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Applying Constructivist Teaching Theory to Enhance Deep Learning in Contemporary Education Contexts

Menerapkan Teori Pengajaran Konstruktivis untuk Meningkatkan Pembelajaran Mendalam dalam Konteks Pendidikan Kontemporer

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ABSTRACT

The constructivist teaching theory has gained a new status in contemporary teaching practice, emphasizing the role of the learner in the process of meaning production as the result of his or her active involvement, reflection and dialogue. Theoretically, this approach has merit, but there is a lack of empirical studies regarding constructivist strategies to be applied in deep learning in teachers' practices. This is a qualitative phenomenological study which examines how 12 teachers in their secondary and higher education level classrooms implement constructivist theory in practice. The research methodology is semi-structured interviews, observations in the classroom, and document analysis to gain insight into teacher interpretations, teaching strategies and difficulties in implementing this research. It is found that the meaningfulness constructivist implementation needs inquiry-based learning, collaborative problem solving, scaffolding, and reflective learning. However, structural problems such as large classes, curriculum overload and assessment issues still pose a serious problem for authentic adoption. The findings of this study present empirical evidence on the constructivism-deep learning construct relationship and evidence-informed implications for teacher development, curriculum reform and educational policy.

Keywords: *Constructivism; Deep Learning; Phenomenology; Teacher Development; Curriculum Reform.*

ABSTRAK

Teori pengajaran konstruktivis telah memperoleh status baru dalam praktik pengajaran kontemporer, menekankan peran peserta didik dalam proses produksi makna sebagai hasil dari keterlibatan aktif, refleksi, dan dialog mereka. Secara teoritis, pendekatan ini memiliki kelebihan, tetapi masih kurang studi empiris mengenai strategi konstruktivis yang diterapkan dalam pembelajaran mendalam dalam praktik guru. Studi ini merupakan studi fenomenologis kualitatif yang meneliti bagaimana 12 guru di kelas pendidikan menengah dan tinggi menerapkan teori konstruktivis dalam praktik. Metodologi penelitian meliputi wawancara semi-terstruktur, observasi di kelas, dan analisis dokumen untuk mendapatkan wawasan tentang interpretasi guru, strategi pengajaran, dan kesulitan dalam menerapkan penelitian ini. Ditemukan bahwa implementasi konstruktivis yang bermakna membutuhkan pembelajaran berbasis inkuiri, pemecahan masalah kolaboratif, scaffolding, dan pembelajaran reflektif. Namun, masalah struktural seperti kelas yang besar, beban kurikulum yang berlebihan, dan masalah penilaian masih menjadi kendala serius bagi penerapan yang autentik. Temuan studi ini menyajikan bukti empiris tentang hubungan antara konstruktivisme dan pembelajaran mendalam serta implikasi berbasis bukti untuk pengembangan guru, reformasi kurikulum, dan kebijakan pendidikan.

Keywords: *Konstruktivisme; Pembelajaran Mendalam; Fenomenologi; Pengembangan Guru; Reformasi Kurikulum.*

Introduction

The world is driven by constant technological progress and is facing complex challenges in all domains. The need for education systems to promote critical

thinking, creativity, and adaptability has never been greater than it is now in an era of rapid technological advancement and complex problems facing the world. With its capacity for critical analysis, synthesis, knowledge across disciplines, and transfer to new contexts, deep learning is fast becoming a key goal of educational reform globally. Deep learning competencies are explicitly mentioned in international frameworks such as the OECD's Future of Education and Skills 2030 project and UNESCO's Sustainable Development Goal (SDG) 4. Deep learning competencies are also explicitly mentioned in international frameworks such as the OECD's Future of Education and Skills 2030 project and UNESCO's Sustainable Development Goal (SDG) 4. In various contexts, such as Finland's phenomenon-based learning projects, Singapore's Skills Future system and Merdeka Belajar in Indonesia, national education systems have started to reform the pedagogical practice that is content-driven and focused on memorization of information to be more meaningful and learner-centered.

Constructivist Teaching Theory has completely revolutionized the world of education in the past 30 years, shifting away from teacher-centered models of instruction to learner-centered models that focus on knowledge construction, cognitive development and the acquisition of metacognitive skills (Kieu Oanh & Hong Nhung, 2022). The epistemological change is in line with research findings that the best deep learning can be achieved by employing constructivist approaches in which learners are active constructors of their knowledge and not mere recipients of information (Silalahi et al., 2022).

