Contemporary Readings in Law and Social Justice
ISSN: 1948-9137, e-ISSN: 2162-2752
Vol 16 (1), 2024
pp. 1860 - 1868

Active Learning Strategies and Students with Intellectual Disability

Amro Ali Alamri, Khalid Abu-Alghayth,

MA.

Ammr1415@gmail.com

Ph.D.

King Khalid University, Abha, Saudi Arabia

Kabualghayth@kku.edu.sa

Abstract

This literature review examines active learning strategies designed for students with intellectual disabilities. It explores the classification and characteristics of intellectual disabilities, highlighting essential principles for their education. The review emphasizes the role of active learning, particularly role-playing, in fostering engagement, critical thinking, and practical understanding. Key elements and principles of active learning are outlined, demonstrating their importance in addressing the unique needs of students with intellectual disabilities. The literature also analyzes previous studies, offering insights into the benefits and effectiveness of active learning strategies in inclusive classrooms. These benefits include enhancing collaboration, autonomy, and adaptability among students. The review underscores the significance of employing tailored approaches, integrating role-playing and other strategies, to create inclusive and effective educational environments that support the development and participation of students with intellectual disabilities.

Keywords: Intellectual disabilities, Money, students, literature, role-playing, active learning strategie
Received 6-6-2024 **Accepted** 1-7-2024 **publish** 20-8-2024

Introduction

Children with intellectual disabilities exhibit deficiencies in understanding, attention, comprehension, memory, as well as sensory-motor and health issues (Al-Jalamida, 2015). These deficiencies result in difficulties in transferring learning from one situation to another. They often do not reach the educational levels achieved by typically developing children and face challenges in acquiring independent skills and other abilities unintentionally. Consequently, adaptive behavior deficits arise. The American Association on Intellectual and Developmental Disabilities (AAIDD, 2021) defines deficits in adaptive behavior as a key characteristic of individuals with intellectual disabilities. Daily life skills represent the most significant aspect of adaptive behavior, necessitating training in basic daily life skills such as eating, dressing, mobility, and numerical skills.

To achieve the primary goal of special education services, the *Guide to Study Plans and Curricula in Intellectual Education Institutes and Programs* highlights the importance of numerical and mathematical skills in realizing this objective. These skills are among the most vital educational competencies that curricula aim to instill in students with intellectual disabilities, enabling them to integrate into society and become more self-reliant (*Guide to Study Plans and Curricula in Intellectual Education Institutes and Programs*, 2004).

Teaching methods have also evolved significantly. Education is no longer limited to passive student reception and memorization, with teachers serving merely as transmitters of knowledge. Instead, the

process of knowledge transfer has advanced, requiring teachers to use strategies that actively engage them in the educational process. These strategies are collectively known as active learning strategies (Al-Haj & Al-Musallaha, 2015).

Active learning allows students to gain experiences in scenarios where they are active and engaged participants. This approach provides a broader and deeper educational impact by creating authentic learning situations that facilitate knowledge transfer. Students also learn when they share responsibility and make decisions, which helps them develop meaningful solutions to the problems they face. These solutions are often connected to their previous experiences (Ambo Saidi & Al-Husniya, 2016). Among all groups, students with intellectual disabilities are particularly in need of education and training to transfer learning effects and develop problem-solving skills due to their functional and adaptive behavioral deficits. Furthermore, one of the most notable advancements in education is the emphasis on evidence-based practices (Agran et al., 2017; Cook & Odom, 2013; Russo-Campisi, 2017) for students with intellectual disabilities, known as structured teaching. This approach involves implementing educational practices and methods rigorously reviewed by researchers and specialists. When applied with fidelity and reliability, these practices yield positive results (Simpson et al., 2004).

Students with Intellectual Disability

The American Association on Intellectual and Developmental Disabilities (AAIDD) defines intellectual disability as significant limitations in general intellectual functioning, accompanied by notable deficiencies in adaptive functioning. These deficits manifest in various skills, such as self-care, social abilities, vocational and health skills, occurring before the age of 21 (Barclay, Drotar, Favell, Foxx & Gardener, 2021).

