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Behavior Modification Strategies in Developing Independence Wearing Buttoned Clothes to Children with Moderate Disabilities: A Literature Review

Sabrina Athifah Muhti¹, Nasywa Syakirah A.Y²

^{1,2} Universitas Muhammadiyah Lampung, Indonesia

Email: ¹sabrinamuhti@gmail.com, ²nasywayudiansyah116@gmail.com

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ABSTRACT

Independence in self-care, particularly the foundational skill of buttoning clothes, presents a significant challenge for children with moderate intellectual disabilities due to inherent limitations in fine motor coordination and cognitive attention functions. This narrative literature review aims to synthesize the effectiveness of various behavior modification strategies by analyzing key research published between 2022 and 2026. Findings consistently demonstrate that structured methods, specifically modeling and repetitive drill techniques, significantly improve children's abilities, transitioning them from very low to high proficiency levels with high stability. Furthermore, behavior modification strategies such as chaining (both forward and backward) and shaping prove highly effective by decomposing the complexity of dressing tasks into manageable micro-steps that accommodate the learners' developmental profiles. The integration of innovative tactile media, including interactive Quiet Books and felt-based manipulative materials, is found to enhance cognitive focus and learner enthusiasm through concrete sensory stimulation. The overall success of these interventions relies heavily on the consistent application of positive reinforcement, the implementation of adaptive teacher communication, and active collaboration with parents to ensure the generalization of independence at home. In conclusion, systematic behavior modification strategies serve as an effective instrument for fostering functional autonomy for children with moderate intellectual disabilities.



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Corresponding Author:

Sabrina Athifah Muhti

Universitas Muhammadiyah Lampung, Indonesia

sabrinamuhti@gmail.com

INTRODUCTION

Education is a vital foundation for every individual, including children with special needs, to be able to live independently and participate fully in society (Utami & Pertiwi, 2025). Children with moderate intellectual disabilities, or the category of being able to train, have significant limitations in intellectual function and adaptive behavior that arise during the developmental period (Nasruddin et al., 2022). These limitations often hinder their ability to master basic functional tasks necessary for daily independence (Widya et al., 2024).

The development of independence through self-development programs or Activity of Daily Living (ADL) is a top priority in special education to minimize children's dependence on the help of others (Marhani et al., 2023). Through structured self-development exercises, children with intellectual barriers can build confidence, improve social skills, and prepare themselves to adapt in the community environment (Kusnawan et al., 2022). However, the process of mastering this skill does not occur instantly and requires a very personal and systematic approach (Widya et al., 2024).

One of the essential but most difficult self-development skills for children with moderate intellectual disabilities to master is the ability to wear button-down clothes (Putri, 2024). Button-down skills involve complex fine motor coordination, precise finger muscle control, and visual-motor integration that is often not optimally developed in this population (Utami & Pertiwi, 2025). The inability to button clothes independently not only affects the practicality of children's lives, but also has an impact on neatness of appearance and compliance with ethical norms in the school environment (Nasruddin et al., 2022).

The current literature shows that the main obstacles to children mastering these skills come from intrinsic factors such as weak attention and extrinsic factors in the form of a lack of appropriate learning media (Khairunnisa & Hartini, 2022; Utami & Pertiwi, 2025). Children with intellectual barriers tend to be easily distracted and have difficulty following sequential instructions, so they need intervention strategies that are able to break down complex tasks into simple steps (Khairunnisa & Hartini, 2022; Prinanda, 2023). Without consistent behavior modification interventions, these children will continue to rely on parental help for a long period of time (Marhani et al., 2023).

Behavior modification strategies have been widely implemented to overcome these barriers, with popular techniques such as chaining, prompting, and shaping (Marhani et al., 2023; Prinanda, 2023). The backward chaining technique, for example, has been shown to be effective in training children's focus because it starts teaching from the last step that is the easiest (Khairunnisa & Hartini, 2022). In addition, the use of positive reinforcement in the form of praise or physical rewards is a key factor in maintaining children's motivation and enthusiasm for learning during the tiring training process (Prinanda, 2023; Khairunnisa & Hartini, 2022).