Constructivism is derived from Piaget's (cognitive constructivism) and Vygotsky's (social constructivism) theories, and has stimulated an extensive curriculum reform movement in the world. The pedagogies of 'Learner-Centeredness', 'Reflection' and 'Collaborative Learning' are becoming integral components of quality education (Prakash Chand, 2023) in modern educational systems. The theoretical-practical aspect of constructivist pedagogy is a topic that has recently gained critical status for educational researchers and policy makers in order to understand how constructivist pedagogy is negotiated by practicing teachers.

As constructivism has been present in theory, empirical research shows that there is still a gap between constructivist theory and practice in classrooms. The lack of adequate professional development opportunities, structural barriers, and difficulties in measuring students' learning depth can pose significant challenges for teachers to successfully implement it (Dr. Nosheen Malik et al., 2025). The theory-practice is more salient in settings where there are high stakes exams, limited resources, and stringent curriculum requirements.

The literature on the subject reveals that several components of the study are limitation which need to be taken into empirical consideration. Current literature

often is still very theoretical and lacks in contextually relevant teacher experiences. Although there are not as many qualitative studies about the lived experiences of teachers who employ constructivist pedagogy, deeper studies of the mechanisms of how constructivist practices may relate to a deeper sense of learning are needed.

The first research question that comes out of this study is: What are the understandings of teachers on "Constructivist Teaching Theory" in their teaching context? (2) What strategies do the teachers use to help implement the constructivist principles? (3) What are the contextual issues when applied to constructivist pedagogy?

This research offers important, data-based, and theoretically grounded answers to the above questions, as well as the experiences of practicing teachers. The study highlights the translation of theory into practice in phenomenological study through thick, contextualized descriptions and accounts of inquiry and illuminates the possibility for addressing the systemic barriers by engaging in specific policy action.

Research Methods

This The research method used in this study was qualitative research with a phenomenological approach that explored the lived experiences of the teachers who used constructivist pedagogy. Phenomenology was selected because of its emphasis on the subjective meanings and the nature of phenomena as experienced first-hand (Galvez et al., 2023). It is a descriptive method, not extensive, in the sense of trying to provide deep descriptions, which reveal the basic forms of experience without displacing the already-held beliefs(S. Hall & Liebenberg, 2024). The study was based on interpretive phenomenological analysis, which recognizes the interpretive nature of the researcher and is still rigorous in the process of meaning making of the participants.

The use of purposive sampling was done to get information rich cases. The eligibility criteria were: at least five years of teaching experience; evidence of learning about learner-centered pedagogy; belief in constructivist pedagogy, as reported by self; and work in secondary/higher education. The number of teachers involved was 12 (7 and 5 respectively from secondary schools and higher education). The participants had an experience of 5-20 years (M = 11.3, SD = 4.8) and taught different subjects such as science, mathematics, humanities, and languages (Yang et al., 2025). This number of samples conforms to the phenomenological traditions of research that focuses on depth by collecting intensive data. The gender, institution type and subject specialization were sought to create a level of demographic diversity. The purpose of the research, procedures and precautions for ethical issues were adequately explained and informed consent was sought.

Four mutually complementary methods were used to gather data. The primary source was semi-structured interviews (60-90 minutes) which were followed by a protocol that was designed and developed from the literature, but was flexible to allow for the emergence of themes. Questions were open-ended and explored knowledge regarding constructivism, teaching methods, experiences, outcome, and challenges; probing was used to elicit specific examples and introspection was used to prompt interpretations. All interviews were taped and transcribed word for word.

Overall, 18 classroom observations were conducted (60-90 minutes each) and were non-participant observations focused on instructional approaches, interaction, engagement patterns, and constructivist principles as they emerged in the classroom. Context, arrangements, materials and researcher reflections have been noted in field notes to support the findings, and to explore implicit dimensions of practice.

Interview and observation data were supplemented by document analysis of lesson plans, curriculum guides, assignments, reflective journals and assessments to provide a context for the expectations and restrictions of the institutions regarding pedagogical choices and decision-making.

Thematic analysis was applied to the data, which were analyzed by repeatedly immersing oneself in the data, followed by initial coding of all data, including semantic and latent meanings, sorting into possible themes, repeating the cycle of the above steps, describing themes in detail, and finally reporting the results of the analysis (Ahmed et al., 2025). Support for coding was provided with NVivo 12. The researcher kept a reflective journal of interpretive decisions and reflections.

A range of measures implemented to ensure rigor and credibility (J. Hall et al., 2021). Data sources were triangulated and member checking with participants and peer debriefing enhanced credibility. To accommodate transferability, thick, contested description and documentation of participants was done. Systems of coding and audit trails were used to ensure reliability. Reflexivity journals, bracketing exercises and paying attention to disconfirming evidence helped to achieve confirmability.