Classification of Individuals with Intellectual Disabilities

Intellectual disability has been classified into categories based on performance level, cause, and behavior. The development of intellectual capacity measurement has significantly influenced the classification of individuals with intellectual disabilities according to their functional mental performance. Al-Wabli (2020) cites the AAIDD classification of intellectual disability as follows, mild Intellectual disability: IQ ranges between 55 and 70, representing approximately 90% of individuals with intellectual disabilities; moderate intellectual disability: IQ ranges between 40 and 54, severe intellectual disability: IQ ranges between 25 and 39; and profound intellectual disability: IQ is less than 25.

Characteristics of Individuals with Intellectual Disabilities:

Key characteristics of individuals with intellectual disabilities include challenges in daily life skills, varying with the severity of the disability (Al-Wabli, 2020). These individuals exhibit significantly lower intelligence levels compared to typically developing children, with a maximum IQ score of 70, equivalent to the mental capacity of a child aged 7 to 11. They also struggle with abstract thinking and generalization (Ubaid, 2013). Physical and motor characteristics are often underdeveloped, with delays in physical growth (Al-Sharqawi, 2016).

They also face social adaptability challenges, struggling to form successful social relationships within their environment (Al-Khatib & Al-Hadidi, 2021). Emotional issues are prevalent, including apathy and indifference in situations requiring prompt responses (Al-Sartawi & Awad, 2011). Additionally, language deficits, such as limited vocabulary and errors in expressive linguistic development and grammar, are common (Al-Qamash, 2015). Academic deficiencies, particularly in attention and the ability to independently observe diverse situations, pose significant educational challenges (Al-Rousan, 2018).

Principles to Consider in Educating Students with Intellectual Disabilities

Intellectual disabilities impact cognitive development, causing difficulties in attention, memory, and differentiation—skills that form the foundation of learning. Without addressing these traits, the learning process may not be effective. Al-Jalamida (2015) outlines several principles to consider when teaching students with intellectual disabilities: (a) gaining the child's attention: structuring environmental stimuli in a way that encourages focus on meaningful and relevant stimuli, (b) gradual progression: moving

incrementally from simple, easy skills to more complex ones, (c) setting appropriate performance levels: establishing skill levels suited to the child's abilities to prevent frustration from unattainable tasks or boredom from repetitive, already-mastered tasks, (d) emphasizing successful attempts: avoiding experiences of failure by using tools and resources that enable the child to complete tasks successfully, (e) utilizing natural environment materials: incorporating tools and materials from the child's everyday surroundings whenever possible, (f) developing memory and transfer skills: enhancing the child's ability to remember and apply learned skills across different contexts, (g) short training sessions: providing brief training sessions with breaks to maintain engagement and accommodate shorter attention spans, (h) individualized teaching approaches: recognizing that most children with intellectual disabilities can learn if taught with methods tailored to their needs, rather than methods suited to typically developing students.

Active Learning and Role-Playing

The rapid pace of contemporary advancements has led to an accumulation of knowledge, making it essential to adopt new methods that facilitate its transfer to learners. Active learning shifts the focus from learning outcomes to learning processes, embracing the philosophy that successful methods lead to successful learning (Abu Al-Haj & Al-Musallaha, 2016). Active learning is an umbrella term for various teaching strategies that place the learner at the center of the educational process. It ensures that learning connects with the student's life, interests, and needs, achieved through interaction with their surroundings—home, school, neighborhood, and community (Ambo Saidi & Al-Husniya, 2016).

This method enriches the student's environment with stimuli that increase motivation and knowledge acquisition. It also transforms students into active, engaged participants in their learning, allowing them to contribute to activity selection and skill development, thus tailoring education to their interests. Meanwhile, the teacher acts as a guide and facilitator (Abu Al-Haj & Al-Musallaha, 2016).

