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Deep learning in high schools: exploring pedagogical approaches for transformative education

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Abstract

In today's ever-changing education landscape, fostering deep learning is paramount for transformative education. Teachers play a pivotal role in this endeavor by implementing effective pedagogies that guide students beyond surface-level understanding toward profound learning experiences. This study aimed to explore the effective pedagogical approaches used in schools to promote deep learning within a transformative educational setting. Adopting a qualitative approach with a case study design, the study focused on a single school to investigate these approaches. The study population comprised teachers and learners, with a purposive sample of eight participants, including four teachers and four learners. Data collection utilized semi-structured interviews with predetermined questions for the participants. Thematic analysis was employed to systematically distill meaningful themes and patterns from the collected data. The findings indicated that pedagogical approaches significantly contribute to both deep learning and transformative education, emphasizing active student participation. As a result, schools should adopt effective pedagogical approaches such as group discussions, presentations, and projects to enhance students' learning experiences. The study therefore recommends that learner-centred pedagogies, teaching methods, and strategies should be used in schools to foster deep learning of learners.

Keywords: Engagement, learners, pedagogies, teachers, transformative,

INTRODUCTION

In today's dynamic education landscape, fostering deep learning is key to transformative education. Teachers play a crucial role by implementing effective pedagogies that guide students beyond surface-level understanding towards profound learning experiences. **Pedagogy, encompassing diverse teaching and learning approaches, acts as the foundation for curriculum design and delivery (Arbeiter & Bucar, 2020).** Salonen (2019) emphasizes its role as a catalyst for intellectual growth aligned with sustainable development, while social pedagogy prioritizes addressing individual needs within the broader social context for student development.

Transformative education is widely recognized for its ability to cultivate profound learning experiences and empower students to engage actively in both local and global contexts (Arbeiter & Bucar, 2020). It fosters critical thinking, instills essential values, and addresses social injustices, paving the way for a more sustainable world (Baumgartner, 2019). Deep learning, emphasized by scholars, further drives this transformative change, with well-being and supportive environments playing a crucial role. **Technology and online platforms hold transformative potential for deep learning (Shrestha & Khadka, 2022).** In high schools, design-based learning (Maroun, 2018) emerges as an effective approach, while studies highlight the positive impact of effective pedagogies on academic performance and critical thinking (Weng et al., 2022).

However, significant challenges like resource scarcity hinder deep learning in many South African schools (Du Plessis & Mestry, 2019). While adapting to 21st-century pedagogies and ensuring well-resourced schools are key solutions (Vale & Graven, 2022), many schools haven't fully transformed. This lack of effective pedagogy impedes the transition from surface to deep learning. **Therefore, an in-depth exploration of effective pedagogical approaches is crucial for enhancing transformative education and fostering deep learning in**

South African high schools. This study aims to address this need by examining such approaches.

PROBLEM STATEMENT

In South Africa, it's evident that students are advancing in their studies, but primarily through rote learning, a method that prioritizes memorization over critical thinking and fails to enrich overall learning experiences. This prevalent approach to learning can be attributed to teachers' limited capacity to employ innovative and effective pedagogical methods that actively engage students and enhance their learning journeys. Furthermore, a host of challenges within the school environment further obstruct the effective utilization of pedagogical approaches for transformative education, impeding the transition from surface to deep learning. In addition, there other challenges within the school environment that significantly contribute to these challenges.

Mdodana-Zide (2023) has shed light on the issue of inadequate resources in under-resourced South African schools, which makes it challenging to implement effective pedagogy and foster transformative education. This scarcity significantly impacts students' learning experiences. There is ample evidence suggesting that the South African education system grapples with substantial difficulties, particularly in embracing teaching techniques that encourage active participation and critical thinking among students (Mouton, Louw, & Strydom, 2018). The failure of teachers to leverage pedagogical approaches underscores systemic inefficiencies in the educational framework, obstructing the shift from surface learning to deep learning. Consequently, this study endeavours to explore pedagogical approaches that can promote deep learning and usher in transformative education for student learning experiences in South African schools.

RESEARCH QUESTIONS

1. How do pedagogical approaches foster deep learning and transformative education in high schools?
2. What are the factors that influence effective pedagogies for empowering deep learning for transformative education?

THEORETICAL FRAMEWORK

Social Constructivism: Guiding Framework for Deep Learning

This study is guided by social constructivism, a theory pioneered by Lev Vygotsky in the early-to-mid 20th century (Liu & Mathews, 2005). Vygotsky's work posited that language and culture are fundamental frameworks shaping how individuals experience and understand reality (Akpan et al., 2020). This theory emphasizes the crucial role of social interaction and collaboration in learning, suggesting that knowledge is co-constructed through communication and shared experiences within specific cultural contexts.

