a primary focus on how students' academic performance is affected by self-regulated learning, as well as how teachers and students may govern themselves. There is still a research deficit, particularly when it comes to providing teacher trainees and pre-service student teachers with training in self-regulated learning (SRL), despite the growing acknowledgement of SRL's importance for academic performance and educational quality worldwide. The current research study emphasizes the importance of SRL for efficient teaching and learning, but it does not provide a systematic investigation of instructors' varying perspectives on SRL according to factors including gender, digital literacy, and online engagement. Closing this gap will help us to better comprehend how SRL operates in teacher preparation, which might result in more useful approaches for fostering self-regulated learning in learning environments.

- RQ1. What is the current contribution of several research studies carried out on self regulation of prospective teachers?
- RQ2. How various research studies on Self Regulated Learning(SRL) provides insights about the perceptions about self regulated learning among prospective teachers based on curriculum provisions for SRL skills.

Objective of the Study

- Existing literature is reviewed and synthesized to identify trends, gaps, and key findings in research on Pre-service student teachers' self-regulation.
- Provide necessary recommendations towards adoption of self-regulated learning strategies for training of teacher trainees / pre-service teachers.

Researchers searched the relevant papers from the scopus database with the help of the Litmap tool. The Litmap tool helped the researcher to provide the citation network for related papers. Further a filter was applied to choose the most relevant papers from the network of papers.

Researchers used the Vosviewer to analyze related studies that had been done in the past for the years 1994 to 2024 in order to understand the year-by-year publications, research articles, and book chapters in the subject of Teacher as self regulated learner. This has given researchers a thorough understanding of previous research done in the field.

III. LITERATURE REVIEW

The researchers performed a thorough review of the literature before beginning their examination into the self-regulated learning of pre-service student teachers. The advanced tools like the Litmap and Vosviewer were used to go over pertinent databases. They concentrated on annual research papers that were only published in Scopus publications in order to guarantee the caliber of the research investigations. Their objectives were to find emerging themes, organize and summarize the literature on teachers' self-regulation, and provide new information in this area by using a systematic review process. The study adhered to the accepted procedures and framework for performing systematic literature reviews that were put forth by Khan et al. (2003).

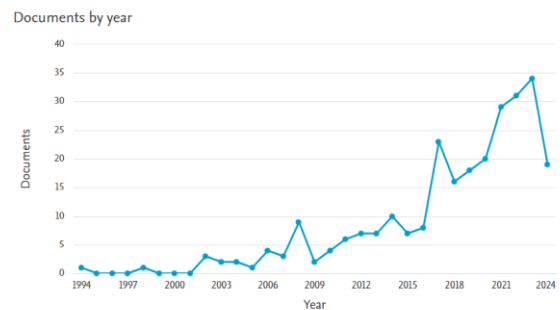


Fig. 1 Systematic literature review by Vosviewer

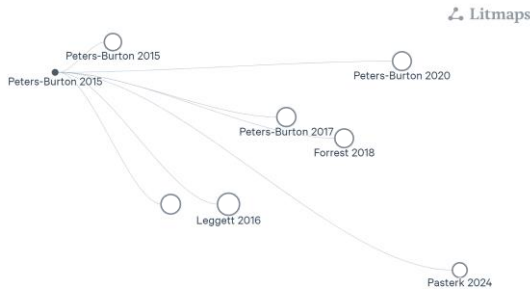


Fig. 2 Systematic literature review by Litmap

• Tools used to carry out the Literature Review

The study's keywords are drawn from past research on the topic that was completed and published in scopus articles. Using terms from these studies as a starting point, the authors created a final list of keywords that may cover all research currently available in the fields of teacher self regulation. The terms "self-regulation," "teachers," and "education" are listed in Table 1. Every search string that is used falls inside the important phrase range.

Table 1: Keywords Identified from previous studies

Keywords
Self-Regulated Learning, Pre-Service Teachers
Systematic Literature Review
Self-Regulation, Academic Success
Use of Technology and Self-Regulation, Student Engagement

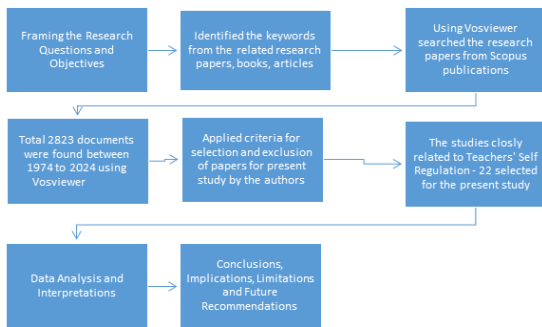


Fig. 3 Process followed by the authors for the systematic literature review

Tran, H. H., Capps, D. K., & Cleary, T. J. (2024) Through the use of many case studies, the study

investigated the self-regulation of preservice science teachers (PSTs). Three PSTs took part in a certification program, reflecting low, moderate, and high self-regulated learning (SRL). Information was gathered via audio recordings, interviews, observations, and course materials. The SRL techniques and questioning of every PST showed advancements. The report made recommendations for how to improve questioning abilities by including SRL into teacher training. The study also emphasized the need of adopting clearly defined SRL development models for guiding and adjusting coaching to PSTs depending on their initial SRL abilities by collaborating teachers and university administrators.

