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Providing a Conceptual Model for Developing Self-Directed Learning in Students

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A B S T R A C T

Purpose: The objective of this study was to provide a conceptual model for developing self-directed learning in students to enhance their autonomy and effectiveness in the learning process.

Methods and Materials: This study employed a qualitative exploratory research method using thematic analysis based on the Attride-Stirling approach. Data were collected from 40 academic articles published between 2003 and 2024 through purposive sampling from reputable databases. Thematic analysis was performed by extracting basic themes, organizing themes, and overarching themes from the selected texts. The reliability of the findings was ensured through multiple readings of the data, note-taking, coding, and member-checking with experts in educational psychology.

Findings: The findings revealed 78 basic themes categorized into 10 organizing themes related to self-directed learning: infrastructural factors, cognitive and metacognitive factors, emotional skills, communication skills, personality traits, learner independence, interests and motivation, self-instruction, self-management, and self-regulation. Each theme played a significant role in fostering self-directed learning, highlighting the importance of contextual, cognitive, emotional, and behavioral elements in the learning process.

Conclusion: The conceptual model developed in this study emphasizes the multifaceted nature of self-directed learning, highlighting the need for a supportive educational environment, effective learning strategies, emotional resilience, strong communication skills, and learner autonomy. Implementing this model in educational settings can enhance students' learning experiences, motivation, and academic success.

Keywords: *Self-Directed Learning, Students, Higher Education.*

1. Introduction

One of the most important issues that stakeholders in higher education systems have consistently faced is the manner in which students learn. Particularly in educational systems, given the rapid pace of scientific advancements, the necessary learning to cope with the future extends beyond traditional formal and logical learning. Undoubtedly, it is through effective teaching and learning that students acquire skills and achieve professional competence (Golabchi et al., 2024; Mohammadi Komroudi et al., 2024; Shariati et al., 2024). Today, the nature of academic disciplines necessitates that the speed and depth of learning be accompanied by the internalization of motivation and active lifelong learning skills for students. However, effective learning and teaching is a complex process and represents the primary challenge for all educational theories and systems (Khalkhali, 2020).

Today, there is an emphasis that the outputs of the educational system must possess critical thinking skills, self-directed learning abilities, and logical behavior in the face of complex life challenges. An educational approach that solely relies on the transmission of static information is no longer suitable for students' present and future needs, thereby requiring a type of learning that enables them to respond to rapid environmental changes. What is most needed is learning how to learn. It seems that self-directed learning is a desirable approach to confront today's rapid changes because, on one hand, it enhances the effectiveness and quality of education and, on the other hand, increases learning and the effort for improvement (Ahmadi Aghdam et al., 2021; Arjmand & Kazemian Moghadam, 2020; Norshidah et al., 2024).

Self-directed learning is the main framework of new interactive approaches in the field of learning, such as learning cafés (Qeyami Keshtgar & Qalajayi, 2023). Self-directed teaching-learning, which finds its roots in the constructivist school of thought as well as the existentialist perspective—emphasizing human freedom, responsibility, and individual perspectives (Baden & Major)—has been highlighted by many early and contemporary scholars (Pandi & Bharati, 2020). This strategy involves active and learner-centered methods in contrast to authoritarian and teacher-centered teaching, where learners, relying on metacognitive elements, with or without the assistance of others, take the initiative in recognizing curricular elements such as needs, goals, resources, desired content, suitable teaching-learning strategies, learning activities, time and place management, and learning outcomes (Yasmin et al., 2019).

In self-directed learning, there is an emphasis on active learning methods such as problem-solving, brainstorming, project-based learning, dialogic learning, and collaborative learning (Fazio, 2020). The role of the teacher in this strategy is limited to motivation, facilitation, guidance, and creating opportunities (Bhandari et al., 2020).