As Deeba (2021) highlights, social constructivism encourages collaborative learning environments, stressing the importance of interactions between students, teachers, and the community for cognitive development. Vygotsky's Zone of Proximal Development (ZPD) emphasizes the potential for learning through support and guidance within a student's achievable range (Shabani et al., 2010). This underscores the importance of providing challenges tailored to individual needs, facilitating advancement.

Adams (2006) emphasizes the importance of support within the ZPD to enable deeper learning and skill development. Social constructivism encourages environments where student interactions and collaborations move learning beyond surface understanding. Ultanir (2012) highlights how this theory equips teachers to create enriched learning experiences by fostering collaborative knowledge construction. Through group activities, discussions, and problem-solving, students explore diverse perspectives, challenge assumptions, and refine their understanding.

Social constructivism further acknowledges the influence of cultural backgrounds, language, and social interactions on learning. This theory encourages teachers to design culturally relevant learning experiences

with authentic contexts, group tasks, and projects. By embracing this approach, teachers can foster deeper understanding, creativity, and critical thinking, ultimately enhancing student learning experiences across various contexts (Thomas et al., 2014).

LITERATURE REVIEW

Pedagogical approaches that foster deep learning and transformative education

This literature review explores pedagogical approaches and teaching methods that ignite deep learning and transformative education in high schools. Moving beyond traditional models, it aims to identify diverse strategies and practices that empower educators to elevate learning outcomes and cultivate transformative learning environments. Pedagogy encompasses the methods and approaches teachers use to deliver lessons, shaping how knowledge is communicated, understood, and retained (Fawns, 2022). However, high school pedagogy must go beyond mere learning enhancement to serve as a catalyst for transformative change.

Khedkar and Nair (2018) urge a shift away from traditional, competitive learning environments, advocating for diverse and inclusive teaching strategies that link learning to students' practical abilities and prepare them for the evolving job market. Herodotou et al. (2019) identify six innovative approaches, including formative analytics, teach back, place-based learning, learning with robots/drones, and citizen inquiry. These approaches foster critical thinking, problem-solving, and digital literacy, with formative analytics having the most extensive evidence-base.

Rodel and Karcher (2020) emphasize ethical considerations in transformative education, urging educators to apply ethical principles in areas like student assessment. Merzel (2023) proposes authentic assessment and innovative grading methods (flexible deadlines, specification grading) to reduce student stress, enhance engagement, and clarify learning outcomes. Luitel et al. (2022) advocate for approaches that nurture both student engagement and critical thinking, highlighting the importance of continuous learning for developing critical thinking skills.

Factors that influence effective pedagogies for empowering deep learning for transformative education

Effective pedagogy, deep learning, and transformative education hinge on innovative teaching methods. As O'Donovan (2020) emphasizes, this requires redefining teaching models to prioritize technology and active learning strategies, ultimately fostering deeper understanding in schools. Reflective practices, integrated through active learning approaches, shape effective pedagogies for deep learning. Colomer et al. (2020) highlight how this encourages critical thinking and metacognition, leading to deeper comprehension.

Innovative discourses in schools have a strong impact on deep learning. Luna et al. (2023) found that these discourses encourage teachers to explore new models and adopt pedagogies that go beyond surface-level learning. However, Blake et al. (2018) argue for reflective learning as a key factor. It provides students with opportunities to analyze experiences, link theory to practice, and develop problem-solving skills. Cultural activities can deepen understanding. Effendi's (2023) study demonstrates the positive influence of a cultural approach, shaping the learning environment and fostering a cooperative climate. By prioritizing respect and individual personalities, this humanistic approach creates an enabling environment for deep learning.

Active methodologies and experiential learning are also pivotal. Blake et al. (2018) argue that active methodologies promote transformative learning, while experiential learning, including extracurricular activities and projects, contributes to reflective learning. Rani (2023) emphasizes the importance of aligning experiential learning with national policies, highlighting its role in preparing students for real-world challenges and cultivating practical competencies. Recent advancements like generative AI hold promise for personalized learning and adaptive assessments. Kadaruddin (2023) describes how this technology has the potential to revolutionize teaching and learning. However, ethical considerations are crucial. Nguyen et al. (2023) urge responsible development and emphasize the need for ethical guidance to safeguard students' vulnerability and autonomy.

Generally, effective pedagogies for deep learning and transformative education should integrate diverse, innovative approaches, with careful consideration of ethical implications.