Recent research has also begun to explore the effectiveness of various learning methods and media, ranging from modeling and drill methods to the use of concrete media such as Quiet Book and flannel fabric (Putri, 2024; Nasruddin et al., 2022). This sensory media is considered to be able to provide a real experience that makes it easier for children to understand the concept of buttons (Nurhadiyati & Timansah, 2023). Although many individual studies have reported success, there is variation in the results and effectiveness of the techniques used depending on the child's specific profile and the support of the family environment (Prinanda, 2023; Widya et al., 2024).

As a narrative literature review, this paper aims to synthesize findings from various current literature to provide a comprehensive overview of the effectiveness of various existing behavior modification strategies. A narrative understanding of the advantages and limitations of each strategy is indispensable for educational practitioners to design more efficient and evidence-based intervention programs. Based on the review, how effective are various behavior modification strategies in developing independence in wearing button-down clothes in children with moderate intellectual disabilities according to the latest literature in 2022-2026?

METHOD

This study uses the Narrative Literature Review (NLR) method to examine and synthesize the findings of previous research related to behavior modification strategies to develop independence in wearing button-down clothing among children with moderate intellectual disabilities. A review of the

narrative literature is a research approach that aims to provide a comprehensive understanding of a particular topic through the identification, analysis, and interpretation of findings from previously published scientific works (Machi & McEvoy, 2016; Snyder, 2019).

A total of six journal articles that met the inclusion criteria were selected and compiled using data-charting techniques. Data charting is used to systematically record information from each article, including authors, year of publication, research design, intervention techniques, participants, and key findings related to independence in dressing activities.

The data was analyzed using qualitative content analysis. Content analysis is widely used in literature review studies to systematically identify recurring themes, patterns, and relationships among research findings (Elo & Kyngäs, 2008; Bengtsson, 2016). The analysis process consists of four stages: (a) data reduction through the selection of relevant findings from each study, (b) categorization of behavior modification strategies, (c) presentation of findings in the form of narratives and tables, and (d) thematic interpretation and conclusion drawn.

The main instrument used in this study is the categorization table. This instrument facilitates the organization and comparison of information obtained from selected articles according to several themes, including behavior modification techniques, dressing skills training, independence outcomes, and intervention effectiveness. The categorization process allows for a more systematic interpretation of the literature and supports the identification of dominant strategies used to improve clothing buttoning skills among children with moderate intellectual disabilities.

Table 1. Data Charting

No	Author	Method	Result
1	Development of a Quiet Book-Based Buttoning Skills Programme for Grade II Children with Mild Intellectual Disabilities at SLB YAPMI Rancaekek (2025)	Descriptive Qualitative	The implementation of Quiet Book media has been proven to increase students' focus and enthusiasm in practicing
2	Chaining and Prompting Technique of Behavior Modification to Improve Adaptive Skills in Child with Intellectual Disability (2023)	Single-subject experimental design	Chaining and prompting techniques successfully improve the adaptive ability to wear socks in children with mild intellectual disabilities
3	Shaping techniques to increase independence in children with intellectual disabilities (2023)	Color Progressive Matrices (CPM), and Vineland Social Maturity Scale (VSMS)	The shaping technique consistently increases the subject's independence in wearing button-down polo shirts
4	Improve Focus with Buttoning Skills Training in Children with Mild Intellectual Disability (2022)	Single case AB	There is an increasing trend in the mastery of button-down skills that directly contributes to the improvement of children's focus
5	Improve Focus with Buttoning Skills Training in Children with Mild Intellectual Disability (2022)	Single Subject Research (SSR)	The application of the drill method significantly improves the ability to wear button-down clothes in children with Down syndrome

