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BEHAVIORISTS, COGNITIVISTS, AND CONSTRUCTIVISTS LEARNING THEORIES: A COMPARISON AND APPLICATION IN INSTRUCTIONAL DESIGN

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Abstract:
To design a particular course for adults, instructional designers must apply one or more learning theories to achieve an effective learning outcome. They should have a deep understanding and vast knowledge of the learning theories and their applications. The purpose of this study is to examine the three fundamental learning theories: behaviorists, cognitivists, and constructivists. Furthermore, it aims to compare the learning theories and explore their application in instructional design. This study applied a comparative analytical approach by reviewing the relevant literature. Peer-reviewed journal articles have been synthesized to gather the data. This study explored the effectiveness of behaviorists, cognitivists, and constructivists' learning theories in instructional design. This found that a behavioral approach focuses on the observable behavior of learners; it can be used in directions and shaping desired behaviors. Cognitive strategies help teachers with problem-solving as they focus on the mental process, and constructivism is about constructing one's knowledge from self-directed learning. The appropriateness of applying the theories will depend on the knowledge level and needs of the learner. A blended approach of two or more learning theories can be applied to design an efficient course if needed.

Keywords: behaviorists, cognitivists, constructivists, instructional design, learning outcomes.

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1. Introduction

Learning theories are significant as they provide a structured framework to fulfill the needs of the learners and create a learning-oriented environment. They bridge the gap between the classroom and the field, integrating the competences, and provide a foundation for understanding the learning process (Boitel & Fromm, 2014). Learning theories enable educators to support learners to achieve desired outcomes, mitigating the difficulties and mistakes associated with learning (Nurhuda *et al.*, 2023). It will be helpful for students if the educators and curriculum designers carefully define learning objectives and align them with the activities in which they are participating; involving students in defining learning goals is also appreciated (Helle *et al.*, 2006). Moreover, instructional designers must integrate the elements of instructional goals, ways of achieving the goal, and instructional assessments to accelerate learning (Rasouli *et al.*, 2025). Educators use various tactics and learning theories to construct a practical course for learners. Behaviorists, cognitivists, and constructivists are the three major learning theories for instructional design. Each of the theories has unique features and purposes. Instructional designers should utilize those theories critically according to the demands of the learners. Behaviorism theory is about behavior that can be observed and learned from external factors. Cognitivism is focused on the mental processes of learning, and constructivism describes gathering knowledge through experience. This paper explores the central theme of three fundamental learning theories, with their similarities and dissimilarities. It will also elaborate on applying behaviorism, cognitivism, and constructivism theories in instructional design.

1.1 Background of the Study

Learners need a favorable environment to gather knowledge. Adult learners seek the knowledge that they need. If the strategies are inappropriate, they will not provide effective results. The instructors should also design their courses to fulfill their students' expectations. A learner-centered environment is important; the demands and expectations of humans should be addressed (Brown & Green, 2019). It is necessary to briefly know the learning theories for learners and course designers. Teachers' instruction, an external psychological element, impacts students' learning (Shen & Zhao, 2022). Instructional designers need to have detailed knowledge about learning theories to design their course, assessing the needs and backgrounds of the learners. Analysis, selection, decision making, and evaluation are major instructional design problems (Mao & Zhang, 2020). Week instructional design that lacks utilizing learning theories is a barrier to providing successful training (Wilkins, 2011). The learning outcome would increase if they could make practical lessons, evaluate methods, and provide feedback. Moreover, knowledge about learning theories will help students understand the process they are going through and why this is important for them. It will motivate students to be more involved and engaged with their education. Prior research has discussed learning theories, but there is a gap in the study that compares the learning theories in

instructional design. This gap motivates this research to compare the learning theories and explore their characteristics.

1.3 Objectives of the Study

This study attempts to understand the core concepts of behaviorists, cognitivists, and constructivists' learning theory. This study will show how these learning theories are applied in instructional design. It will describe the key characteristics of each theory and evaluate their role in education. This paper will compare the approaches of behaviorists, cognitivists, and constructivists' learning theories. Moreover, it will provide some suggestions on how these theories can help instructional designers towards an effective course design.