Although extensive efforts have been made worldwide in self-directed learning over the years, such as the definition of Merriam under the term "self-instruction" and the valuable contributions of Knowles in North America—highlighting "two opposing poles in learning"—as well as Hays's belief that individuals who control their learning also control their lives (Smith, 2010), and the publication of Hull's book The Inquiring Mind in 1961, which marked the beginning of self-directed learning, Hiemstra acknowledged the significant role of self-directed learning in the lives of great philosophers (Hiemstra, 2006). In England, Smiles's book Self-Help emphasized individual values (Fisher et al., 2019). In Iran, this construct formally entered teaching and learning concepts in 2003 through the validation of the Self-Directed Learning Readiness Scale by Guglielmino and Fisher, conducted by Nadi et al. (Nadi & Sadjadian, 2011).

Although researchers believe that readiness for self-directed learning is an essential skill for 21st-century learners (Naseri & Seadatee Shamir, 2014; Norshidah et al., 2024), self-directed learning has not yet been formally addressed among students in Iran. Nevertheless, numerous studies in Iran and globally have been conducted on student self-directed learning. Talebzadeh Shushtari et al. (2024) found a relationship between emotional creativity and self-directed learning and achievement motivation, as well as between critical thinking and self-directed learning and achievement motivation (Talebzadeh Shushtari & Boyeri, 2024). The findings also show that self-directed learning-based curricula can enhance motivation, improve academic performance, and develop critical thinking and problem-solving skills (Rezaei & Mahmoudi, 2023).

In 2017, Khatib Zanjani et al. showed no significant difference in various dimensions of self-directed learning readiness among students based on gender and academic discipline. They also found significant relationships between self-directed learning readiness components and acceptance of e-learning and academic achievement, with self-directed learning readiness being a suitable predictor of e-learning acceptance and academic achievement (Khatib Zanjani et al., 2017).

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In 2018, Piri, Sahebyar, and Saadollahi found that flipped classrooms had a significant effect on self-directed learning (except for the self-management component), with students in the experimental group scoring higher in self-directed learning after participating in flipped classrooms (Piri et al., 2018).

In 2023, Baqeri et al. found that peer assessment-based education had a significant effect on self-directed learning skills and its subscales (self-management, enjoyment of learning, and learning control). Given the results, peer assessment can be used to enhance students' self-directed learning skills, which are essential for 21st-century learners. Implementing peer assessment requires suitable conditions, including appropriate e-learning platforms, evaluation criteria set by the instructor, and proper guidance for learners as assessors (Baqeri et al., 2023).

Researchers believe that teaching-learning strategies represent the primary orientations and policies of instructors in teaching (Yildirim et al., 2019). Studies show that various self-regulated learning strategies enable students to independently manage their behavior and environment (Broadbent, 2017). Readiness for self-directed learning and management skills, considering the role of time, is also highly significant (Babaei & Rostami, 2022; Kiran Kumar et al., 2024). According to many scholars, the socio-cultural norms of today's generation call for learner-centered teaching approaches such as self-directed teaching-learning (Carlisle, 2019).

Although self-directed teaching-learning is closely related to the concept of cognition in psychology, the term metacognition was first introduced by John Flavell in 1976, referring to cognition beyond ordinary thinking, encompassing an individual's knowledge and awareness of their cognition, learning, and thinking processes (Pourkarimi & Mobin Rahni, 2019). Simply put, metacognition involves the monitoring, control, and effective management of cognitive skills to improve processes and achieve desired goals (Soleimani et al., 2021; Susilo et al., 2020). Overall, various domestic and international studies on self-directed learning have evaluated it from different aspects and dimensions, contributing to a more comprehensive understanding of the subject.

2. Methods and Materials

This study employs a qualitative exploratory research method using thematic analysis as the analytical tool. Thematic analysis is a method for identifying, analyzing, and reporting patterns within qualitative data. This approach provides a systematic process for analyzing textual data, transforming scattered and diverse data into rich and detailed information. The present study utilizes the Attride-Stirling model for thematic analysis. This method is based on the formation of a thematic network and is widely used in various research studies. The thematic network consists of three levels of codes and concepts: basic themes, organizing themes, and overarching themes.

Basic themes include the key codes and concepts extracted from the text. Through a thorough review of the text, the smallest relevant codes must be identified and selected as basic themes. Organizing themes emerge from the combination and summarization of basic themes. In this stage, the basic codes are reviewed, and similar concepts are grouped together. The researcher, based on their analytical ability and expertise, assigns appropriate names to each category of codes. Finally, overarching themes encompass the higher-order, governing themes that represent the overall meaning of the text. In this study, the key themes at each of the three levels, along with their interrelationships, are clearly identified.