An IRB approval was granted. The informed consent was done on the premise of voluntary participation, right to withdraw and confidentiality. The anonymity was ensured by using pseudonyms and anonymized data. Data kept securely, and with restricted access. Findings summaries and feedback opportunities were provided to participants.

Results and discussion

The four overall themes that emerged from the thematic analysis were (1) Conceptualizations of Constructivism, (2) Instructional Strategies for Deep

Learning, (3) Teacher-Learner Interaction Dynamics and (4) Contextual Constraints. The themes are the most basic experiential forms by which participants were making sense of their constructivist practice.

Conceptualizations of Constructivism

The participants' level of knowledge demonstrated high and complex levels in support of the concept of learner agency, active knowledge construction and facilitative teaching. They expressed unwaveringly their beliefs on placing students at the centre of learning, rejecting a transmission model of learning and opting for learning that recognizes previous knowledge and cognitive agency.

One secondary science teacher (T1) expressed this understanding in a very explicit way:

To me, constructivism means accepting students' prior knowledge and experiences and their partial understandings, and helping them to build on these. It is my role to help them rebuild their thinking, and the knowledge they construct is the knowledge that they actually own.

This view was not just a theoretical abstraction, but was based on the actual experiences in the classroom. This teacher's epistemological approach was internalized, and thus influenced all aspects of the teaching process, including the formation of questions and the type of assessment used.

Constructivism was always linked with different approaches that included inquiry-based approaches and student as investigator. One humanities teacher (T5) explained:

Through struggle with ideas real understanding develops; I offer primary sources, conflicting accounts, open-ended problems, and I help students make their interpretations. Discovery process is as important as the interpretation itself.

The accounts were corroborated by evidence from observation data that showed sustained inquiry projects, collaborative research, and evidence-based argumentation were being carried out.

The issue of reflection and metacognition became a key element of constructivist teaching. Learning journals, self-assessment techniques and reflective oral activity were reported as ways to promote student self-monitoring of comprehension. A maths teacher (T3) said:

Learning is consolidated during reflection and students need opportunities to review their thinking, to be aware of what they know, what they don't understand and how they are learning.

By the end of this chapter students should be able to:At the end of this chapter students will be able to:

Real world problems were used to anchor learning, were complex and had no right or wrong answers and were problems that could be investigated over time. A teacher of the social studies (T2) said:

"I organize units around powerful questions, such as 'How do we as a community provide solutions to environmental justice?' Research is undertaken by students over a number of weeks and they look into different perspectives and put together arguments based on evidence.

Sustained inquiry, collaborative problem solving and concrete products that provide evidence of conceptual understanding were confirmed with observations.

All the participants mentioned the importance of collaborative learning for the construction of knowledge. Group activities included well directed assignments (with roles specified), individual accountability and shared responsibility. A science teacher in a higher education institution (HEI) said:

Knowledge is socially constructed; I plan activities that require students to share ideas, negotiate meaning and co-construct understanding; just sitting in groups is not enough for activity to require students to collaborate.

The activities observed were think-pair-share, jigsaw, peer teaching and collaborative research teams.

It was found that the participants showed a high level of understanding of scaffolding as temporary support that can be used to achieve goals that are not feasible without this support. They shared with us the details of interrogative, graphic organizers, modeling, and gradual release of responsibility. A language teacher (T4) said:

"Scaffolding falls in between confusion and understanding; at the beginning I give a lot of support, like modelling my thinking, giving sentence stems, breaking down things into steps, and I slowly remove the support as students become competent"

Observations noted dynamic scaffolding to meet student needs, and teachers were responsive to formative assessment data by changing scaffolding as needed.

Learning journals, exit tickets, rubrics for self-assessment and reflective discussions were used to encourage metacognitive awareness. One of the instructors of a higher education institute (T9) said:

Reflective journals are maintained by students to record their learning process, their confusion and their conceptual growth, and serve as artifacts of their growth and self-regulation.

Teacher-Learner Interaction Dynamics

All students used open-ended probing questions that encouraged students to think more deeply and/or think outside the box instead of giving the answers given to them. They viewed questioning as diagnostic and facilitative, revealing student thinking, and offering sequences of scaffolding. A teacher (T6) said:

Ask questions which require analysis, evaluation and justification. Students answer and I ask: 'Why do you think that?', 'What is the evidence for your opinion?'. 'How does this relate to their previous learning?

Observations revealed that there was dialogic interaction in which teachers provided scaffolding, identified misconceptions and prompted metacognitive reflection.