METHODS

This study aims to explore the implementation of effective pedagogies in South African high schools, with a specific focus on transitioning from surface-level learning to deeper engagement for transformative education. The objective is to investigate teaching methods, approaches, techniques, and strategies that can enhance student learning experiences and progress. The primary goal is to identify practices that promote critical thinking, creativity, and significant engagement with the learning material. Recognizing the inherent challenges in teaching and learning within this context is crucial. Adopting effective pedagogies is intended not only to enhance student progress but also to cultivate their ability to deeply engage with learning and embrace transformative education.

Using a qualitative approach, this study aims to understand how effective pedagogies facilitate deep learning among high school students. The research questions guiding this inquiry are as follows: 1. What factors influence the implementation of effective pedagogies to enable deep learning in transformative education? 2. How do various pedagogical approaches contribute to fostering deep learning and transformative education in high school settings? Given the complexity of these questions, a qualitative study is deemed imperative to gain profound insights and a comprehensive understanding of the subject matter.

Research Design

The qualitative study employed a case study design. According to Priya (2021), a case study is a qualitative research method that aims to achieve a comprehensive and detailed understanding of a specific phenomenon or case, focusing on examining it within its lived context. This design facilitates the collection of rich data through sources such as interviews, observations, and documents, enabling researchers to grasp the complexities and nuances of the studied phenomenon. Utilizing a case study design is crucial as it allows researchers to thoroughly explore intricate issues within a specific context, providing a detailed understanding that may not be accessible through other research methods. Case study designs prove valuable in situations where quantitative studies may not yield sufficient data to substantiate a claim (Rashid et al., 2019). In this study, the case study design will be applied to a single school, with the aim of exploring how teachers promote deep learning in educational settings.

Researhc Paradigm

The research paradigm underpinning this study is the interpretivist paradigm, which emphasizes understanding human behavior by delving into subjective meanings and social contexts (Blackwell, 2018). It focuses on comprehending the relationships and meanings individuals attribute to their lived experiences, suggesting that individuals construct their reality through perceptions and interpretations (Blackwell, 2018). Using the interpretivist paradigm in qualitative studies is crucial as it enables researchers to gain profound insights into the complexities of people's experiences, emotions, and opinions (Alharahsheh & Pius, 2019). This paradigm acknowledges the impact of social and personal contexts on how individuals interpret and interact with the world around them. Employing the interpretivist paradigm in this study will aid in comprehending the perspectives and worldviews of the participants involved.

Population and Sample

Population, as described by Majid (2018), refers to the entire group sharing common features and is the primary focus of the study. It holds significance as the study findings aim to represent and apply to this group at large (Majid, 2018). Therefore, the chosen population forms the basis for drawing conclusions in this study, which, in this case, comprises teachers and learners from high schools in South Africa.

A sample, according to Casteel & Bridier (2021), is a subset drawn from a larger population and represents that group within the study's scope. It involves the selection or recruitment of participants. In this study, eight

participants—four teachers and four students—were purposefully chosen from a selected high school for this case study.

Data Collection Instrment

In this study, semi-structured interviews were utilized, characterized by a predetermined set of questions consistently posed to participants (Jones et al., 2023). These interviews maintain uniformity in information collection, offering a systematic approach while ensuring control over the interview process (Phellas & Seale, 2017). The structured nature of the questions guarantees consistency in the information gathered, aiding in the analysis and comparison of emerging patterns and themes from participants' responses. For the effectiveness of semi-structured interviews in qualitative studies, Taherdoost (2022) suggests that the research questions should align with the study's objectives and be clear and concise to elicit appropriate participant responses. In this study, all participants will respond to the same set of questions to ensure the effective administration of semi-structured interviews.

Data Analysis

This study employed thematic analysis to examine emergent themes and patterns from the collected data. Thematic analysis, as defined by Kampira (2021), is a qualitative approach involving the identification, analysis, and reporting of emerged themes and patterns. It encompasses identifying patterns of meaning, grouping them, and interpreting their significance. Thematic analysis holds significance in studies as it unravels intricate narratives and diverse perspectives within qualitative data, offering a structured approach to comprehend underlying meanings and present patterns (Naeem et al., 2023). Importantly, it provides invaluable insights into understanding people's experiences, behaviors, or the phenomenon under assessment. According to Jnanathapaswi (2021), using thematic analysis allows researchers to explore different perspectives across various disciplines, aiding in conceptualizing collected data. This study employs a systematic approach to apply thematic analysis, distilling meaningful themes and patterns emerging from the collected data.

Ethical Considerations

The study adhered to ethical considerations by obtaining permission from the university and securing approval from the school principal. All participants provided their consent to take part, understanding that their involvement was voluntary, and they could withdraw at any point if they felt unsuitable. It was made clear that their identities and participation would remain confidential, with no disclosure of shared information under any circumstances. Additionally, the collected data will be retained by the researcher for a duration of five years, after which it will be securely destroyed.

