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Concepts, Factors, and Strategies for Developing Adaptive Behavior in Early Childhood through Adaptive Learning

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Abstract

Adaptive behavior is an important component of early childhood development because it is related to children's ability to communicate, regulate behavior and emotions, interact socially, follow routines, and perform daily activities according to environmental demands. Differences in children's characteristics and learning needs require learning experiences that are flexible and responsive rather than completely uniform. This article aims to examine the concept of adaptive behavior, factors influencing its development, and strategies for developing adaptive behavior through adaptive learning in early childhood. This study used a literature review method by analyzing ten scientific articles concerning adaptive behavior, social skills, emotional development, inclusive education, adaptive learning, digital learning, and the use of artificial intelligence in early childhood education. The synthesis shows that adaptive behavior is influenced by individual factors, family and parenting, teacher-child relationships, learning environments, instructional methods, technology use, and children's diverse needs. Adaptive learning can support the development of adaptive behavior through initial assessment, concrete behavioral targets, differentiated activities, demonstration, gradual practice, role play, feedback, repetition, and continuous monitoring. Technology can support personalization, but its use should remain purposeful and accompanied by adult guidance and direct social interaction. The development of adaptive behavior therefore requires collaboration between teachers, parents, and the learning environment to provide safe, enjoyable, inclusive, and developmentally appropriate experiences.

Keywords: adaptive behavior, early childhood, adaptive learning, self-regulation, social skill.

1. Introduction

Early childhood is a critical period in which children experience rapid development across cognitive, language, physical-motor, social, and emotional domains. During this period, children gradually learn to adapt their behavior to different people, situations, routines, and expectations. Social skills are particularly important because children need verbal and nonverbal communication to interact with teachers and peers and to participate successfully in learning activities (1) . Adaptive behavior can be understood as the ability to use communication, social, self-care, and movement skills in accordance with everyday demands. In the context of early childhood education, these abilities can be seen when children communicate their needs, follow simple rules, manage emotions, participate in group activities, care for themselves, and gradually become more independent (2).

The development of adaptive behavior is not determined only by children's individual characteristics. Family relationships, p w children learn to regulate and adjust their behavior (1)(3). Research on emotional development in early childhood also indicates that parenting patterns, learning methods, and children's interaction with digital devices can be associated with children's emotional and social development (4).arenting, teacher support, learning environments, instructional methods, and social experiences also influence ho

At the same time, children in one classroom do not necessarily have the same interests, developmental levels, learning styles, or support needs. Adaptive learning provides a framework for responding to such differences. Adaptive learning refers to learning experiences that can be adjusted according to learners' characteristics, interests, performance,

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and needs (5)(6). In inclusive education, flexible curriculum adjustment and differentiated learning are also used to accommodate learner diversity (7).

Therefore, adaptive behavior and adaptive learning are closely related. Adaptive behavior represents an important developmental outcome, while adaptive learning provides a way for teachers to adjust learning experiences so that children have appropriate opportunities to practice and develop these skills. This article discusses the concept of adaptive behavior, factors influencing it, and strategies for developing it through adaptive learning in early childhood education.

2. Literature Review (bold, 11 pt) <before 10; after 11>

2.1 Adaptive Behavior in Early Childhood

Adaptive behavior refers to functional abilities that help individuals respond appropriately to everyday demands. In the reviewed literature, these abilities include communication, self-care, social interaction, and movement. Development programs should begin with assessment of children's existing abilities and difficulties so that learning activities can be adjusted to individual conditions (2). For early childhood education, adaptive behavior can be translated into observable everyday abilities. Examples include asking for help appropriately, following classroom routines, waiting for a turn, sharing materials, expressing feelings, managing simple frustration, cleaning up after play, washing hands, and completing simple tasks with decreasing adult assistance. These behaviors are closely connected with social competence and self-regulation (1)(3).

2.2 Adaptive Learning

Adaptive learning is an approach that adjusts learning experiences to learner characteristics, interests, and performance. Putra et al. describe adaptive learning as a process that produces different learning experiences according to learners' personality, interests, and performance (5). In another study, learning analytics are used to identify learning patterns and support the adjustment of content and intervention (6). In early childhood education, adaptive learning should not be interpreted only as technology-based learning. Teachers can adapt the level of difficulty, materials, instructions, assistance, pace, grouping, and learning activities based on children's responses. Technology and artificial intelligence can become additional tools for personalization, but direct interaction and play-based experiences remain important for young children (8)(9).

