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DEVELOPING SOCIALIZATION OF PRIMARY SCHOOL STUDENTS WITH AUTISM SPECTRUM DISORDER THROUGH ABA THERAPY

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Abstract
The article addresses the issues of developing the socialization and social integration process of students with autism spectrum disorder (ASD) through Applied Behavior Analysis (ABA therapy). The study provides a scientific and practical analysis of the core ABA therapy technologies and mechanisms, such as reinforcement, prompting, fading, shaping, and chaining, which play a crucial role in forming social-communicative skills in children on the autism spectrum. Furthermore, the practical effectiveness of the "Turn-Taking Shaping" and "Request Shaping" methodologies—developed by integrating the DTT (Discrete Trial Training) model, PECS cards, and "Visual Schedule" technology—in developing communication, waiting for turns, and independent requesting skills among students is proven through experimental results.

Keywords: Autism spectrum disorder, ABA therapy, socialization, reinforcement technology, prompting, fading, shaping, chaining, Discrete Trial Training (DTT), PECS cards, visual schedule, Turn-Taking Shaping, Request Shaping.

Introduction

Аннотация
В статье рассматриваются вопросы развития процесса социализации и интеграции в общество учащихся с расстройствами аутистического спектра (РАС) посредством прикладного анализа поведения (АБА-терапии). В исследовании научно-практически проанализированы такие основные технологии и механизмы АБА-терапии, как подкрепление, подсказка (prompting), угасание подсказки (fading), формирование поведения (shaping) и

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обучение цепочке поведенческих актов (chaining), играющие важную роль в формировании социально-коммуникативных навыков у детей с аутизмом. Также экспериментально обоснована практическая эффективность методик «Turn-Taking Shaping» и «Request Shaping», разработанных на основе интеграции модели DTT (Discrete Trial Training), карточек PECS и технологии «Visual Schedule» (визуальное расписание), в развитии у учащихся навыков общения, ожидания своей очереди и самостоятельного обращения.

Ключевые слова: расстройства аутистического спектра, АБА-терапия, социализация, технология подкрепления, подсказка, угасание подсказки, шейпинг, чейнинг, Discrete Trial Training (DTT), карточки PECS, визуальное расписание, Turn-Taking Shaping, Request Shaping.

Introduction

Experts note the widespread proliferation of autism spectrum disorders over the past few years. The year-by-year increase in the number of students with autism spectrum disorder, along with the growing need for comprehensive approaches to their social adaptation, communication, and active participation in the educational process, establishes the relevance of this topic. The underdeveloped nature of social skills in such children hampers their integration into society, which amplifies the necessity of implementing scientifically proven, effective correctional methods.

Global experience demonstrates that ABA therapy is one of the most effective approaches for forming social, communicative, and behavioral skills in children on the autism spectrum. In the educational system of Uzbekistan, the development of inclusive education, the improvement of special pedagogical services, and the implementation of reforms aimed at introducing correctional methods into practice render the study of this topic even more urgent. Therefore, scientifically analyzing the mechanisms for developing the socialization of students on the autism spectrum based on ABA therapy, as well as designing and practicing effective correctional programs for their education and upbringing, stands as one of the crucial tasks of modern pedagogical science today.

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Reinforcement Technology in ABA Therapy

One of the most fundamental mechanisms of ABA therapy is the process of reinforcement, through which learning takes place. Reinforcement serves to strengthen a specific behavior by providing a positive impact immediately following the child's correct action. In practice, this can manifest in the form of a reward, praise, an engaging activity, or any other stimulus significant to the child. Concurrently, negative reinforcement is also utilized, wherein a child learns to perform the required behavior by escaping an uncomfortable situation. Crucially, the reinforcement system must be administered systematically and in a timely manner; otherwise, it may not yield the expected results.

In ABA therapy, reinforcement technology is considered the primary mechanism for shaping and consolidating behavior. This technology is based on the principles of Operant Conditioning and serves to increase or decrease the likelihood of a behavior being repeated in the future. The consequence provided immediately following a specific behavior directly influences the stabilization of that behavior during the reinforcement process. For this reason, the reinforcement system in ABA therapy must be meticulously planned and organized in accordance with individual characteristics.

Reinforcement is divided into two main types: positive and negative reinforcement. Positive reinforcement is delivered by presenting a pleasant stimulus to the child following their correct behavior. For instance, when a child correctly completes a task assigned by the therapist, they may receive verbal praise, a small gift, or the opportunity to engage in a favorite game. In this scenario, the child strives to repeat the behavior again. Negative reinforcement, on the other hand, is achieved by removing an uncomfortable or unpleasant factor. For example, after the child completes a task, a complex assignment might be canceled, or a break may be granted. This also enhances the child's motivation to perform the required behavior.