Ensuring Validity and Reliability

Arslan (2022) defines validity as the measure of how accurately a research study aligns with its intended objectives. It revolves around the precision and authenticity of the findings, ensuring their relevance to the research's aims and questions. To maintain validity in this study, clear objectives were delineated, and the research questions were crafted to seamlessly align with these objectives. This approach provided a focused exploration of the problem in relation to the research topic.

Reliability, as described by Arslan (2022), pertains to the consistency and stability of study findings, allowing for replication in different contexts. It ensures that the study's outcomes could be reliably reproduced by another researcher. To ensure reliability within this study, a pilot study was conducted, where the research methodology was presented to and assessed by another researcher for possible improvements. Additionally, a thorough review of the research questions was undertaken to ensure their alignment with the study's focal points.

FINDINGS AND DISCUSSIONS

How do pedagogical approaches contribute to fostering deep learning and transformative education in high schools?

The effective use of pedagogical approaches is recognized as having a significant impact on influencing and enhancing deep learning, serving as a catalyst for fostering transformative education within the high school context. The pursuit to understand pedagogical approaches that promote deep learning and transformative experiences for students has generated heightened interest and attention in transitioning from shallow to deep learning. Teachers, through adapting diverse teaching methods, engagement strategies, and integrating technology and online platforms, aim to create an enabling environment that encourages active student engagement, critical thinking, creativity, and innovation, ultimately promoting problem-solving and deeper comprehension of subject disciplinary content knowledge. As a result, the research questions sought to inquire about the contribution of using pedagogical approaches and their influence on student learning and transformative education in schools. Responses from participants indicated the following themes, which are discussed below:

Active Engagement in Learning

Responses from participants indicated the creating an environment that fosters active participation of students through active engagement learning pedagogies helps to deepen students learning. The following participants responded that:

LN1: "*Active participation in class is encouraged when our teachers use discussions and group activities to teach us*".

ED2: "*Using different pedagogical approaches like discussion, presentation and group activities in my class help to foster active participation and make learning more meaningful for students*".

Participants' responses highlight the crucial role of implementing pedagogical methods in cultivating a transformative learning environment that stimulates profound student learning. Pedagogical approaches significantly contribute to both deep learning and transformative education, emphasizing active student participation. Participants stress the importance of schools adopting pedagogies that facilitate active engagement through diverse strategies such as discussions, presentations, and group activities. These insights underscore the necessity for schools to integrate pedagogical practices that encourage active involvement through various strategies, emphasizing that effective pedagogy not only aids in achieving learning outcomes but also deepens students' knowledge and fosters transformative education.

Literature findings align with participants' perspectives; Baumgartner's (2019) research highlights the effectiveness of pedagogical approaches like critical self-reflection, dialogue, and creating supportive environments in promoting active engagement. The study also underscores the significance of simulations to broaden students' perspectives. In contrast, evidence from Mouton, Louw, and Strydom (2018) reveals a significant challenge faced by most South African teachers in fostering active engagement and critical thinking among students. The difficulty lies in teachers' struggles with diverse pedagogical approaches, hindering the transition from surface to deep learning. This challenge is attributed to factors such as teachers' inability to leverage language and culture for active learning. Consequently, Deeba (2021) emphasizes the importance of fostering social interaction and collaboration to enhance students' learning experiences. To promote active engagement in schools, institutions must adopt diverse pedagogies that transform both the school and classroom, incorporating methods like discussions and group activities while encouraging social interaction and collaboration among students for improved learning.

1. Personalised and student centred learning

Participant ED4 argued that "*Using teaching approaches that focuses on problem solving and promoting practical student experiences makes student to find learning interesting and enjoyable*".

Participant LN2 on the other hand pointed out that, "*creating an environment where students work on projects and experiments enhance students understanding of the subject or the content*".

Participants emphasized the importance of personalized and student-centered learning methods for creating engaging student experiences, particularly those centered around problem-solving. These approaches

were deemed crucial for making learning interesting and enjoyable. The consensus among participants highlighted the significance of tailoring teaching strategies with diverse pedagogical approaches to foster a positive and enjoyable learning environment. Additionally, the responses indicated that creating a conducive environment is instrumental in facilitating collaboration among students through projects, enhancing active engagement. These findings suggest that personalized and student-centered pedagogies, including problem-solving and practical experiences, are key in developing students' interest in the subject matter.