Teachers were up to date on peer interaction, and structuring peer dialogue is an active process to create cognitive conflict needed for conceptual change. These activities ranged from structured academic debates, to peer feedback processes and shared sense making activities. One teacher (T8) commented that:

The most effective learning is achieved as students engage in respectful dialogue and explain, challenge, and refine ideas with peers in environments that foster norms that support respectful dialogue and tasks that demand genuine collaboration.

The teacher needs to be mindful of the context in which the story is told and of the challenges for the audience.

A number of participants reported problems in regards to collaborative individualized teaching in crowded classrooms. Teacher T1 explained:

Fifth, in a classroom setting with fifty students, giving feedback to each person one-on-one, facilitating small group discussions, and supervising large group projects becomes very challenging, because of the lack of our infrastructure to make this possible.

Often the issues raised by participants were how to get through curriculum content and pacing. They summarized conditions of compulsory cover which would not allow the sustained investigation of the material. Teacher T3 complained:

Since there are so many topics in the curriculum, and they are only allotted a small amount of time, with the few topics I'd like to look at in depth, I must go the route of direct instruction and surface coverage instead of deepening content and spending more time on a smaller number of topics, but the system requires me to cover all the topics.

One of the more common referenced problems was that constructivist teaching was incompatible with the high-stakes assessment frameworks. Pressure on teaching for examinations as opposed to concepts was mentioned by participants. One of the higher education teachers (T5) commented:

I find that there is a lot of anxiety from students when they focus on deep learning and transfer because that is what is rewarded in the system - tips for the exam and predictable questions.

Participants reported that they had been trained in constructivism but reported that there was insufficient support on-going to deal with implementation issues. Teacher T10 stated:

I came across constructivism in my teacher education course many years ago, but need ongoing support – I need to see good practice, have opportunities to work

with others and brainstorm challenges with using it. One-time workshops will not be enough.

The results shed light on the pedagogical-experiential dynamism in constructivist implementation, the "dialectic of pedagogical idealism and institutional realism. Through the use of participants' accounts, not only is there an indication of what participants do, but what they experience as they engage in the act of teaching within the constraining structures. The essence of constructivist practice in modern education is emotional, filled with frustration, determination, ambivalence and hope, which are described by them.

Teachers' conceptions of constructivism are not theoretical out-loud definitions of constructivism, but rather experiential or embodied knowledge developed over years of negotiating constructivism in the classroom. The teaching metaphor used by the secondary science teacher, “rebuilding their own thinking,” reflects the work that is constantly being taken apart and put back together when teaching as it involves students constantly tearing down and rebuilding their thinking as needed. It's lived experience, it's not abstract strategy.

The affective aspect of constructivist practice is evident in the emphasis of humanities teacher on "struggle with ideas". When teachers move away from control, they feel vulnerable to the open-ended nature of inquiry and happy when students discover something for themselves. It is these emotional textures that make up the phenomenological reality which policy documents and training manuals cannot get a handle on.

A reflection by the mathematics teacher to the students' learning and its "solidification" by means of metacognition implies a temporality in teachers' experience. They see learning as a process, rather than a product, and watch as the learning process unfolds over time, with recursive reflection. They have a sense of time which influences their pedagogical patience and the ability to withstand pressures for quick and measurable results.

The outcomes are illustrative of the highly social aspects of learning in constructivist approaches. Collaborative assignments are in line with Vygotsky's social constructivism, as are group discussion and mediated communication (Edwards, 2009). The concept of Zone of Proximal Development, operationalized by scaffolding came out as an important factor in attaining complex cognitive tasks. Successful implementation was found to be key to the quality of teacher-learner interaction, and dialogic questioning, sustained intellectual community, were seen as ways in which knowledge was co-constructed.

But it is not a natural phenomenon, as participants' experiences show, it must be done on purpose, in the form of architectural activity. Teachers talked about the work involved in creating tasks that require true collaboration, setting up norms for

interactions, and observing interactions. This is an invisible labor that is another important area of constructivist practice, but one that is not recognized.

Systematic factors greatly hindered implementation fidelity. The large classes made personalized teaching difficult and dealing with the delicate classroom management that is needed for the achievement of authentic constructivist learning harder(Yigit et al., 2017). Curriculum overload resulted in a conflict between width and depth, leaving teachers to seek to cover the required curriculum which resulted in an inability to do constructivist explorations. High-stakes testing focused on memorizing over applying content had the greatest impact on teaching, as it was more likely to limit than statements of curriculum (Polesel et al., 2014). Professional development was a constraint and teachers were unable to overcome challenges and improve practice.

