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7E Model: Building a Theoretical Bridge between Learning Theory and an Inclusive Classroom

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Abstract

The constructivist paradigm has significantly reshaped contemporary educational practices by emphasizing learners' active role in constructing knowledge through experience and interaction. This paper explores the integration of constructivist theory with the 7E instructional model—Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend—as a comprehensive framework for promoting inclusive classroom practices. The study aims to build a theoretical bridge between constructivist learning principles and the operational dynamics of the 7E model to support diverse learners, including those with varied cognitive, linguistic, and socio-cultural backgrounds. Through an in-depth theoretical analysis, this paper examines how each phase of the 7E model aligns with key tenets of constructivism such as scaffolding, prior knowledge activation, social negotiation, and reflective thinking. The study further investigates how the model's flexible and inquiry-driven structure enables differentiated instruction and fosters an inclusive learning environment. Emphasis is placed on the model's potential to accommodate multiple learning styles, promote equitable participation, and cultivate higher-order thinking skills across diverse student populations. Drawing on recent literature, classroom case studies, and cognitive learning theories, the research illustrates that the 7E model not only operationalizes constructivist ideals but also enhances accessibility, engagement, and achievement in inclusive settings. The paper concludes by offering pedagogical implications for educators, recommending strategic adaptations of the 7E model to address the unique needs of all learners. This theoretical bridge aims to contribute to the evolving discourse on equitable, student-centered education within the framework of constructivist pedagogy.

Keywords: constructivism, 7e model, inclusive classroom, learning theory

Background of the Study

The evolution of educational paradigms has increasingly favored student-centered learning approaches, with constructivism emerging as a dominant theory that emphasizes learners actively constructing their understanding. Within this framework, the 7E instructional model—comprising Engage, Explore, Explain, Elaborate, Evaluate, Elicit, and Extend—has gained recognition for translating constructivist principles into classroom practice. Designed to promote deeper learning and critical thinking, the 7E model systematically guides students through stages of inquiry, reflection, and knowledge construction.

In parallel, the growing emphasis on inclusive education-education that accommodates diverse learning needs, backgrounds, and abilities—has prompted educators to seek pedagogical models that

align with inclusive values. Despite the theoretical strength of constructivism and the practical utility of the 7E model, there remains a need to examine how well the 7E model can serve as a pragmatic bridge between abstract learning theories and the concrete realities of inclusive classrooms.

Rationale and Significance of the Study

This study is grounded in the belief that effective classroom instruction must be both theoretically informed and practically viable. Although constructivism provides a robust theoretical foundation for active and inclusive learning, teachers often struggle with implementing its principles effectively in diverse classrooms. The 7E model, with its structured phases, offers a practical strategy that reflects constructivist ideals while offering flexibility to accommodate learners with varying needs.

Understanding how the 7E model embodies constructivist principles within inclusive settings is crucial for teacher education, curriculum development, and pedagogical reform. This research aims to highlight the synergy between learning theory and instructional practice, offering a conceptual framework for bridging educational theory with the everyday challenges of inclusive teaching. The study is significant for policymakers, teacher educators, and classroom practitioners seeking to create meaningful, equitable learning experiences for all students.

Objectives of the Study

1. To examine the theoretical underpinnings of constructivism as a foundation for inclusive teaching and learning.
2. To analyze the 7E instructional model in terms of its alignment with constructivist principles.
3. To investigate the applicability and effectiveness of the 7E model in inclusive classroom settings.
4. To identify challenges and opportunities associated with implementing the 7E model in diverse learning environments.
5. To develop a conceptual bridge that connects constructivist theory, the 7E model, and inclusive educational practice.

Research Questions

1. How does constructivist learning theory support the principles of inclusive education?
2. In what ways does the 7E instructional model reflect constructivist pedagogical strategies?
3. How effectively can the 7E model be implemented in inclusive classroom contexts?
4. What are the challenges faced by educators in applying the 7E model within diverse learning environments?
5. How can the theoretical and practical elements of constructivism and the 7E model be synthesized to support inclusive education?