These findings align with Vygotsky's Zone of Proximal Development theory, emphasizing the creation of a distinctive environment for student learning. The theory facilitates the alignment of students' independent capabilities with their potential through the support and guidance provided by an individual with advanced knowledge (Shabani, Khatib, & Ebadi, 2010). Creating an environment that allows students to work individually, collaborate with peers, and receive necessary support provides opportunities for students to acquire relevant knowledge and experience cognitive growth. Providing such an environment through the use of appropriate teaching methods and strategies is crucial for catering to student-centered learning and facilitating a personalized trajectory in education.

Promoting innovation and integration of technology

Participants point out how the integration of technology and innovation in teaching and learning help to ignite the interest of students in what they are learning. Participants responded that:

ED1: "*When we as teachers use innovative methods like online teaching, blended teaching and flipped classroom or use an interactive technology, it makes learning to be more engaged and relevant to students".*

LN4: *The use of online teaching approaches does not only ease the difficulties with transportation, but it also helps us to engage effectively with resources online which promote creativity and innovation. Because the students are not limited and have the opportunity to explore different sources".*

Participants in the study demonstrated how promoting innovation and integrating technology and online platforms enhances students' learning experiences. Insights from participants underscored the positive influence that the integration of technology has on student learning. Employing innovative methods such as online teaching, flipped classrooms, and blended teaching, along with interactive platforms, strengthens the active engagement of students. Furthermore, participants reiterated the advantages of online teaching and how it helps overcome transportation challenges by engaging in online resources. These perspectives imply that leveraging the use of online tools and diverse teaching methods creates a more active learning environment.

Regarding the promotion of deep learning in schools through innovative pedagogies, du Plessis and Mestry (2019) found that the shortage of essential resources in schools hinders deep learning. However, Vale and Graven (2022) argue that these challenges can be addressed by ensuring that schools are well-resourced, ensuring holistic education quality that suits students' needs. Salonen (2019) contends that prioritizing the integration of technology in pedagogies enhances online context presence, improving the school context and interpersonal relationships to promote deep learning. Furthermore, these findings indicate that the effective use of innovative teaching methods not only addresses the inaccessibility of learning resources but also provides an interactive platform for students to engage in a creative learning environment.

Promote critical thinking and problem solving skills

Participants responses indicated that using good pedagogical approaches effective in class like presentation, brainstorming and group discussion help to improve critical thinking and problem skills of students. Participants responded:

LN5: "*Using pedagogical approaches by teachers like brainstorming and group discussions help for us as learners to develop critical thinking*"

ED3: *Deep learning in my students is fostered when I use teaching strategies like project based, presentations and class discussions. This help to develop in students the ability to solve problems and apply critical thinking to their studies.*

Responses from participants underscored the significance of promoting critical thinking and problem-solving in schools through the adaptation of diverse teaching methods and strategies. Participants highlighted the use of varied pedagogical approaches, such as small group discussions, brainstorming, and presentations, which assist students in fostering creativity and critical thinking. Additionally, teaching methods like project-based learning and class discussions were identified as effective in helping students develop deep learning. These findings demonstrate that critical thinking and problem-solving skills are cultivated when interactive and collaborative teaching methods are employed to facilitate learning in schools.

Promoting critical thinking and problem-solving skills is considered a crucial aspect of education that significantly contributes to deep learning and transformative education in schools. According to Channa and Sahito (2022), utilizing various teaching strategies, approaches, and methods helps facilitate improved teaching and learning in schools, creating a transformative climate. However, some scholars argue that promoting critical thinking requires incorporating authentic contexts and integrating methods like group tasks and projects into the school curriculum (Thomas, Menon, Boruff, Rodriguez, & Ahmed, 2014). Thomas et al. (2014) further assert that employing a social constructivist approach in schools helps create a conducive environment for collaboration and teamwork. It appears that promoting the necessary school environment is crucial in nurturing problem-solving skills and fostering critical thinking in students.

Diversity in teaching methods

Responses from participants indicated that, using varied teaching methods in class help to deepen students learning. Participants responded that:

ED5: *"Using different teaching strategies and methods help to contribute to improve students learning and cultivate transformative education in schools".*

LN3: *"Infusing technology, online teaching and collaborative learning promotes students learning".*

Promoting diversity in schools is not merely an objective but a commitment to cultivating an inclusive and equitable learning environment for students. Participants underscored the benefits of employing diverse teaching strategies to enhance student learning. According to them, the use of various strategies and methods in teaching is crucial for achieving transformative education and desired learning outcomes in schools. Moreover, participants argued that to foster a transformative educational environment, it is essential to embrace pedagogical diversity in pursuit of educational goals. The utilization of diverse pedagogies, as advocated by these participants, creates an atmosphere conducive to collaborative learning in schools.