2. Literature Review

The instructional design process has six steps: stating objectives, analyzing tasks, determining students' original level, designing curriculum teaching activities, teaching, and evaluation (Liu, 2021). Each step of this process can be effective and impactful while designing a curriculum for students if aligned with learning theories. According to Dilshad (2017), behaviorist theory is based on the behavior of learners, where behavior results from motivations that help them respond. If learners listen attentively and educators communicate clearly, they will learn. Understanding their behavior is necessary to analyze learners' actions. Sidney (2015) stated that students pick up knowledge through both positive and negative actions through the behaviorist perspective. The behaviorist educational philosophy is a conventional guided learning methodology, where extrinsic motivation is used to motivate students, and learning stimuli are offered. Nurfadillah (2024) mentioned that behaviorism derives from behavior, which refers to actions taken by living things, systems, or man-made entities connected to their surroundings. Behaviorist theory states that learning is the consequence of experience-driven behavioral changes. If a person can demonstrate behavioral changes, it is deemed that he has learned something. This theory states that intake in the form of stimulus and output in the form of reaction are crucial for learning. Demirezen (1988) recognized J.B. Watson as the founder of behaviorist theory, which is a psychological theory. Analyzing human behavior in observable stimulus-response interactions and the correlation between them forms the basis of behaviorist theory's main tenet. The behaviorist hypothesis essentially holds that all learning is the formation of habits brought about by reinforcement and reward. The learning process is primarily behavioristic verbal behavior, notwithstanding behaviorism's apparent flaws. Furthermore, it provides significant insight into understanding the application of controlled observation to determine the laws of behavior. Bacanlı (2016) described the classification of behaviorists. Radical behaviorists, as a class of behaviorists, believe that psychology should study only the observable behaviors and environmental processes. In contrast, methodological behaviorists think cognitive processes can be studied, but

behaviorist approaches should be used. There are other types, such as psychological behaviorism and analytical behaviorism. Psychological behaviorism shows external factors as the reason for the behavior, and analytical behaviorism claims that mental concepts can be described through behaviorism. McLeod (2003) found three assumptions of behaviorists: first, they focused on observable behavior, and a behavior change indicates learning. Second, the environment impacts learning. Third, reinforcement and contiguity are important for understanding the learning process.

According to Ertmer & Newby (2013), cognitivist theory draws from cognitive science learning theories and models, which allow critical thinking, problem-solving, and information processing. It emphasizes how the mind receives, organizes, stores, and retrieves information and knowledge acquisition, where learning is associated with distinct shifts between states of knowledge. Through cognitivism, learning is an internal, dynamic mental process that happens with the reorganization of experiences, where an existing knowledge structure must exist to process information flow (McLeod, 2003). Cognitivists accept behaviorist discoveries; the interpretation of learning is based on cognitive activities and processes that are present in learning events in addition to behaviorists' results (Çeliköz *et al.*, 2016). Malik (2021) mentioned that the basic assumption of cognitivism is how we learn and think, which emphasizes that human cognition is a social endowment for intellectual growth. That is why instructional designers should carefully examine the activities required to enable students to digest the information they are given effectively and efficiently. Muhajirah (2020) focused on experts' findings that a person's behavior depends on knowing or thinking about the situation in which the action occurs. Here comes cognitivism, which states that a person's actions rely more on understanding the relationships of present circumstances. Experts listed cognitive flow characteristics as boosting the human condition, increasing overall, increasing cognitive role, improving the present situation, enriching cognitive structure construction, creating balance in humans, and focusing on understanding.

Based on the cognitivist theory, constructivism theory is comparatively newer than behaviorism and cognitivism. According to Arab *et al.* (2015), constructivism describes active learning that adults accept, including self-directed learning, background attention, and practicing skills to acquire knowledge. Moreover, learning is supposed to occur through experimentation, focusing on concept formation, comprehension, and attention to experiments. Constructivists disagree with cognitivists' and behaviorists' idea that knowledge is mind-independent and may be "mapped" onto a learner, where learners create personal interpretations of the world based on their experiences and interactions (Ertmer & Newby, 2013). Efgivia *et al.* (2021) mentioned the principles of constructivist learning theory those are: students create their knowledge, they can only learn to reason by their actions, not from their teachers, student continuously constructs and update scientific notions, the teacher provides suggestions and scenarios to ensure the construction process proceeds smoothly, addressing student-specific concerns, learning is structured around the importance of a question, gather and evaluate student opinions, adapting the curriculum to student needs.