No	Author	Method	Result
6	Implementation of Self-Development Program in Increasing Independence for Children with Disabilities at SLB C Muzdalifah (2024)	Participatory Approach	There was a significant improvement in the ability of children with disabilities to be independent in daily activities, including dressing, maintaining personal hygiene, and simple social interaction skills
7	The Effectiveness of Modeling Methods on Buttoning Skills for Moderate Category Mentally Disabled Children at Muhammadiyah Pauh IX Special School in Padang (2024)	Single Subject Research (SSR) type A-B-A	The modeling method has been shown to be effective in improving button-down skills in children with moderate intellectual disabilities
8	Self-Coaching Exercises for Disabled Students in Increasing Independence (2022)	Qualitative descriptive	Self-coaching exercises are effective in increasing students' independence positively
9	Improve Focus with Buttoning Skills Exercises in Children with Mild Intellectual Disabilities (2022)	Single case AB	There is an increasing trend in the mastery of button-down skills which directly has a positive impact on increasing children's focus and sense of responsibility
10	Adaptive Communication of Teachers with Students with Special Needs with Disabilities in an Effort to Build Independence at SLBN 8 Jakarta	Qualitative Descriptive	This study shows that the application of adaptive communication by teachers in SLBN 8 Jakarta, which combines verbal (short instruction and repetition) and nonverbal (demonstration and gesture) strategies, has been proven to be effective in encouraging the functional independence of students with disabilities in the classroom.

RESULT AND DISCUSSION

A narrative review of the research literature published between 2022 and 2026 shows a strong consensus on the effectiveness of behavior modification strategies in improving the adaptive abilities of children with moderate intellectual barriers, especially in button-down self-coaching skills (Marhani, 2023). Various studies have consistently highlighted that fine motor limitations and low attention function in this population can be overcome through the application of structured techniques such as chaining, shaping, modeling, and drill methods that are carried out repeatedly (Marhani, 2023).

The integration between systematic instructional methods with the use of interactive concrete media, such as Quiet Book or flannel media, proved significant in increasing students' enthusiasm and focus during training sessions. Furthermore, the results of this synthesis confirm that the success of independent development does not only depend on technical mastery alone, but is also driven by the provision of appropriate positive reinforcement and the active involvement of parents and teachers in creating a supportive learning environment.

1. Sign Interactive Tactile Media (Quiet Book)

The use of interactive and tactile-based learning media, such as the Quiet Book, has been shown to be effective in increasing engagement and acquisition of fine motor skills in children with intellectual barriers. Utami and Pertiwi (2025) developed a button-down skills program using Quiet Book media which is designed with gradual button sizes to provide a scaffolded learning experience. Their research findings show that the integration of this concrete media significantly increases the focus and

enthusiasm of grade II students during practice sessions compared to conventional methods that use real clothes. These results are in line with the principles of Universal Design for Learning (UDL), which emphasizes the importance of providing a variety of multi-sensory means of engagement and input to accommodate the unique cognitive and motor profiles of students with special needs.

2. The Chaining and Prompting Technique

The application of systematic behavior modification techniques, such as chaining and prompting, has proven crucial in training complex adaptive behavioral sequences in children with intellectual barriers. Marhani, Mz., and Syarif (2023) evaluated the effectiveness of the forward chaining strategy combined with hierarchical prompting procedures ranging from full physical assistance, modeling, gestures, to verbal cues to teach socks skills independently. Their findings showed significant progress from initial conditions requiring total physical assistance to self-mastery of tasks in eight intervention sessions, ultimately allowing subjects to take personal responsibility in their school preparation routines. The results of this study reinforce the behavioristic principle that breaking complex functional tasks into clear and measurable sequences of steps (task analysis) is highly effective in helping learners with cognitive limitations internalize new motor patterns and reduce dependence on caregivers.

3. Behavioral Shaping for Independence

The implementation of shaping techniques as part of behavior modification strategies has proven to be effective in facilitating the mastery of procedural self-development skills in populations with intellectual barriers. Prinanda (2023) conducted a psychological intervention using shaping techniques to improve the ability to wear button-down polo shirts in an eight-year-old boy with moderate intellectual disabilities. This intervention was carried out by dividing complex dressing activities into five micro stages starting from inserting the head, hands, to putting on buttons and providing positive reinforcement in the form of praise every time the subject successfully completed one of these stages.

The results showed a steady increase in independence during the intervention session, where subjects who initially relied entirely on parental help became able to complete tasks independently in a more efficient time. This findings reinforce the behavioristic principle that teaching fine motor skills for children with disabilities requires a highly structured and gradual approach, as well as consistent home environment support to ensure the stability of new behaviors that have been formed.