2.3 Social and Emotional Foundations of Adaptive Behavior

Social and emotional competence provides an important foundation for adaptive behavior. Children need opportunities to communicate, cooperate, regulate emotions, and respond to social situations. A supportive relationship with teachers and parents can strengthen these abilities (1). Protective factors identified in the literature include self-regulation, executive functioning, social competence, secure attachment, supportive parenting, open communication, and emotional support (3).

These findings indicate that adaptive behavior should not be viewed merely as obedience to classroom rules. Instead, it represents children's growing capacity to understand situations, respond appropriately, and gradually manage their own behavior with decreasing adult support.

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2.4 Technology and Adaptive Learnig

Digital technology can provide interactive materials, visual supports, adaptive pathways, assessment, and feedback. Studies reviewed in this article describe the potential of adaptive media and artificial intelligence to personalize learning experiences and provide differentiated materials (8)(9). However, digital technology also presents challenges. Excessive or poorly supervised screen exposure may reduce opportunities for direct interaction and may affect children's social-emotional experiences. Therefore, technology should be used with clear learning purposes, appropriate duration, adult supervision, and opportunities for real-world interaction (10).

3. Methodology

3.1 Research Design

This study employed a literature review design. The purpose of the review was to synthesize concepts and findings related to adaptive behavior, factors influencing adaptive behavior, and strategies for developing adaptive behavior through adaptive learning in early childhood education. The study did not collect primary data from children, teachers, or schools.

3.2 Sources and Selection

The main sources consisted of ten scientific articles provided for this assignment. The articles addressed adaptive behavior, social skills, emotional development, behavior modification, inclusive curriculum, adaptive learning, digital learning in early childhood, and artificial intelligence-supported learning. Sources were selected because their topics were relevant to at least one of the three main themes of the article.

3.3 Research Instruments

The articles were analyzed descriptively and thematically. Information was extracted from the objectives, concepts, findings, and recommendations of each article. The findings were then grouped into three themes: (1) the concept of adaptive behavior and adaptive learning, (2) factors affecting adaptive behavior, and (3) strategies for developing adaptive behavior through adaptive learning. Findings from inclusive education and special-needs contexts were used as supporting principles and were not presented as evidence from identical populations.

4. Results and Discussion

After the text edit has been completed, the paper is ready for the template. Duplicate the template file by using the Save As command, and use the naming convention prescribed by your conference for the name of your paper. In this newly created file, highlight all of the contents and import your prepared text file. You are now ready to style your paper; use the scroll down window on the left of the MS Word Formatting toolbar.

4.1 Concept of Adaptive Behavior

The literature indicates that adaptive behavior is multidimensional. It includes functional communication, social participation, self-care, emotional regulation, and the ability to respond to everyday

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situations. The practical nature of adaptive behavior means that it is best observed through real activities rather than through verbal explanation alone (2).

In an early childhood classroom, adaptive behavior can be developed through routines and play. A child who asks for help instead of crying, waits for a turn, puts toys back after playing, follows a two-step instruction, or calms down after receiving appropriate support is demonstrating an emerging adaptive skill. The expected level of independence should remain appropriate to the child's developmental stage.

4.2 Factors Influencing Adaptive Behavior

The first group of factors is individual characteristics. Self-regulation, executive functioning, social competence, communication, and previous learning experiences influence children's ability to adapt to situations (3). Children differ in their ability to control impulses, understand instructions, manage emotions, and solve simple social problems. The second group is family and parenting. Secure attachment, supportive parenting, open communication, and emotional support can provide a protective environment for children's development (3). Conversely, parenting that is less responsive or overly protective may limit opportunities for children to practice independence and emotional regulation (4).

The third group is the teacher and learning environment. Teacher-child relationships, classroom routines, opportunities for cooperation, and supportive feedback provide repeated opportunities for children to practice adaptive behavior (1)(3). A classroom that is predictable but flexible can help children understand expectations while still allowing individual differences. The fourth group is instructional method. Learning methods that provide active participation, role play, modeling, practice, and feedback can give children opportunities to learn functional behaviors. Research on behavior modification and emotional development supports the use of activities that are adjusted to children's needs and provide repeated opportunities for practice (4)(7).