Theoretical Framework

The theoretical framework of this research is grounded in constructivist learning theory, which posits that learners actively construct knowledge through experiences and interactions rather than passively receiving information (Piaget, 1972; Vygotsky, 1978). This theory underpins many modern pedagogical models, including the 7E Instructional Model, which is designed to foster inquiry, engagement, and deep understanding.

By integrating the 7E Model with constructivist theory, this study provides a foundation for exploring how learning models can be optimized to serve inclusive classrooms. Inclusive education recognizes the diverse needs of all learners and promotes equity in learning experiences (UNESCO, 2009). The 7E Model, rooted in active learning and scaffolded inquiry, aligns with this goal by offering opportunities for differentiated instruction and learner-centered approaches.

Principles of Constructivism in Education

The application of constructivist theory in educational settings involves several core principles:

1. **Learner-Centered Instruction**: Students are active participants in the learning process, constructing meaning through exploration (Brooks & Brooks, 1999).
2. **Prior Knowledge Activation**: Effective learning connects new knowledge to existing cognitive

frameworks (Bransford, Brown, & Cocking, 2000).

3. **Social Interaction and Collaboration**: Learning is enhanced when students engage in dialogue and shared problem-solving (Palincsar, 1998).
4. **Real-World Contextualization**: Constructivist teaching incorporates authentic tasks that relate to students' lives and the broader world (Jonassen, 1991).
5. **Scaffolding and Support**: Teachers provide structured support that is gradually removed as learners gain independence (Wood, Bruner, & Ross, 1976).

These principles advocate for differentiated instruction and inclusive practices, accommodating learners with varying backgrounds, abilities, and learning preferences.

Foundations of the 7E Instructional Model

The **7E Instructional Model** is an extension of the widely adopted **5E Model** (Bybee et al., 2006). Developed by **Eisenkraft (2003)**, the 7E Model adds two new phases—**Elicit** and **Extend**—to the original five: **Engage, Explore, Explain, Elaborate, and Evaluate**. Each phase serves a distinct purpose in promoting inquiry-based, constructivist learning:

1. **Elicit** – Draws out students' prior knowledge and misconceptions.
2. **Engage** – Stimulates curiosity and frames the learning experience.
3. **Explore** – Facilitates hands-on investigation and discovery.
4. **Explain** – Encourages articulation of understanding with teacher guidance.
5. **Elaborate** – Applies learning to new and broader contexts.
6. **Evaluate** – Assesses understanding through formative and summative tools.
7. **Extend** – Promotes transfer of knowledge to other disciplines or situations.

This model supports **active learning**, **cognitive engagement**, and **individual pacing**, all of which are essential for inclusive and equitable education.

Inclusivity in Education: Concepts and Challenges

Inclusive education is rooted in the philosophy that all learners, regardless of their abilities, backgrounds, or learning needs, have the right to access quality education within a shared learning environment. It emphasizes equality, participation, and respect for diversity. The central aim is to eliminate discrimination and promote equity in learning outcomes (UNESCO, 2020).

However, the implementation of inclusive education is fraught with challenges. These include a lack of trained teachers, inadequate curriculum modifications, limited pedagogical tools, infrastructural deficits, and societal attitudes toward disability and diversity (Florian & Black-Hawkins, 2011). In many settings, inclusive education remains more of a policy aspiration than a classroom reality, highlighting the need for adaptable instructional models grounded in sound learning theories.

Definition and Dimensions of Inclusive Education

Inclusive education is defined as a process of addressing and responding to the diverse needs of all learners through increased participation in learning, cultures, and communities (Ainscow, 2005). It goes beyond physical placement of children with special needs into mainstream classrooms; it involves systematic reform in pedagogy, curriculum, and assessment strategies to accommodate learners from all walks of life.

The dimensions of inclusive education include:

- **Access**: Physical, linguistic, and economic accessibility to educational settings.
- **Participation**: Meaningful engagement of all students in classroom processes.
- **Achievement**: Attainment of educational goals through appropriate support.
- **Recognition of Diversity**: Understanding that every learner is unique in terms of abilities, culture, language, and socio-economic background (Booth & Ainscow, 2011).