Elements of Active Learning

Abu Al-Haj and Al-Musallaha (2016) identified several elements essential to active learning, including: (a) listening and attention: students actively listen to both teachers and peers to accurately grasp information, (b) discussion: students engage in discussions, expressing agreement or disagreement while adhering to discussion rules and respecting others' opinions, (c) reflection: encouraging students to think critically about the information they have received and respond thoughtfully, (d) writing: documenting information, notes, and topic sequences, (e) reading: exploring topics presented by teachers or peers, (f) practice: applying strategies, activities, and techniques to reinforce learning, and (g) intrinsic motivation: cultivating internal drives that propel students toward learning.

Importance of Active Learning

Active learning helps students acquire knowledge, skills, and ideas within a comprehensive framework, allowing them to better understand themselves and their environment. It fosters an engaging, dynamic educational atmosphere, enhancing social relationships, communication, self-confidence, and personal abilities, such as discussion, participation, and motivation. Active learning also supports teachers in selecting curricula suited to students' interests and needs, and in designing effective educational activities (Asaad, 2018).

Principles of Active Learning

Active learning strategies create an environment of collaboration and interaction among students, while accounting for individual differences. They also provide feedback, adequate time for learning, and opportunities for students to engage fully in the process (Abu Al-Haj & Al-Musallaha, 2016).

Benefits of Active Learning

Simply remaining silent during a teacher's explanation or computer presentation is not active learning. Instead, active learning integrates students into their tasks, whether through collaborative work, reading, writing, problem-solving, or experimentation. This fosters self-directed learning, enhancing confidence,

critical thinking, and analytical skills. Active learning also encourages problem-solving, improves social relationships, and provides feedback on new skills and knowledge (Ambo Saidi & Al-Husniya, 2016).

Benefits of Active Learning

The student's commitment to silence during the teacher's explanation or even during a presentation on the computer is not active learning. Active learning is what integrates the student and harmonizes in his tasks by doing joint work, or reading, writing, solving problems, or conducting an experiment. It shows the learner's ability to learn independently without control, which enhances self-confidence. It is not only concerned with the cognitive field, but it provides the learner with skills that help him think and analyze, while enabling him to solve problems. It also helps in strengthening social relations between students. Asaad (2018) highlights a number of features of active learning such as, (a) creates effective, real-life learning scenarios, (b) focuses on skill development rather than information transmission, (c) incorporates higher-order thinking skills such as analysis, synthesis, and evaluation, (d) identifies and satisfies learners' interests, (e) motivates and encourages productivity, (f) engages learners actively in meaningful tasks, (g) rovides practical and emotional learning experiences that are hard to replicate in traditional classrooms, such as cooperation, responsibility, self-regulation, and creativity, (h) builds self-confidence and the ability to express opinions, (i) promotes mastery-oriented learning and independent thinking, and (j) enhances decision-making and problem-solving skills.

Active Learning Strategies

Asaad (2018) highlights several active learning strategies, as follows:

Visitor's chair strategy

This strategy involves placing a chair at the front of the classroom for a "visitor" to sit on. However, the visitor is actually one of the students selected by the teacher to perform a specific task. The goal of this strategy is to encourage direct participation from students and utilize the skills or experiences of certain students that can benefit the lesson being presented.

World café strategy

This strategy involves assigning students a task or question, with all students participating by forming groups. Group members move around the classroom while the group coordinator remains stationary. The coordinator provides a summary of the contributions made by the previous group regarding the task or question. This strategy aims to engage all students in the class and develop summarization skills during discussions and dialogues.

Big steps strategy

This strategy revolves around presenting a topic or question that reveals students' varying perspectives on a particular issue. Students then line up based on a shared viewpoint or characteristic. The objective is to develop their thinking skills and decision-making abilities.

Traffic signals strategy

This strategy requires students to indicate their confidence in achieving lesson objectives or their confidence in answering a teacher's question by using "traffic signal" cards. This strategy aims to train students in self-management.