To analyze the themes related to self-directed learning components and to map the thematic network, all available written and electronic sources relevant to self-directed learning were utilized. Using a purposive sampling method and applying the theoretical saturation criterion, 40 articles published between 2003 and 2024 were selected and analyzed using thematic analysis. To search for and retrieve these articles, external databases and search engines such as Google Scholar, ScienceDirect, Emerald, ERIC, Scopus, and Sage were consulted, as well as domestic databases such as the Scientific Information Database of the Academic Jihad, NoorMags, Magiran, the Comprehensive Humanities Portal, and Civilica. The review and examination of texts and documents related to self-directed learning were conducted gradually and step by step until saturation was reached.

To uncover the underlying meanings and implicit messages in the texts and articles on self-directed learning, after identifying and extracting printed and electronic materials from credible sources, the researcher used scientific note-taking techniques. Note-taking and coding were performed simultaneously as part of the qualitative data analysis process. At this stage, after identifying relevant academic texts on self-directed learning, the researcher analyzed sentences related to the research question, placing the extracted sentences into a pre-designed table. Thematic

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coding procedures were employed for data analysis, and redundant or similar codes were discarded.

To ensure internal validity (credibility) of the findings, in addition to selecting and validating data based on a review of theoretical foundations, prior research, and alignment with the research question, a member-checking approach was used to confirm the accuracy and reliability of the study. Specifically, after conducting the theoretical analysis using coding and developing the thematic network, the findings were presented to experts in educational psychology, who provided feedback and suggested revisions, which were then incorporated.

To enhance the reliability of the study, the researcher made every effort to meticulously analyze the findings from the articles included in the thematic analysis, extracting key paragraphs and primary findings with the highest level of accuracy. To extract findings, the selected articles were reread multiple times to identify and select the most critical sections. In other words, the study ensured reliability by employing a structured process, including systematic note-taking from texts and articles, deriving interpretations and thematic structures, and following an auditing approach. All research stages were systematically completed.

3. Findings and Results

The findings obtained from this study, after the separation and removal of similar and identical themes, resulted in 78 thematic codes that represent the dimensions of self-directed learning. These themes are categorized into three classifications: basic themes, organizing themes, and overarching themes.

Table 1

Self-Directed Learning Themes

Basic Themes	Organizing Themes
1. Knowledge of teachers and instructors employing self-directed learning	Infrastructural Factors
2. Belief in self-directed learning for both educators and learners	
3. Classroom assessment aligned with self-directed learning	
4. Understanding procedural knowledge (know-how)	
5. Availability of multiple informational and communicative resources related to learning	
6. Learning from peers and classmates	
7. Motivation and interest in using self-directed learning	
8. Effective use of learning strategies	
9. Presence of a democratic and participatory environment	
10. Appropriate contextual environment	
1. Creation of novel and innovative solutions	Cognitive and Metacognitive Factors
2. Development of new methods	
3. Internalization of learning	
4. Strengthening emotions, particularly intuition	
5. Self-awareness and spiritual awareness	
6. Reflecting on knowledge	
7. Utilizing existing information to achieve goals	
8. Ability to judge cognitive processes in specific tasks, including strategies used and their goals	
9. Evaluating one's own progress during and after learning	
10. Dominant educational system of the society	
1. Identifying thoughts and emotions	Emotional Skills
2. Interpreting one's thoughts and emotions	
3. Reliability in self-learning and peer learning	
4. Risk-taking and tolerance for learning complexities	
5. Accurate understanding of learning issues, challenges, and failures	
1. Verbal and non-verbal communication skills	Communication Skills
2. Information and communication technology (ICT) skills	
3. Teamwork skills	
4. Decision-making skills	
1. Introverted-extroverted characteristics	Personality Traits
2. Worldview type	