3. Method

This conceptual paper applies a comparative analytical approach to investigate the idea and application of three major learning theories: Behaviorists, Cognitivists, and Constructivists. It is a descriptive study. Secondary data has been collected to compare the theories and explore their application in instructional design. Data has been collected after reviewing the related literature. Peer-reviewed journal articles have been searched with the keywords 'learning theory', 'behaviorist theory', 'cognitivist theory', 'constructivist theory', 'constructivist theory', instructional design', and 'educator'. After analyzing the title and abstract, articles have been selected. Only fundamental research works gathered from reliable sources have been used for this study. Scholarly articles have been collected from Google Scholar, the USM library, and EBSCOhost. The literature review section is based on research findings on behaviorism, cognitivism, and constructivism theories. The analytical framework of this study is based on the theoretical assumptions and instructional implications. This framework allows for the comparison of the contributions of the theories to instructional design in an organized manner. Information collected from the articles is synthesized thematically to reach the study's objectives.

4. Discussion and Findings

After analyzing the relevant literature, this paper found that learning theories are significant in instructional design. This is similar to the research findings of Edinger (2020). He stated that integrating and evaluating relevant educational theories and instructional learning design elements is necessary. The learning design that uses instructional learning theory and practice enhances professional development outcomes (Edinger, 2020). Moreover, no single learning theory is appropriate for every situation; depending on the learner's knowledge level and demand, one or more strategies can be applied (Ertmer & Newby, 2013). The discussion and findings section of this study is separated into parts. The first part compares the three major learning theories, and the second part is based on applying these theories in instructional design.

4.1 Comparison of the Theories

McLeod (2003) states that behaviorism is important in instructional design in order to create instructional objectives. Extensive learner and instructional analyses combined with targeted instruction will produce the desired results. Cognitivism, like behaviorism, emphasizes how the environment affects learning (Ertmer & Newby, 2013). The behaviorist theory is the foundation for the cognitive approach, and the cognitive approach is the base for the constructivist method (Çeliköz *et al.*, 2016). Though their methods and presumptions vary, behaviorist, cognitivist, and constructivist learning theories aim to understand how people learn. Each of the three has contributed differently to instructional design approaches, acknowledging that learning entails a shift

in behavior or understanding. Observable behavior is behaviorism's focus, highlighting the importance of rewards and outside stimuli. Cognitivism turns the attention inward by emphasizing the mental processes that go into learning, such as memory, perception, and problem-solving. Conversely, constructivism demands that students actively create their understanding through social interactions, past knowledge, and experiences.

The three theories' perspectives on the learner and the learning process are where they diverge most. Reinforcement and repetition are key tactics for behaviorists, who see students as passive recipients who react to external stimuli. According to cognitivism, students are active information processors who need structure and relevant content to construct mental models. Constructivists take it further and see students as active participants who build knowledge via group projects and practical experiences. Constructivism encourages learner-centered methods, behaviorism emphasizes structured, teacher-led learning, and cognitivism frequently combines the two by emphasizing organizing information for best comprehension. These variations affect how teachers plan lessons, evaluate student learning, and foster their growth.

4.2 Applications of the Theories

Behaviorist, cognitivist, and constructivist learning theories have a wide range of applications that can be modified to meet the needs of students, various learning settings, and instructional goals. Behaviorist theory is frequently used in situations that require learning particular skills or actions, repetition, and memorization. For example, early childhood education or training programs utilize direct instruction, drill-and-practice, and positive reinforcement to mold and reinforce desired learning results. Behaviorism works particularly well in situations involving standardized testing, behavior control, and skill-based training, like learning a language or becoming fluent in simple math. Behaviorists analyze learners to determine when to begin education and which reinforcers are most successful for each student (Ertmer & Newby, 2013). Behaviorist tactics aid in forming good academic routines by regulating habits and productivity, such as rewarding task completion and employing a routine. Behaviorist ideas can be used in technology project development by providing instant feedback and reinforcement to develop skills. It can be used for programming instructions, virtual training, communication tools, and learning platforms.