Previous Studies

The study by Aeschleman and Schladenhauffen (1994) aimed to teach adolescents with severe intellectual disabilities how to purchase groceries through a systematic training program that used verbal prompting and role-playing. The study sample included four students with intellectual disabilities, and the researchers used a multiple-probe design to assess the effectiveness of the intervention. The results indicated that all participants acquired grocery shopping skills and retained them for at least six months. Similarly,

Frederick-Dugan, Varn, and Test (1991) conducted a study to help students with mild intellectual disabilities acquire and generalize purchasing skills using a pocket calculator. The study sample consisted of two students aged 18 and 20. The results showed that the students successfully acquired and generalized purchasing skills in two community settings that were not part of the training and retained the skills for four weeks after training ended.

Analysis of Previous Studies

Some previous studies employed active learning strategies in different ways. For instance, Guo et al. (2016), Kevin et al. (2006), Thomas et al. (1995), Ayres et al. (2006) Ayres et al. (2002), and Haring et al. (2005) utilized different strateigies such as video modeling via computer programs to teach students purchasing or money-handling skills and generalize these skills. Meanwhile, David and Robert (2008) and Iris and Langon (2002) employed computer-based simulations. Aeschleman and Schladenhauffen (1994) applied role-playing strategies. Regarding intervention effectiveness, most studies used multiple-probe designs, as seen in studies by Guo et al. (2016), David and Robert (2008), Kevin et al. (2006), and Iris and Langon (2002), as well as Aeschleman and Schladenhauffen (1994). However, the study by Al-Ahmari and Al-Otaibi (2017) utilized a single-case (AB) design. The sample sizes in previous studies ranged from two to six students. Three studies involved four students each: Guo et al. (2016), Kevin et al. (2006), and Aeschleman and Schladenhauffen (1994). Two studies involved six students: Al-Ahmari and Al-Otaibi (2017) and Thomas et al. (1995). Another two studies involved three students each: David and Robert (2008) and Iris and Langon (2002). Finally, Frederick-Dugan et al. (1991) involved two students. Most studies targeted students with moderate intellectual disabilities, such as those by Guo et al. (2016), David and Robert (2008), Kevin et al. (2006), and Iris and Langon (2002). Thomas et al. (1995) included students with both moderate and severe disabilities, while Al-Ahmari and Al-Otaibi (2017) and Frederick-Dugan et al. (1991) targeted students with mild intellectual disabilities.

Studies Addressing Active Learning and Role-Playing Strategies

Sayyed (2023) conducted a study to determine the effectiveness of a program based on the active learning strategy "Think-Pair-Share" in teaching students with mild intellectual disabilities basic motor skills and increasing their motivation to learn. The researcher employed an experimental design with pre- and post-measurements for two study groups: a control group and an experimental group. The study sample consisted of 36 students with mild intellectual disabilities, divided into two groups of 18 each. The findings revealed that the experimental group outperformed the control group in acquiring motor skills and increasing learning motivation.

Similarly, Abu Al-Hamad (2023) conducted a study to investigate the effectiveness of role-playing in developing certain preventive education concepts among early childhood children aged 5–6 years. The study sample comprised 40 children. The researcher used a quasi-experimental design with pre-, post-, and follow-up measurements for a single group. The program, which was based on the role-playing strategy, successfully developed preventive education concepts in children.

Al-Mutairi and Al-Qadri (2020) conducted a study that utilized an active learning strategy to examine the effect of role-playing on the academic achievement of fourth-grade students in social studies in Kuwait. The study sample consisted of 80 fourth-grade students in the 2019–2020 academic year, selected purposefully. The researchers divided the sample into two groups: 40 students in the control group, who were taught using traditional methods, and 40 students in the experimental group, who were taught using the role-playing strategy. The findings revealed that students in the experimental group achieved higher academic scores than those in the control group.