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3. Reaction type to learning challenges	
4. Learning aptitudes and styles	
5. Previous learning experiences	
6. Educational level and type of educational system	
7. Spontaneous, passive, or intermediate reactions to education and learning	
8. Internal or external control resources	
9. Individual memory characteristics	
10. Sense of self-worth (self-esteem)	
11. Professional identity	
1. Self-inquiry	Self-Regulation
2. Self-assessment	
3. Ability to obtain feedback from self-learning	
4. Ability to enhance learning	
1. Desire to improve current conditions	Interests and Motivation
2. Motivation for learning advancement and expansion	
3. Interest in learning	
4. Passion for learning through specific methods	
5. Assertiveness due to high learning motivation	
6. Learner's enthusiasm for engaging in learning tasks	
7. Existence of a related learning vision	
8. Educational environment atmosphere	
9. Teacher-student relationship	
10. Hierarchy of needs	
11. Local, regional, national, and international learning culture	
1. Awareness of learning outcomes	Self-Instruction
2. Application of learning outcomes	
3. Collaborative learning	
4. Learning search techniques	
5. Selection of learning strategies	
6. Interest control to achieve goals	
7. Recognition of learning needs	
1. Planning for learning	Self-Management
2. Control of the learning process	
3. Cost-benefit analysis in learning	
4. Setting learning goals	
5. Ability to face learning tasks	
6. Control of learning situations and aspects	
7. Selection of learning topics	
8. Managerial skills	
1. Ability to plan for learning	Learner Independence
2. Competence in risk-taking and handling uncertainties	
3. Ability to think independently	
4. Ability to take responsibility for one's learning	
5. Gaining learning experiences	

The review of related literature on self-directed learning provided a platform for similar themes to be grouped together, forming an integrated thematic network in this area. Some themes appeared frequently in the literature, while others were mentioned less often.

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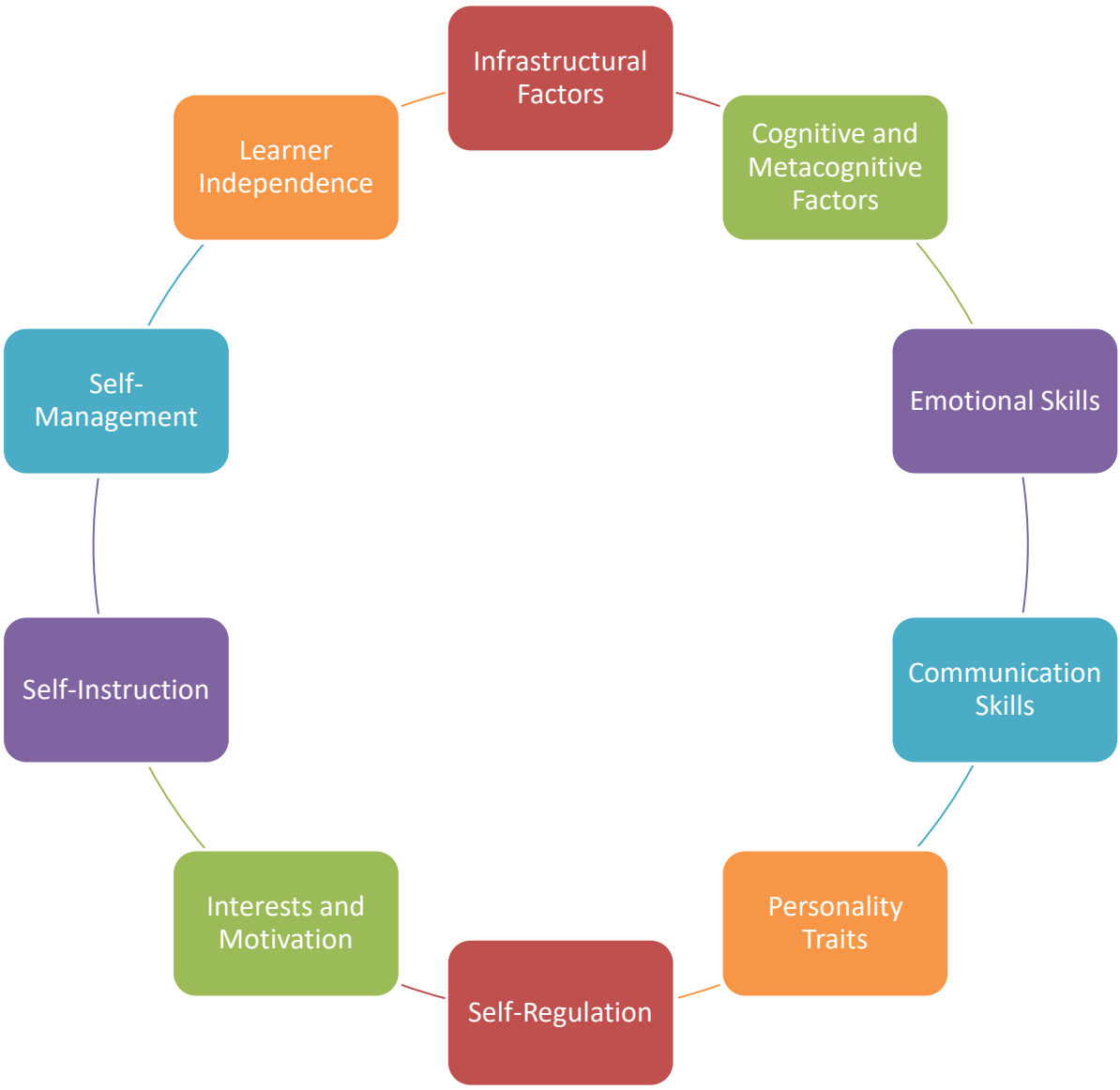
Figure 1