On the other hand, cognitivist theory is used to advance knowledge of how students process information in their minds. It highlights the significance of teaching techniques that improve memory, understanding, and problem-solving. Cognitive processes encourage students to comprehend, gain knowledge, and modify their tactics as necessary. Cognitive tools allow students to think more profoundly and higher-order thinking (Shen & Zhao, 2022). According to Rasouli *et al.* (2025), cognitive instruction improves the mental processes of the learner because it investigates learning techniques that work with the information processing of the human mind. If teachers apply cognitive learning theories, it will develop students' recognition, perception, problem-solving, critical thinking, and knowledge application skills. To assist students in organizing

information and making connections between new and existing knowledge, applications include mind maps, mnemonics, scaffolding, graphic organizers, and advanced organizers. Curriculum design, multimedia learning, and instructional technologies that facilitate self-paced learning and reflection frequently employ cognitivist methodologies. Cognitive learning theories align with the instructional design framework by focusing on how students process, store, and retrieve information. This applies to a scientific approach to the design of learning materials, allowing people to provide information (Mind Tools Content Team, n.d.). The goal of instructional design based on cognitive learning theories is to support students in building on existing knowledge, organizing new material efficiently, and making meaningful connections. By matching teaching strategies to how the brain learns and retains information, these strategies promote deeper comprehension and long-term retention while also improving the effectiveness of education. Cognitivist theory can be used in real-world problem-based learning, technology collaboration, and creating simulations.

Nurhuda *et al.* (2023) stated two thoughts regarding constructivism. By adjusting the cognitive structure of new information to previously acquired information, constructivism aids people in independently constructing knowledge, according to one thought. According to another, constructivism is a setting where students can learn by engaging with their surroundings.

The best examples of constructivist theory in action are project-based, inquiry-based, and experiential education, where students are encouraged to investigate, work together, and gain knowledge from experience. It encourages utilizing group discussions, student-led projects, and real-world challenges, making learning extremely relevant and intimate. Constructivist ideas can be used to create virtual labs, learning-oriented gaming, and educational websites. Science labs, problem-solving exercises, cooperative group projects, and settings that encourage independence and critical thinking are all familiar places to find constructivist applications. These ideas are frequently combined in practice; teachers may employ constructivist tactics to promote application and synthesis, behaviorist approaches to impart fundamental knowledge, and cognitivist approaches to enhance comprehension. This integrative approach makes a more comprehensive and successful learning process possible.

5. Conclusion and Suggestions for The Instructional Designers

In summary, the contrast between constructivist, behaviorist, and cognitivist learning theories highlights the many viewpoints that each offers on how individuals learn. Behaviorism works well for rote and skill-based learning because it emphasizes observable behaviors influenced by reinforcement and outside stimuli. With its emphasis on internal mental processes, cognitivism provides important insights into how students absorb, retain, and recall information. Constructivism emphasizes how crucial social contact and active, hands-on learning are to creating knowledge. Even though each theory has advantages and disadvantages, they offer a thorough framework for

instructional design. After examining the learners' knowledge level, the theories should be applied in the instructional design. A behavioral approach helps instructors know what a professional needs to possess. Cognitive strategies help teachers with problem-solving, and constructivist strategies help with situational thinking and action taking (Ertmer & Newby, 2013).

Teachers may design more adaptable, learner-centered, and efficient learning environments that meet various learning requirements and circumstances by utilizing the ideas of all three. Instructors should consider adopting a hybrid approach that primarily draws from constructivist theory while incorporating aspects of behaviorism and cognitivism as needed, even if no single learning theory can satisfy the needs of all students in all situations. Constructivism strongly emphasizes active, student-centered learning in which students develop their understanding via reflection, teamwork, and real-world experiences. The demands of today's students, who gain from critical thinking, problem-solving, and the capacity to apply knowledge in various contexts, are adequately met by this method. Meanwhile, constructivism might not always offer the framework required for disciplines requiring much substance or developing fundamental skills. Behaviorist techniques like practice, reinforcement, and repetition can be helpful in successfully establishing fundamental abilities or behaviors in these situations.

By concentrating on how students process and arrange information, cognitivist principles further improve education by ensuring the material is relevant, well-structured, and in line with memory functions. For instance, deeper learning is supported by using visual aids, graphic organizers, and scaffolding approaches. Therefore, the best instructional design is flexible and adaptive, drawing from all three theories to meet learning objectives, accommodate diverse learners, and create dynamic and effective educational experiences, even though constructivism should direct the overall instructional philosophy because of its emphasis on meaningful learning and active engagement.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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