Scholars argue that promoting diversity in schools necessitates a reconsideration of teaching methods, shifting away from traditional approaches to promote inclusion and deep learning. According to Khedkar and Nair (2018), moving away from routinized teaching diminishes rote learning and competitiveness, highlighting the importance of aligning students' abilities with diverse learning methods. Furthermore, adapting innovative teaching methods ensures the promotion of diversity and inclusion in schools. These findings suggest that transitioning from traditional to innovative teaching methods contributes to deep learning and student development while fostering diversity and inclusion.

1. What are the factors that influence the effective pedagogies for empowering deep learning for transformative education?

Responses from participants indicated varied responses of the factors that influence the effective used of pedagogies for empowering deep learning and transformative education among students and in schools. The following themes and responses were generated:

1. Student centred engagement

Findings from the participants showed that using student centred pedagogies help to influence student engagement which is a catalyst for deep learning and transformative education in schools. Participants of the study responded that:

ED1: *Participant responded that, "A continuous training on how to use innovative approaches ensures that teachers are adequately prepared to use student centred pedagogies to promote engagement".*

LN3: *The participant pointed out that, "for teachers to be able to promote students learning and use student centered pedagogies to promote student engagement and deep learning, it is important teacher training and professional development is promoted in schools".*

The participants' findings underscore the importance of implementing student-centered pedagogies in schools to foster active engagement, serving as a catalyst for transformative education and promoting deep learning among students. Responses highlight a consensus that continuous training, development workshops, and seminars are essential components to ensure teachers are equipped with critical teaching methods and strategies. This preparation is deemed crucial for teachers to effectively employ appropriate pedagogies that facilitate meaningful engagement in educational settings. Participants emphasize the ongoing need for support and training to ensure teachers' readiness in utilizing innovative pedagogical approaches for fostering deep learning. These responses stress the necessity for ongoing professional training and development for teachers in schools, exposing them to diverse pedagogical approaches and strategies aimed at enhancing students' learning experiences.

The inability of teachers to promote active engagement through student-centered teaching strategies and methods can be attributed to various factors, as suggested by Mouton, Louw, and Strydom (2018), who propose that South African schools face challenges in fostering active engagement and critical thinking. Despite the availability of different pedagogical approaches, teachers struggle to employ appropriate teaching methods. Luitel, Dahal, and Pant (2022) emphasize that, for deep learning, pedagogical approaches in schools should prioritize student engagement and critical learning. Similarly, Baumgartner (2019) contends that deep learning can be achieved through critical reflection, dialogue, and creating a supportive learning environment. In contrast, Du Plessis and Mestry (2019) found that the absence of deep learning in schools is linked to poor work environments and a shortage of teaching and learning resources. These findings underscore the importance of employing student-centered pedagogies to induce deep learning and enhance student learning in schools. However, the challenging conditions in South African schools pose difficulties in promoting student-centered learning. Adequate training and development for teachers could enhance their ability to use effective pedagogies.

2. Diverse teaching methods for inclusivity and transformation

ED4: *The participant pointed that, "ensuring the availability of resources of ensure that pedagogies are implemented effectively to promote inclusivity in students learning".*

LN2: *Participant concurred by saying that, "having access to internet, technology, learning material in a conducive environment with the needed facilities help students to engage in their learning".*

Participants advocate for the promotion of diverse teaching methods to foster deep learning in schools, prioritizing inclusivity and transformation. They stress the importance of adequate resources in schools to effectively implement pedagogies, enhancing inclusivity in students' learning experiences. Furthermore, participants highlight the significance of providing access to the internet, technology, and learning materials to create a positive environment that supports active learning. These findings underscore the critical role of schools in providing necessary resources to cultivate inclusivity and transformation, essential elements for deep learning.

Literature findings support the participants' observations, indicating that schools can transform their environment for inclusivity through the use of diverse teaching methods. O'Donovan (2020) discovered in his study that achieving transformative education primarily relies on employing innovative teaching strategies to support learning. This involves redesigning teaching models to prioritize the use of technology, online platforms,

and other strategies for enhancing student learning. In contrast, Luitel et al. (2022) argue that diverse pedagogical approaches should not only focus on transforming the learning environment but should also emphasize active engagement and critical thinking. To foster a transformative learning environment, schools must make efforts to adapt various teaching methods to facilitate teaching and learning effectively.

3. Active participation for deep meaningful learning and engagement

ED2: *Participant pointed out that, "the pedagogy and teaching methods used become more effective and meaningful when there is motivation for students to engage in class".*

LN1: *Participants was of the view that, "we learn and participate best in class when we find out that what is being taught in class will us to be successful in our studies and future life".*

Active participation of students in learning is essential for developing meaningful engagement and deep learning. Khedkar and Nair (2018) advocate for the adaptation of innovative pedagogical approaches to improve the school environment, emphasizing the importance of accommodating diversity, inclusivity, and the evolving job market in teaching strategies. Similarly, Shrestha and Khadka (2022) support the use of effective pedagogies to make education transformative and impactful on student learning. These findings highlight the necessity of remodelling teaching practices, school governance, and overall support for schools and students.