The fifth group is technology and digital exposure. Technology can provide useful learning supports, but excessive or uncontrolled use may reduce opportunities for face-to-face interaction (10). Therefore, digital tools should complement rather than replace teacher guidance, peer interaction, movement, and real-world experiences.

4.3 Characteristics and Examples of Adaptive Behavior

Based on the synthesis, adaptive behavior in early childhood can be observed through the following characteristics:

- Children communicate needs, feelings, or requests for help appropriately.
- Children follow simple routines and classroom agreements.
- Children participate in turn-taking, sharing, cooperation, and simple group activities.
- Children gradually recognize and regulate emotional responses with decreasing adult assistance.
- Children perform developmentally appropriate self-care and classroom responsibility tasks.
- Children adjust to transitions or changes with appropriate support.
- Children complete simple tasks and demonstrate increasing independence.

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4.4 Strategies for Developing Adaptive Behavior through Adaptive Learning

4.4.1 Initial Assessment and Observation

The first strategy is to identify children's existing abilities, needs, interests, and difficulties. Teachers can observe children during play, routines, group activities, transitions, and self-care. Assessment results can be used to determine the level of support and the next learning target (2).

4.4.2 Setting Concrete Behavioral Targets

Targets should be observable and realistic. Instead of setting a broad target such as 'the child becomes independent,' teachers can establish a target such as 'the child puts learning materials away after play with one verbal reminder.' Concrete targets make progress easier to observe and document.

4.4.3 Differentiating Activities and Assistance

Teachers can adjust the complexity of tasks, learning materials, instructions, time, and level of assistance. Differentiated learning and individual learning plans are examples of flexible approaches used to respond to learner diversity in inclusive settings (7). For early childhood education, differentiation can be simple, such as using picture sequences, larger materials, shorter instructions, additional modeling, or an alternative activity.

4.4.4 Modeling, Demonstration, and Gradual Practice

Functional adaptive skills are more effectively developed when children can see and practice the desired behavior. A teacher can demonstrate a skill, allow the child to practice with guidance, and gradually reduce assistance. This approach is consistent with direct instruction principles for developing adaptive skills (2).

4.4.5 Role Play and Real-Life Experiences

Role play can provide a safe context for practicing communication, turn-taking, conflict resolution, asking for help, and expressing feelings. Real routines such as washing hands, eating, dressing, cleaning up, and organizing learning materials can also become adaptive learning opportunities. Research on early childhood emotional development recommends role play and emotional literacy activities as practical forms of stimulation (4).

4.4.6 Feedback, Reinforcement, and Repetition

Children need clear and immediate feedback about the behavior they demonstrate. Specific praise and positive responses can help children understand which behavior is expected. Repetition is also important because adaptive skills need to be practiced across different contexts. The same skill should gradually be generalized from the classroom to home and other environments.

4.4.7 Family-School Collaboration

Adaptive behavior develops more consistently when teachers and parents communicate about children's targets and strategies. Parents can continue practicing simple skills through daily routines at home. Consistency does not mean using exactly the same activities, but maintaining similar expectations and supportive responses.

4.4.8 Purposeful Use of Digital Technology

Digital media can be used for visual schedules, interactive stories, educational games, or personalized learning activities. AI-supported adaptive media may provide personalized materials and feedback (8). However, technology should remain purposeful, developmentally appropriate, supervised, and balanced with direct social interaction and physical activity (10).

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4.5 A Practical Adaptive Learning Cycle

Based on the reviewed literature, this article proposes a practical synthesis called the ATALM cycle: Assessment – Target – Adaptation – Learning Practice – Monitoring. This is a synthesis developed by the author from the reviewed principles and is not presented as an established model from a single previous study.

Stage	Focus	Example in Early Childhood Education
Assessment	Identify ability, need, interest, and difficulty.	Observe the child during play, routines, and interaction.
Target	Set a concrete observable behavior.	Child waits for a turn with one reminder.
Adaptation	Adjust material, difficulty, pace, and assistance.	Use picture cues, demonstration, or simpler steps.
Learning Practice	Provide direct practice, repetition, and gradual independence.	Teacher models, child practices with guidance, then independently.
Monitoring	Review progress and adjust the next activity.	Record observations and gradually reduce assistance.

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