Self-Directed Learning Network



4. Discussion and Conclusion

In the review of literature related to the research topic, 77 basic themes and 10 organizing themes were identified. The basic themes, including teachers' and instructors' knowledge of self-directed learning, belief in self-directed learning by both educators and learners, classroom assessment aligned with self-directed learning, understanding procedural knowledge (know-how), availability of multiple informational and communicative resources related to learning, peer learning, motivation and interest in self-directed learning, effective use of learning strategies, the presence of a democratic and participatory environment, and an appropriate contextual environment, formed the organizing theme of "Infrastructural Factors" (Ali Bakhshi, 2015; Jafari & Rasoulzadeh, 2015). This factor, as the contextual background and main influencing factor, has also been emphasized. In some studies, the classroom context has been considered the primary context for education (Rahmani et al., 2019). Social constructivist theory, which posits that learning cannot occur in isolation, has numerous implications for learner-centered teaching, highlighting that the characteristics of a constructivist classroom, its teaching strategies, and the roles of teachers and students are essential (Fathi, 2019). This factor also affects new learning contexts and situations, as emerging

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educational contexts can influence individuals' motivation to alter their learning environment and conditions (Norshidah et al., 2024).

The basic themes of creating novel and innovative solutions, developing new methods, internalizing learning, enhancing emotions, particularly intuition, self-awareness and spiritual awareness, reflecting on knowledge, using existing information to achieve goals, judging cognitive processes during specific tasks, evaluating one's progress during and after learning, and the dominant educational system formed the "Cognitive and Metacognitive Factors" organizing theme (Soleimani et al., 2021). Thus, metacognitive strategies (Ghiami Keshtgar & Ghaljaei, 2023) and cognitive strategies can effectively promote self-directed learning. Teaching cognitive strategies improves study quality, while teaching metacognitive strategies enhances the regulation and organization of study processes, fostering students' academic responsibility (Carlisle, 2019).

The basic themes of identifying and interpreting thoughts and emotions, reliability in self-learning and peer learning, risk-taking, and tolerance for learning complexities, along with an accurate understanding of learning challenges and failures, constituted the "Emotional Skills" organizing theme in self-directed learning (Arjmand & Kazemian Moghadam, 2020). The basic themes of verbal and non-verbal communication skills, information and communication technology skills, teamwork skills, and decision-making skills formed the "Communication Skills" organizing theme (Babaei & Rostami, 2022). Communication skills enable individuals to engage in interpersonal interactions, sharing information, thoughts, and emotions through verbal and non-verbal exchanges (Hamedinasab & asgari, 2020). Self-directed learning encourages individuals to acquire communication skills (Abdollahzadeh, 2013), which is also emphasized in e-learning contexts (Saedi & Sa'dipour, 2017). All elements of communication skills influence teaching and learning processes by enhancing participation, cooperation, and offering more valuable experiences for students (Ali Bakhshi, 2015).