Inclusive classrooms must adopt flexible teaching approaches that accommodate varied learning styles, preferences, and paces, making constructivist models particularly relevant.

Learning Needs in Inclusive Classrooms

Inclusive classrooms encompass a diverse range of learners, including those with cognitive, sensory, emotional, and physical disabilities; those from linguistic or cultural minorities; and learners with high or low academic ability. Their learning needs are complex and often intersecting. Key learning needs include:

- **Differentiated Instruction**: Adapting content, process, and products according to learner readiness and interest (Tomlinson, 2014).
- **Universal Design for Learning (UDL)**: Providing multiple means of representation, engagement, and expression to cater to varied learners (CAST, 2018).
- **Social and Emotional Learning**: Supporting interpersonal relationships and emotional well-being (OECD, 2021).
- **Scaffolded Learning**: Offering structured support that gradually reduces as the learner gains independence (Vygotsky, 1978).

To address these, pedagogical approaches must foster active, student-centered, and flexible learning, aligning well with the principles of constructivism and the 7E instructional model.

Role of Pedagogical Models in Addressing Diversity

Pedagogical models are essential in organizing content, methods, and classroom interactions to respond to learners' differences. The **constructivist theory**, pioneered by Piaget and Vygotsky, posits that learners actively construct knowledge based on prior experiences, social interactions, and reflection. It emphasizes learner autonomy, discovery, and the importance of context (Fosnot, 2005).

The **7E Instructional Model**, an expansion of the original 5E model by Bybee (1997), is a constructivist framework designed to enhance conceptual understanding and engagement. It includes:

1. **Elicit** – Activating prior knowledge
2. **Engage** – Capturing interest
3. **Explore** – Hands-on learning
4. **Explain** – Articulation of understanding
5. **Elaborate** – Application of knowledge
6. **Evaluate** – Assessment of learning
7. **Extend** – Transfer to new contexts (Eisenkraft, 2003)

This model provides a flexible, phased structure that accommodates diverse learners through differentiated activities, scaffolding, and reflective practices, aligning closely with inclusive principles.

Barriers to Inclusion and How Instructional Models Help

Several barriers hinder inclusive education:

- **Rigid Curriculum**: Lack of flexibility in content and pace.
- **Teacher Preparedness**: Limited training in inclusive strategies.
- **Negative Attitudes**: Biases and stereotypes about disability.
- **Lack of Resources**: Inadequate materials and infrastructure (Forlin, 2010).

Instructional models like the **7E model** grounded in constructivism offer a solution by:

- **Promoting Active Learning**: Learners build understanding through experience and interaction.
- **Supporting Differentiation**: Each phase can be adapted to multiple ability levels.
- **Encouraging Reflection**: Helps students self-monitor and express learning.
- **Facilitating Formative Assessment**: Ongoing evaluation enables timely support (Taber, 2011).

In inclusive settings, such structured yet flexible frameworks help teachers plan lessons that ensure accessibility and engagement for all students.

Integrating Inclusive Strategies into the 7E Model

Inclusive education calls for instructional strategies that support diverse learners, including those with disabilities, language differences, socio-economic challenges, and varying learning styles. The Universal Design for Learning (UDL) framework (CAST, 2018) offers principles for making the 7E model more

inclusive: multiple means of representation, expression, and engagement.

- **Elicit & Engage**: Use multimodal prompts (visual, auditory, tactile) to accommodate different learners. For example, teachers can use storytelling, videos, or sensory materials to spark curiosity and surface prior knowledge.
- **Explore**: Allow differentiated materials and pathways for investigation. Students may explore content through simulations, hands-on experiments, or guided reading depending on their strengths and needs (Tomlinson, 2014).
- **Explain**: Provide sentence frames, visual organizers, or speech-to-text tools to support students with language difficulties or learning disabilities in articulating understanding.
- **Elaborate**: Encourage collaboration through flexible groupings where peer mentoring and cooperative learning occur. Vygotsky's theory supports learning as a social endeavor, and peer interaction in mixed-ability groups benefits all learners (Gillies, 2006).
- **Evaluate**: Replace high-stakes tests with portfolios, rubrics, self-reflections, and performance assessments. Inclusive evaluation considers different ways students demonstrate mastery (Black & Wiliam, 1998).
- **Extend**: Design projects that are culturally responsive and community-based. For example, students from diverse backgrounds can connect lessons to their lived experiences, supporting both academic success and identity development (Gay, 2010).