A literature review supports the importance of active participation in meaningful learning in schools. Baumgartner (2022) revealed in his study on transformative education that achieving students' active participation requires promoting critical self-reflection, dialogue, and creating a supportive learning atmosphere. The study also recommends role-playing as a teaching method to broaden students' perspectives. In contrast, Mouton et al. (2018) demonstrated in their study that the inability of teachers to use effective teaching methods and approaches can be attributed to systematic inefficiencies in the educational system. This finding may be a significant factor contributing to the challenge of moving students' learning from surface to deep.

4. Practical application and relevance of learning

ED3: *Pointed out that, "providing feedback on students and using different assessment methods make what students are teaching and learning to have element of practical application to students learning experience".*

LN4: *Participant maintained that, "when teachers provide constructive feedback on task that are assessment to encourage us as learners to deeply engage with the learning material and our studies"*

Discussion

The practical application and relevance of learning significantly contribute to enriched understanding and engagement with learning resources in schools, as highlighted by participants' responses. They emphasized the importance of feedback and diverse assessment methods in enhancing practical application and achieving learning outcomes. Participants stressed the need for using various assessment methods to evaluate students' work and provide detailed feedback to strengthen their understanding. Adopting practical learning alongside effective assessment and feedback was seen as essential for bridging the gap between theory and practice in the field of study. Participants' responses suggest that assessment and feedback play a crucial role in stimulating students' understanding and application of theory to practice.

The significance of feedback, particularly constructive feedback, in promoting a deeper understanding of the material and fostering meaningful connections between theoretical learning and practical application, is emphasized by both participants. This connection between theoretical learning and practical application is explored in Rani's (2023) study, which underscores the vital role of experiential learning in school curricula for acquiring conceptual knowledge. The study advocates for providing real-world experiences in schools to encourage critical thinking and the practical application of knowledge by students, contrasting with rote learning practices that lack depth. However, Blake et al. (2018) argue in their study that practical pedagogies alone are insufficient for deep learning, suggesting that reflective learning is a key contributing factor to innovative discourse and

profound learning. According to this study, reflective learning allows students to analyze their experiences, align theory with practice, and develop the ability to analyze situations and formulate their perspectives.

CONCLUSIONS

How do pedagogical approaches that foster deep learning and transformative education in high schools?

Based on the findings of the study regarding the research question "how do pedagogical approaches foster deep learning and transformative education in high schools," the following conclusions were drawn:

Promotion of Active Student Engagement: The study concludes that employing various pedagogical approaches facilitates active student engagement in schools, particularly focusing on methods that encourage active participation such as discussions and collaborative activities.

Personalized and Student-Centered Learning: Adapting different pedagogical approaches helps in designing personalized and student-centered learning experiences, which are fundamental for deep learning and transformative education. Emphasizing problem-solving and practical experiences aligns with Vygotsky's theory and creates an atmosphere conducive to independence and collaborative learning, ultimately contributing to transformative education.

Integration of Technology and Innovation: Utilizing various pedagogical approaches facilitates the integration of technology and innovation in learning. The study underscores the significance of incorporating online teaching and learning, interactive resources, and addressing challenges to promote active student engagement and create a supportive climate for transformative education.

Enhancement of Critical Thinking and Analytical Skills: The study concludes that diverse pedagogical approaches promote the development of critical thinking and analytical skills among students. Methods such as class presentations and small group discussions are effective in enhancing problem-solving and critical reasoning abilities.

Facilitation of Deep Learning: By employing diverse teaching methods and strategies, deep learning is enhanced in schools. Various approaches, including online teaching, group activities, and teamwork, contribute to the achievement of learning outcomes and transformative education. Embracing diverse pedagogical approaches is crucial for promoting inclusivity and catering to individual students' needs.

In summary, the study underscores the importance of employing diverse pedagogical approaches to foster active engagement, personalized learning, technological integration, critical thinking, and deep learning in high schools, ultimately contributing to transformative education and inclusive learning environments.

What are the factors that influence effective pedagogies for empowering deep learning for transformative education?

In response to the above research question the study arrived at the following conclusions:

The study concluded that schools should prioritize the implementation of student-centered teaching and learning methods to enhance learning experiences. It emphasized the critical role of ongoing training and professional development for teachers to effectively utilize student-centered pedagogies. Such approaches directly influence student engagement in class, thereby serving as catalysts for deep learning and creating transformative learning environments. Additionally, providing developmental support to teachers is essential for equipping them with innovative approaches to deepen learning experiences.