The effectiveness of reinforcement technology largely depends on its correct application. One of the most critical factors is the immediacy of reinforcement. If the reward is given long after the behavior occurs, the child will not comprehend the connection between these two events. Therefore, the principle of immediate reinforcement is applied in ABA therapy. In addition, reinforcement must be individualized, meaning an engaging and meaningful incentive is selected specifically for each child.

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As a practical example, consider a child on the autism spectrum learning to say "give me water". Initially, the child might only say "wa," and the therapist immediately provides water and expresses praise. Later, the child is taught to utter the full phrase "give me water," and every correct response is reinforced. Consequently, the child begins to utilize this speech skill independently. Furthermore, the reinforcement schedule plays an important role. Initially, every correct response is reinforced (continuous reinforcement), and subsequently, a transition is made to intermittent reinforcement, which enhances the stability of the behavior. In this manner, reinforcement technology plays a pivotal role not only in forming new skills but also in maintaining them over the long term.

Prompting and Fading Technologies

As an instructional assistance technology, prompting is widely used to help the child provide the correct response. This assistance can be delivered through verbal prompts, gestural cues, or physical guidance. However, assistance must not become permanent; therefore, through the process of fading, it is gradually diminished, enabling the child to learn to act independently. This process enhances the child's self-confidence and establishes independent activity.

In ABA therapy, prompting technology is an essential tool that helps the child deliver the correct answer. Through this technology, the child is supported during the acquisition of new skills, thereby increasing the probability of success. Prompting can manifest in various forms, including verbal instructions, visual cues, gestures, or physical assistance. These prompts are selected based on the child's individual characteristics and are gradually faded out.

The primary goal of prompting technology is to ensure that the child performs the correct response without committing errors. This renders the learning process more efficient and boosts the child's self-confidence. For example, if a child cannot complete the task of pointing to a picture, the therapist initially assists by guiding the child's hand, later points using only a gesture, and eventually removes the assistance entirely.

The fading process is an integral part of prompting, representing the step-by-step reduction of assistance. If assistance is not reduced in a timely manner, the child may become dependent on it. Therefore, the fading process is carried out in a planned sequence. For instance, if full physical assistance was provided initially, it is later

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transformed into partial assistance, then into a mere verbal prompt, and finally into independent execution.

Teaching the process of dressing can be examined as a practical example. If a child cannot dress independently, the therapist initially guides their hands, later simply points to the clothing, and ultimately, the child completes the process independently. This process serves as a clear illustration of the harmonious application of prompting and fading technologies.

Shaping and Chaining Technologies

Shaping technology holds significant value in forming complex skills and is based on the principle of step-by-step instruction. In this approach, the child is not expected to achieve a perfect result immediately; rather, every positive approximation toward the target behavior is supported, gradually forming the complete action. This is particularly effective in speech development, where a child starts by producing sounds, then advances to words, and eventually moves on to sentence construction.

In ABA therapy, shaping technology is one of the effective methods for forming complex behaviors or skills. Based on the principles of Operant Conditioning, this technology does not demand the immediate execution of a behavior in its perfect form. Instead, each progressive step toward the behavior is reinforced separately, gradually leading to the ultimate target action. The shaping process possesses crucial significance particularly in teaching complex and new skills, such as language development, forming social communication, or instructing independent actions.

The essence of this technology lies in the fact that even if the child cannot initially perform the full form of the required behavior, any positive attempt close to it is not overlooked and is reinforced. Through this, the child gradually approaches the desired behavior. This process relies on the principle of "successive approximations". At each stage, demands are slightly increased, encouraging the child to reach a new level.

Practically, shaping technology can be observed within the speech development process. For instance, if a child cannot speak at all, they are initially encouraged to produce a sound. Even when the child emits a simple sound like "a" or "m," it is positively evaluated and rewarded. In the next stage, two-sound combinations are required, such as "ma" or "ba". Subsequently, the transition is made to simple words, followed by the sentence construction stage. At every step, the child's success is continuously reinforced.

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Shaping technology is not confined to speech alone; it is also widely deployed in forming social behavior. For example, if a child avoids interacting with others, initially, even looking at a person is reinforced. Then, greeting is taught, followed by building short conversations. In this manner, the child is gradually drawn into socialization.

The critical aspect of applying this technology is correctly defining the steps and precisely reinforcing each stage. If the steps are made too large, the child will fail to achieve success, leading to a decline in motivation. Conversely, excessively small steps can overly prolong the process. Therefore, the specialist must select optimal steps by considering the child's individual capabilities. Another advantage of shaping technology is that it fosters a sense of success in the child. As the child receives incentives for each small achievement, their self-confidence grows, and their interest in learning intensifies. This exerts a positive influence on the overall developmental process.