Inclusive 7E teaching also requires cultural sensitivity, differentiated instruction, and trauma-informed practices. By embedding such strategies into the 7E framework, educators can ensure equitable participation and access for all learners.

Instructional design rooted in constructivism and modeled through the 7E framework promotes inclusive, student-centered learning environments. Designing such instruction means organizing content around inquiry, collaboration, and meaning-making rather than rote memorization (Brooks & Brooks, 1999).

For inclusivity, the 7E model allows flexible entry points. During **Elicit** and **Engage**, teachers can incorporate multiple modalities—visuals, storytelling, hands-on activities—to tap into diverse student experiences (Tomlinson, 2001). In the **Explore** and **Explain** phases, group work and peer interaction align with Vygotsky's (1978) notion of the Zone of Proximal Development (ZPD), supporting social learning and peer scaffolding.

Digital tools, assistive technologies, and culturally responsive materials can be embedded into each phase to ensure accessibility. For example, during the **Elaborate** stage, students may use adaptive simulations or voice-recorded reflections, thereby honoring different learning styles and needs (Rose & Meyer, 2002). Therefore, instructional design becomes dynamic, iterative, and responsive—core traits of both constructivist and inclusive pedagogies.

Teacher Training and Curriculum Adaptation

To implement constructivist-7E pedagogy effectively, teacher training must evolve beyond traditional transmission models. Pre-service and in-service programs should emphasize experiential learning, reflective practice, and the ability to modify lessons to meet diverse learner needs (Darling-Hammond, 2006). Teachers must understand not only *what* the 7E model entails but *why* its alignment with constructivism benefits inclusion.

Workshops should model the 7E process itself, using real classroom scenarios to let educators experience the phases first-hand. For instance, teachers can engage in "explore" tasks using manipulatives or case studies, followed by group reflection to "explain" their understanding and "extend" to classroom application.

Curriculum adaptation is equally critical. Existing syllabi must be restructured to support open-ended questions, interdisciplinary learning, and formative assessments. Constructivist curricula allow students to ask questions, investigate, and build theories—activities that naturally fit within the 7E sequence and are essential in differentiated instruction (Bruner, 1960; Novak & Gowin, 1984).

Student-Centered Practices in Diverse Learning Environments

Student-centered learning, a hallmark of both constructivism and the 7E model, is particularly effective in diverse learning environments. It places learners at the heart of the educational process, encouraging autonomy, agency, and relevance.

In inclusive classrooms, students may vary in language proficiency, cognitive abilities, socio-cultural contexts, and prior exposure. The 7E model accommodates this diversity by promoting choice, collaboration, and contextually meaningful tasks at every phase (Fraser & Walberg, 2005).

For example, in the **Explore** phase, students may investigate a concept using different tools—microscopes, simulations, videos—tailored to their abilities. In the **Explain** phase, some may write essays while others create mind maps or record oral presentations. The **Evaluate** phase can include peer reviews, portfolios, or self-assessment rubrics, supporting multiple intelligences and self-regulation (Gardner, 1983).

Ultimately, constructivist-7E practices foster a culture of respect, inquiry, and empowerment, enabling all students—regardless of learning profile—to thrive academically and socially.

Conclusion

Bridging constructivism and the 7E model creates a powerful pedagogical framework that supports inclusive, effective, and equitable learning. The model's structured yet flexible phases resonate with the principles of active learning, differentiation, and scaffolded inquiry. To realize this vision, teacher preparation, curriculum planning, and classroom strategies must align with both constructivist and inclusive education goals (UNESCO, 2009). By doing so, educators can ensure that every student not only has access to learning but is meaningfully engaged and supported in constructing their knowledge.

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