Another organizing theme identified in this study was "Personality Traits," which included introversion-extroversion, worldview, reactions to learning challenges, learning aptitudes and styles, previous learning experiences, educational level and system, spontaneous, passive, or intermediate reactions to learning, internal or external control resources, individual memory characteristics, and professional identity (Rakhshvand Samyuri & Azad, 2018). Personality traits are significant psychological factors influencing academic success, with self-directed learning duration also impacting students' learning effectiveness (Kiran Kumar et al., 2024).

Basic themes such as family independence, decision-making autonomy in learning, perseverance in managing learning, previous successful experiences, risk-taking, tolerance for ambiguity, and responsibility in learning formed the "Learner Independence" organizing theme (Ali Bakhshi, 2015; Ghiami Keshtgar & Ghaljaei, 2023). Learner independence encompasses multiple aspects influenced by cultural and environmental considerations, aligned with constructivist theory, which emphasizes that education depends on both the learner and the environment, highlighting the importance of active engagement in learning (Kadivar, 2023). Cultural factors also significantly influence learner independence (Bruner, 1996), and historical, cultural, economic, political, and structural elements play a crucial role (Mehrmohammadi, 2020).

The "Interests and Motivation" organizing theme included 11 basic themes: desire for improvement, motivation for learning development, interest in learning, preference for specific learning methods, assertiveness due to high learning motivation, learner excitement for learning tasks, relevant learning vision, educational environment, teacher-student relationship, hierarchy of needs, and local, regional, national, and international learning culture. Deci et al. (1991) define motivation as the process through which goal-oriented activity is initiated and sustained, varying in direction and type based on individual goals (Deci et al., 1991). Studies show significant relationships between learning motivation, professional learning, and learning communities, with motivation acting as a mediator (Ahmadi Aghdam et al., 2021). Teachers with high learning motivation enhance professional learning communities through knowledge acquisition, teaching strategies, and collaboration, improving student learning outcomes.

Basic themes such as awareness and application of learning outcomes, collaborative learning, learning search techniques, selection of learning strategies, interest control for goal achievement, and recognition of learning needs formed the "Self-Instruction" organizing theme. Self-instruction, particularly through digital learning, fosters deep thinking and learning (Seyf & Fattahpour, 2021) and includes stages such as modeling, explicit guidance, self-direction, gradual withdrawal of support, and full autonomy (Banica et al., 2017). Studies confirm that self-instruction skills, especially at the elementary level, significantly impact

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academic and social skills, provided the necessary conditions are met.

The "Self-Management" organizing theme included basic themes such as learning planning, process control, cost-benefit analysis, goal setting, task management, situational control, and learning topic selection. Daniel Goleman describes self-management through six attributes: self-control, transparency, adaptability, achievement, initiative, and optimism (Goleman, 2019). Imam Ali's Nahj al-Balagha emphasizes self-management, highlighting perseverance and preparation for life's challenges, including educational ones. The "Self-Regulation" organizing theme, encompassing self-inquiry, self-assessment, feedback reception, and learning improvement, has a longstanding presence in educational psychology (Pournorouz & Davari Ardakani, 2022), emphasizing active control over cognitive, motivational, and behavioral learning processes, benefiting both students and teachers (Ghiami Keshtgar & Ghaljaei, 2023; Naseri & Seadatee Shamir, 2014).

Limitations of the study include the qualitative nature of the research, which may limit generalizability, the reliance on existing literature without direct participant data, and potential researcher bias in thematic analysis.

Future research could explore the development of intervention programs for fostering self-directed learning in students, investigate the role of technology in enhancing self-directed learning, and examine cultural influences on self-directed learning across different educational settings.

Practical implications include encouraging educators to integrate self-directed learning strategies into their teaching practices, promoting professional development for teachers on self-directed learning methods, and designing educational policies that support and enhance self-directed learning environments.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in studies involving human participants were under the ethical standards of the institutional and, or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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