Brenner, C.A. (2022) Students' motivation, metacognition, and strategic action are developed through self-regulated promoting behaviors. The academic, social, emotional, and professional outcomes of students are enhanced by these fundamental learning abilities. Developing self-regulated promoting practices is difficult, even if it is advantageous, especially for aspiring teachers. This article explains self-regulated learning practices and how the contextual factors that encourage prospective teachers to acquire these practices are created by motivational supports for their self-determined motivation. Future study directions are suggested in the article's conclusion.

Oates, S. (2019) This article addresses the evolution of self-regulated learning (SRL) in public schools, emphasizing the change in curriculum from knowledge-based to skills-based. The article then discusses how teacher trainees are prepared during their training to help them assist students in developing self-regulation. Older learners are replaced with primary school students as the emphasis, with the latter group showing an increasing interest in SRL. Regardless of the school's curriculum background, the study indicated that the teacher-student interaction was essential to the beginning and maintenance of independent learning. Initially, the curriculum was examined as the driver of SRL growth. It is believed that the teacher has a crucial influence in the development of SRL. T Self-control, independence, and lifelong learning have to be made a core component of all courses provided to student teachers in teacher education.

Sundaramoorthy, J. (2019). Latency is a typical barrier to academic progress, and the competitive nature of today's society threatens students' educational success. Active postponing is the deliberate choice to put less emphasis on the work at hand and deal with performance pressure. For children to be aware of and proficient in their own learning, self-regulated learning is essential. Another crucial component of success setting is goal orientation, a trait related to motivation. The purpose of this study was to look at how goal orientation and self-regulated learning affect deliberate postponement in pre-service teachers. 145 students from two institutions in Kalaburagi, Karnataka, India participated in the study. To analyze the results, structural equation modeling, or SEM, was employed. The findings indicated that performance avoidance attitude and deliberate delaying were associated with inadequate indicators of pre-service teachers' ability to organize and modify SRL.

Lee, J., & Turner, J. (2016). The study looked at how pre-service teachers' use of self-regulation techniques in teacher-education courses was influenced by their perceptions of instrumentality, goal commitment, and intrinsic motivation. The findings demonstrated that self-regulation techniques were greatly influenced by endogenous instrumentality. According to the study, pre-service teachers should be aware of how the material in their present courses relates to their long-term objectives in order to support their use of self-regulation and learning. In order to improve their time management and study environment skills in their teaching responsibilities, this awareness is essential.

Allison Littlejohn, Nina Hood, Colin Milligan, Paige Mustain (2016) This paper investigates learners' behavior and usage of self-regulated learning (SRL) techniques in Massive Open Online Courses (MOOCs) in relation to their motives. 788 MOOC teacher trainees and 32 learners who participated in follow-up interviews were engaged in the study. Learners with high and low SRL ratings showed significantly different self-described learning behaviors, according to the study. The motives and objectives of the learners influenced how they perceived the MOOCs aim, which in turn influenced how they felt about the learning experience. The results imply that learners' objectives and motivations have a big impact on how they learn in MOOCs.

Monika L. Louws, Jacobiene A. Meirink, Klaas van Veen, Jan H. van Driel (2017) The notion of self-directed learning, which was developed from adult learning theories and allows for the idea that instructors create their own learning requirements and thus guide their own learning, was the main focus of this study. Instructors at 11 secondary schools in the Netherlands (N = 309) were surveyed on their favorite learning activities ('how'), preferred learning domains ('what'), and reasons for learning about a variety of learning topics ('why'). We looked for both linear and non-linear connections in regression analyses between the self-directed learning of students and the teaching experiences of their teachers. Instructors in their early and late careers expressed a greater desire to learn about classroom management areas than did instructors in their mid-career.

Peters-Burton, E. E., Cleary, T. J., & Forman, S. G. (2015). This study presents a theoretically grounded approach to professional development (PD) training, highlighting the importance of self-regulated learning (SRL) and extensive practice in applying topic area skills. It emphasizes how crucial it is to assist instructors' motivation and self-reflection processes as they use the skills they have just gained. The chapter focuses on SRL-promoting professional development activities in science education contexts to support science teachers in integrating scientific methodologies, epistemologies, and developmentally appropriate subject knowledge while constructing learning environments. A contextualized evaluation technique called SRL microanalysis is used to help PD trainers provide process or SRL feedback to teacher candidates. The concept states that creating PD environments with several feedback loop mechanisms will enhance PD trainers' capacity to oversee.

Senler, B., & Sungur-Vural, S. (2014) This study focused on primary school teacher education and attempted to investigate students' self-regulation at a private university in Yogyakarta. Out of the 233 students that participated in the study, 155 were chosen at random. Self-regulation learning was used to gauge self-regulation. According to the data analysis, self-regulation fell into three categories: high (7,09%), medium (62,58%), and poor (30,32%). According to the findings, self-regulation had a major role in raising students' motivation, with aspiring

primary school teachers falling into the middle group. This implies that improving self-regulation is essential to raising teacher trainees' motivation levels.