In a study by Al-Sahhar (2015), the impact of using active learning strategies was investigated, including games and role-playing, on developing scientific concepts in science among third-grade students. The researcher employed both descriptive-analytical and quasi-experimental methods, along with a scientific concepts test. The study sample included 84 third-grade students selected purposefully from Tunisia Primary School in Gaza and divided into three equal groups: a control group and two experimental groups.

The first experimental group was taught using games, while the second group was taught using role-playing. The results indicated statistically significant differences in favor of the two experimental groups compared to the control group. Al-Asi's (2018) study aimed to determine the effectiveness of active learning strategies in teaching national and life knowledge to second-grade students. The study sample consisted of 82 second-grade students, divided into experimental and control groups. The researcher developed the study tool (a test of national and life knowledge). The results showed the effectiveness of active learning strategies in teaching national and life knowledge to second-grade students.

Mahmoud's (2013) study aimed to evaluate the effectiveness of a proposed program to develop certain economic values in kindergarten children through active learning. The researcher developed a program for this purpose and selected a sample of 35 second-level kindergarten children from a school in the Asyut Educational Administration. The findings confirmed the program's effectiveness in enhancing the economic values of kindergarten children through active learning.

Another study conducted by Mohammed (2021) examined the effectiveness of an active learning program in reducing reading difficulties among primary school students. The sample consisted of 20 third-grade students aged 8–9 years who exhibited severe reading difficulties. The researcher divided the sample into two groups: a control group and an experimental group, with 10 students in each group. The results demonstrated the effectiveness of the active learning program in reducing reading difficulties among students in the experimental group compared to those in the control group. Al-Zoubi's (2021) study aimed to investigate the effectiveness of an active learning program in developing mathematical operations and attitudes toward mathematics among primary school students with learning difficulties. The sample consisted of 32 students with math learning difficulties, divided equally into experimental and control groups. The findings revealed the program's effectiveness in teaching mathematical operations to students.

Analysis of Previous Studies on Active Learning Strategies in Education

All the studies reviewed employed experimental research methods, with sample sizes ranging from 20 to 82 students. Sayyed (2023) focused on students with mild intellectual disabilities, whereas Al-Mutairi and Al-Qadri (2020), Al-Asi (2018), and Al-Sahhar (2015) targeted typical elementary school students. Abu Al-Hamad (2023) and Mahmoud (2013) focused on early childhood students, while Mohammed (2012) addressed primary school students with reading difficulties. Al-Zoubi (2012) targeted students with math learning difficulties.

Several studies highlighted the effectiveness of active learning strategies as an overarching framework encompassing various approaches, including those by Sayyed (2023), Al-Asi (2018), Mahmoud (2013), Mohammed (2012), and Al-Zoubi (2012). Other studies, such as those by Al-Mutairi and Al-Qadri (2020), Abu Al-Hamad (2023), and Al-Sahhar (2015), focused specifically on role-playing as a subset of active learning strategies.

Commentary on the Reviewed Studies

The reviewed studies reveal a variety of titles, objectives, and methodologies, leading to the following observations. Both Mohammed (2012) and Al-Zoubi (2012) confirmed the effectiveness of active learning strategies in addressing learning difficulties, a key category of special education. Sayyed (2023) emphasized the role of active learning strategies in developing skills among students with intellectual disabilities. Moreover, this study differed from prior ones in its small sample size of three students with intellectual disabilities, which aligns with the single-case design methodology. Unlike studies by Al-Asi (2018), Al-Sahhar (2015), Mohammed (2012), and Al-Zoubi (2012), which included elementary school students, and Mahmoud (2013), which involved preschoolers, the current study targeted middle school students. Finally, this study utilized the withdrawal (ABA) single-case design, unlike previous studies on purchasing skills for students with intellectual disabilities. It also relied on structured teaching methods and active learning strategies to enhance money-handling skills, distinguishing it from prior research.

Acknowledgments

The authors extend their appreciation to the Deanship of Scientific Research at King Khalid University for funding this work through Small Group Research Project under grant number RGP1/274/45

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