Chaining technology, meanwhile, is based on teaching complex activities by breaking them down into sequential steps. For example, the simple process of dressing consists of several movements; by teaching them separately, the child owercomes the complexity and masters the overall sequence more easily. Task analysis enables the organization of this process on a scientific basis, as it divides the assignment into distinct elements and helps plan the instruction.

In ABA therapy, chaining technology is viewed as a vital method aimed at breaking complex activities into sequential steps and teaching them systematically. This technology is especially effective in forming daily living skills, enabling the child to learn independent action by mastering complex procedures step-by-step. Chaining technology ensures the attainment of the overall result by dividing the task into small elements and connecting them consistently.

There are three main types of chaining technology, termed forward chaining, backward chaining, and total task chaining. In the forward chaining process, the child learns starting from the first step of the task, and subsequent steps are introduced gradually. For example, in teaching handwashing, the child first learns to turn on the water, then to wet the hands, followed by lathering with soap, and so forth. Backward chaining, by contrast, begins from the very last step, allowing the child to experience the final result sooner, which enhances their motivation. Total task chaining involves teaching all steps together as a whole.

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The process of dressing can be examined as a practical illustration. Although dressing appears simple at first glance, it actually comprises several sequential movements. The child first learns to take the clothing, then to hold it correctly, and subsequently to put it on. Each step is reinforced individually, and they are later unified into a single continuous process. Task analysis holds critical importance when deploying chaining technology, because it is precisely through this analysis that a task is divided into exact steps. The complexity level of each step must align with the child's capabilities. If the steps are structured incorrectly, the learning process becomes arduous, and efficacy declines. This technology is utilized not only for daily living skills but also for forming academic and social skills. For instance, in learning to write, drawing letters, connecting them, and forming words can also be taught via chaining. Consequently, chaining technology stands as one of the universal and effective methods of ABA therapy.

Discrete Trial Training (DTT) Model

Discrete Trial Training technology is also extensively utilized as a structured teaching model, wherein the instructional process is divided into distinct phases, and each trial is organized in a specific sequence of stimulus, response, and consequence. In ABA therapy, Discrete Trial Training (DTT) technology is one of the most widely implemented and scientifically proven structured teaching methods. Developed within the framework of Applied Behavior Analysis, this technology is executed by dividing the instruction into precise, controlled, and repeatable elements.

The core essence of the DTT method is that each instructional episode consists of three primary components: the stimulus (instruction), the child's response, and the consequence (reinforcement or correction). During a DTT session, the therapist secures the child's attention and delivers a clear prompt, such as "What is this?" or "Point to the red color". Once the child responds, if the answer is correct, reinforcement is immediately applied; if it is incorrect, a correction is introduced, and repetition is carried out. In this manner, instruction is conducted through repetitive trials, helping the child acquire new knowledge and skills more rapidly.

On the whole, the technologies and stages of ABA therapy integrate harmoniously to constitute a unified system, and it is precisely this systemic nature that ensures its efficacy. Through this approach, the child not only acquires new skills but also

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achieves the level of applying them independently, which significantly impacts their socialization and overall development.

Experimental Methodology and Results

In enhancing the "Turn-Taking Shaping" methodology, PECS cards featuring visual symbols such as "wait," "my turn," and "your turn" were employed. Through a visual schedule, the execution of activities on a turn-taking basis was explained to the child. According to the research results, it was determined that skills such as waiting for one's turn, managing one's own actions, and engaging in mutual activities with peers developed progressively in the students. The effectiveness of this methodology manifested prominently, particularly within games and group activities.

In the "Request Shaping" methodology, particular attention was dedicated to forming the communicative requesting skills of the children. Initially, the children were taught to express an object or a need through PECS cards. Subsequently, vocalizing a sound, uttering a short word, and utilizing simple phrases alongside the card were formed step-by-step. In the later stages of the sessions, visual prompts were reduced, and the children transitioned to independent verbal requesting. As a result, an increase in communicative activity and an improvement in requesting skills were observed among the students.

The results of the conducted experimental-trial work demonstrated that harmonizing ABA therapy with modern visual technologies is highly effective in developing the socialization of primary school students with autism spectrum disorder. The methodology and technologies deployed during the research exerted a positive impact on forming eye contact, greeting, waiting for turns, and making communicative requests in the children. Concurrently, it was established that the students' adaptation to the social environment and their active engagement in communication with educators and peers also intensified.

Thus, the experimental results confirmed that enhancing ABA therapy methodologies based on PECS cards and "Visual Schedule" technology when working with students on the autism spectrum serves as an effective pedagogical approach that supports social-communicative development.

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