Anane, E. (2014) This study looked at how pre-service teachers' academic progress during their professional training at education colleges was influenced by their motivation and self-regulation learning. Using a multi-stage sampling approach, 500 teacher candidates from 40 residential institutions in Ghana participated in the study. The findings demonstrated that the association between past performances and academic progress was mediated by the motivation component of the pre-service teachers' self-regulation learning construct. The component of learning techniques had a substantial impact on how previous performance affected academic success. The study discovered that, via eleven of the fifteen factors of the self-regulation learning construct, pre-service teachers' academic performance was somewhat largely indirect. Desirable traits, on the other hand, such the use of metacognitive strategies, critical thinking, and students' appreciation for the job, were nonexistent and had no impact on academic achievement. According to the survey, friends and family were the main sources of external incentive when it came to selecting training colleges and careers as teachers. Positive values, on the other hand, were held by participants, such as respecting moral standards in the teaching profession, acknowledging diversity, and working with parents.

Buzza, D., & Allinotte, T. (2013). This article contributes to understanding how to support teacher trainees in learning SRL -supportive teaching strategies. Research shows a correlation between teachers' personal self-regulation and their ability to foster SRL in students. This study examined how student teachers conceptualized SRL through curriculum and on-the-job training. Results showed that self-reported SRL had a greater impact on SRL classroom performance than motivation scores.

Dignath, C., Büttner, G (2008) A greater emphasis is being placed on self-regulated learning as a result of research on lifelong learning promotion in schools. This study looks at how teacher trainees' training attributes affect students' motivation, academic achievement, and usage of strategies. 357 effect sizes were examined in two meta-analyses for students in

elementary and secondary education. The results of the study showed that when researchers rather than traditional teachers delivered the training, the impact sizes were larger. Compared to reading/writing or other disciplines, mathematics had a greater impact from interventions. It is possible to effectively promote self-regulated learning in both elementary and secondary education, while the outcomes differ depending on the theoretical framework and taught approach.

Bembenutty, H. (2007). Learning techniques are employed by successful learners to ensure task completion through self-regulation of learning. In addition to selecting or organizing important academic assignments, they use behavioral control to stay motivated and focused in the face of distracting options. It was anticipated that there would be a positive correlation between instructors' self-efficacy views, motivating beliefs, academic delay of gratification, and self-regulation of learning. These findings demonstrated a strong relationship between the teacher candidates' self-efficacy views and their motivational beliefs, readiness to postpone gratification, and use of self-regulated learning practices. According to these results, preservice teachers who felt more effective in their roles as teachers actually reported higher levels of academic intrinsic interest, task value, and control.

L. Kremer-Hayon, H.H. Tillema (1999) The study makes significant demands on the structure and curriculum, arguing that encouraging self-regulation in teacher education programs necessitates new forms of communication between teacher educators and students. The study emphasizes how crucial it is for teacher preparation programs to support self-regulation. A vital component of growth and learning, especially in the context of student teacher education, is self-regulation. It entails being conscious of and in charge of one's thoughts, which is necessary for growth and learning. Student teachers had higher expectations for their own self-regulatory competences and a more favorable attitude towards self-regulated learning, according to a qualitative study conducted in two different nations. However, because self-regulation requires structure and curriculum, implementing it in teacher education programs can be difficult.

CONCLUSION

The current study on the systematic literature evaluation of SRL's involvement in pre-service teacher preparation highlights the importance of SRL in preparing teacher candidates for the demands of a global education by enhancing their competence and raising student learning outcomes. Despite having a basic knowledge of SRL, future teachers find it difficult to apply it in real-world situations. In order to encourage reflective practices and SRL skill competences in teacher candidates, the literature review highlights the need of including SRL-based techniques into teacher training curricula.

The study also demonstrates how teacher candidates' perceptions of SRL are shaped by their digital participation and expertise. The degree to which teachers and trainees are accepting of self-regulation and the hybrid style of learning has increased dramatically. The potential of SRL in pre-service teacher training necessitates a thorough strategy that takes into account critical elements including student motivation, engagement, and demographics in addition to training quality.

Last but not least, SRL is essential to producing high-caliber teachers who can encourage introspective, self-directed, and lifetime learning. Teacher education curricula that are in line with contemporary educational trends, such as inclusive learning, SRL, and reflective learning, will enable educators to become successful in a world that is changing quickly.

LIMITATION OF STUDY

- The scopus database provided the foundation for this study, and the research is based on articles from that database.
- The current study takes into account the research papers that deal with self-regulation and pre-service teachers.

The following areas could be the focus of future research in this field, depending on the findings and conclusion:

- It is possible to perform a systematic literature review to investigate the relationship between

prospective teachers' self-regulated learning abilities and their training in digital competences.

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