They were not some policy questions, but commonplace daily realities. They were experienced by teachers as physical fatigue in dealing with 50 students, as moral distress in regard to giving up pedagogical ideals, and as lack of collegial support. The phenomenological approach uncovers the fact that structuring is neither an external constraint nor a straightforward one but rather an internal constraint and becomes a professional identity tension.

Sustained development is needed by teachers, not just on theoretical matters but on issues about the implementation of the new curriculum. These include practical workshops that showcase how to apply the method in their respective context, or learning communities where peers can share practices, mentorship where there is personalized support and assessment literacy where the process of formative and reflective practice can be aligned (Gikandi et al., 2011). Development should have to be continuous and on-going support for pedagogical change must be provided, not just one-off training sessions.

There is a need for a re-thinking of curriculum balance between breadth and depth, allowing for exploration of deep learning approaches. It recommends that core concepts and transferable skills be taught and that outcomes be explicitly stated as constructivist, rather than covering the full range, and provides flexibility with frameworks to enable teachers to adapt, and that there is coherence between curriculum, teaching and assessment.

Policymakers need to address the structural impediments through class size reduction, so as to be able to offer personalized attention; reform the assessment system, moving from high-stakes exams to performance-based assessment and portfolios linked to deep learning; resource distribution, guaranteeing necessary materials and facilities; develop accountability systems to reward deep learning rather than narrow indicators; and establish continuous professional development policies.

Pre-service programs need to incorporate constructivist strategies in course content and practicum, demonstrate constructivism in university courses, provide extended practicum experiences in effective implementation sites, incorporate reflective practice components, and examine issues of implementation to practicum such as classroom management and navigating systemically.

Conclusion

Contains This qualitative phenomenological research sheds light on the important but complex impact of CFT on deep learning. Teachers who are successful in implementing the constructivist approach show a depth of theory knowledge and use a variety of strategies (inquiry, collaboration, scaffolding, reflection) and establish learning environments that are engaging, critical thinking, and metacognitive.

However, structural limitations are significant in limiting implementation authenticity – large classes, curriculum overload, misalignment of assessment, and professional development limitations. Systematic institutional and policy reforms are necessary if constructivist pedagogy is to have the impact of transformation, as is individual teacher commitment.

Constructivist Teaching Theory offers a practical, research-based framework for rich and meaningful learning needed to meet the demands of the twenty-first century. To make this potential a reality, alignment of pedagogical theory, curriculum, assessment frameworks, and policy needs to be developed. Teacher education needs to be able to equip teachers for the challenges of implementation; curriculum developers need to focus on depth; and policymakers need to take steps to facilitate change that will support learner-centered teaching.

The concept of researcher reflexivity and the phenomenological essence is explored.

I recognize myself as the researcher who has already a theoretical background in constructivist approach as an educator. This orientation provided opportunities and challenges to data collection and data analysis. I brought a lot of constructivist literature with me as I participated in the interviews, which helped me to ask probing questions; however, I needed to continuously bracket myself in order to not impose my theory on a participant's reality.

One of the phenomenological meanings that rises from this study is the tension between the aspiration of pedagogy and the constraint of structure, an experiential tension. This dual consciousness of the "ideal" teacher one would like to be and the "real" teacher that institutional conditions allow in all participant accounts was consistent. This existential gap (as a sense of frustration, compromise and continual hope) is the experiential basis of constructivist teaching in modern education.

Reflexivity during the research process highlighted how my own experiences with teaching are intertwined with the participants' experiences, providing moments of intersubjective understanding and the need for careful attention to the risk of becoming too absorbed in the participants' experiences. Member checking and peer de-briefing, as well as the interpretive account's grounding in the participants' voices, were used as important safety measures, to prevent the interpretive account from becoming abstracted from the participants' voices.

The core of this phenomenon implies that constructivist teaching is not only a method, but an "attitude towards the student" or a way of being with the student that cannot be reduced to a method or technique. The teachers' descriptions of "struggle", "rebuilding", and "solid understanding" outline the ontological nature of pedagogy as a way of human relation and not content delivery. This phenomenological understanding has profound implications for thinking about teacher development, and extends far beyond simply acquiring skills to enable reflective practitioners to cope with the inevitable tensions between ideal and real.

Suggestion

12 participants were selected for a purposive sample, making it difficult to generalize. Patterns may not be observed over the short term. The presence of the researcher may have affected behaviour (Hawthorne effect). Interview data may be idealized self-images. The learning context may be specific to the systems that are moving towards a learner-centered pedagogy.

Future directions for research involve: longitudinal, monitoring implementation over time; cross-country, examining the role of implementation in the policy environment; learner perspective, studies on learner experiences; technology mediated constructivism research; and assessment innovation research, which focuses on portfolios and performance tasks.

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