Furthermore, the study highlighted the importance of using diverse learning methods to promote inclusion, diversity, and transformation in achieving effective pedagogical approaches. Adequate access to educational resources and technology was found to be crucial in fostering a positive learning climate that supports active engagement and collaboration among students. Schools play a vital role in ensuring not only the use of diverse

pedagogies but also the availability of resources for effective learning.

Active participation was identified as a key factor for meaningful learning and engagement, essential for achieving effective pedagogies in schools. Motivation and relevance in learning were emphasized as important factors influencing student involvement in learning. Effective teaching methods catering to inclusion and diversity are necessary to achieve educational goals.

The study also underscored the significance of practical application and relevance in student learning. Ensuring the practical application and relevance of learning content contribute significantly to students' in-depth understanding. Detailed feedback from various assessment methods was identified as crucial for bridging the knowledge gap between theory and practice, facilitating practical application of learning.

Moreover, the study emphasized the necessity of using online platforms and technology for effective learning in schools. Integrating technology and innovative practices, such as blended learning and flipped classrooms, provides opportunities for active student involvement. Overcoming challenges affecting teaching and learning and offering learning opportunities support active engagement and create a conducive environment that fosters transformation in the learning process.

RECOMMENDATIONS

How do pedagogical approaches that foster deep learning and transformative education in high schools?

Schools should employ diverse pedagogical approaches, such as class and small group discussions, to enhance students' active engagement and deepen their learning experiences. Additionally, adapting various teaching methods and strategies is crucial for building a supportive environment conducive to learning.

Promote personalized and student-centered learning by incorporating varied teaching methods and strategies in schools. Emphasize problem-solving and experiential learning, aligning with Vygotsky's theory to foster both independent and collaborative learning experiences.

Embrace innovation and technology integration in schools to improve teaching and learning quality. Utilize online teaching and interactive resources to address learning difficulties and promote deep understanding. Diverse online teaching platforms contribute to creating a supportive learning environment.

Use varied pedagogies, such as presentations, projects, and group discussions, to enhance critical thinking in schools. Integrating interactive platforms and collaborative strategies supports problem-solving through reflection, facilitating students' cognitive development.

Adopt diverse pedagogical approaches, including online teaching, group projects, and collaborative activities, to foster deep learning in schools. Varied teaching methods enhance learning outcomes, achieve educational goals, and transform the school environment to support diversity and inclusivity.

What are the factors that influence effective pedagogies for empowering deep learning for transformative education?

Schools should adopt student-centered teaching approaches to enhance learning outcomes. Continuous training is crucial for teachers' effectiveness, equipping them with the skills to foster deep learning and create a transformative school environment creatively.

Prioritizing diversity and inclusive practices in schools is essential to address student needs effectively. Ensuring access to teaching resources enhances the learning environment, promoting positive experiences for all students.

Providing opportunities for active student participation in meaningful learning is vital. Effective pedagogies and motivation for relevance encourage student engagement, leading to enriched learning experiences.

Advocating for practical and experiential learning in schools, along with diverse assessment methods and

detailed feedback, enhances students' understanding. Bridging the gap between theory and practice contributes to profound learning experiences.

LIMITATION

Firstly, a significant potential limitation of this qualitative study is its limited generalizability. The findings are closely tied to the specific context of the study, making it challenging to universally apply them to a broader population. Utilizing a mixed-method or quantitative approach could have mitigated this limitation by diversifying the participant pool, leading to a more inclusive and comprehensive understanding of the topic.

Secondly, a potential limitation arises from subjectivity and researcher bias inherent in qualitative research. The interpretation of data heavily relies on the researcher's perspective, introducing the possibility of bias based on their worldview. This subjectivity can influence the analysis and findings, impacting the objectivity and neutrality of the study. Thus, it poses a challenge to the overall reliability and validity of the research outcomes.

SUGGESTION FOR FURTHER STUDIES

Future researchers seeking to advance the field should consider employing mixed methods approaches in their investigations. By combining qualitative and quantitative methods, researchers can overcome limitations in generalizability, thereby increasing the relevance of their findings across diverse contexts. Additionally, a mixed methods approach enables a more comprehensive understanding of the phenomenon under study, enriching the depth of analysis and interpretation.

Moreover, it is crucial for future studies to prioritize researcher reflexivity. Acknowledging and addressing potential biases in data interpretation is essential for ensuring the credibility and transparency of qualitative research. Incorporating reflective practices throughout the research process, from data collection to analysis, can help researchers navigate their own subjectivities and enhance the rigor of their studies.

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