4. Backward Chaining and Cognitive Focus

Specific functional skills training, such as buttoning, not only builds physical independence but also serves as a mechanism to improve cognitive focus in children with intellectual disabilities. Khairunnisa and Hartini (2022) examined the use of backward chaining techniques supported by prompting and the provision of positive reinforcement in the form of tangible gifts and food (edibles) to improve buttoning skills as well as attention duration in children with mild intellectual disabilities. Their findings reveal an increasing trend in skill mastery, where systematic repetition of tasks helps subjects overcome innate attention deficits and easily distracted behaviors. Crucially, the study notes that mastery of such manual tasks has an impact on increased sense of personal responsibility and better concentration when doing school assignments. This reinforces the behavioral theory that breaking complex tasks into simpler units through chaining strategies can effectively facilitate motor progress as well as cognitive resilience, so that self-coaching routines turn into valuable mental discipline exercises for children with disabilities.

5. The Application of the Drill Method

Consistent and repeated exercises through the drill method have been shown to be very effective in improving fine motor routines in children with intellectual barriers of the Down syndrome type. Nasruddin, Hadi, and Syamsuddin (2022) examined the application of this method to improve the ability to wear button-down school clothes in grade I students with disabilities. The findings of their study using the SSR design showed a very significant improvement in ability, where subjects who were initially in the "very low" category managed to reach the "high" category stably after the intervention phase and remained in that category in the final baseline phase. These results reinforce the behavioristic principle that intentional and repeated habituation allows the formation of permanent skills in children. By prioritizing concrete teaching principles and hands-on demonstrations, the drill method helps children overcome physical and intellectual retardation in internalizing the complex sequence of self-development tasks.

6. Participatory Self-Build Programs and Visual Scaffolding

Participatory approaches that involve cross-stakeholder collaboration have been proven to have a more sustainable impact on the development of independence of children with intellectual barriers. Widya, Rozana, Harahap, and Panggabean (2024) evaluated the implementation of the self-development program at SLB C Muzdalifah which integrates the use of interactive visual media in the form of educational animation videos with intensive hands-on practice. These devotional findings showed a significant improvement in students' functional abilities, where they began to be able to wear clothes and button clothes independently after going through a process of visual observation and gradual imitation exemplified by teachers. These results confirm the importance of synergy between the school and home environment, which is in line with the principle of inclusive education that consistent support from parents as teacher partners is the main key to ensuring that the self-development skills that have been learned can be permanently maintained in the child's daily routine.

7. The Modeling Method in Special Education

The modeling method has been shown to make a significant contribution in accelerating the mastery of complex self-development skills through the process of observation and direct imitation. Putri (2024) evaluated the effectiveness of this method in children with moderate intellectual disabilities at SLB Muhammadiyah Pauh IX Padang using a Single Subject Research (SSR) design of type A-B-A. The results showed a very drastic improvement in the subjects' abilities, where the average score in the initial baseline phase (A1) of 23% increased to 81% during the intervention phase (B), and finally reached a level of stability of 85% in the final baseline phase (A2). This success is based on the principle that the provision of a concrete behavioral model allows the child to visualize the necessary motor sequences more clearly before attempting to do it on his own. These findings confirm that teacher guidance accompanied by step-by-step demonstrations is an effective pedagogical instrument to overcome cognitive barriers in learning daily independence procedures.

8. Multi-Method Self-Development Training

The implementation of mandatory and structured self-development programs in the special school curriculum has been proven to make a significant contribution to the functional independence of students with disabilities. Kusnawan, Muslimah, and Amalia (2022) examined the process and results of self-development training at SLB BC YPLAB Journalist Bandung using a combination of demonstration methods, assignments, simulations, and field trips. Their findings show that the use of various behavior modification techniques such as modeling, prompting, fading, and role playing has succeeded in improving students' ability to carry out daily activities independently, including wearing socks, folding shoes, and eating and drinking alone. The success of this intervention was strongly driven by a consistent training schedule and synergy between teachers and parents who applied the principles of awareness and patience in creating a pleasant learning atmosphere. These results are in line

with the principles of contextual and behavioristic learning, which emphasize that the mastery of life skills for children with intellectual disabilities requires repetition in real-world situations to ensure retention and generalization of behaviors adaptive in everyday life.

9. Tactile Learning through Felt Media (Flannel)

The provision of concrete sensory experiences through simple manipulative media, such as flannel, has been shown to be effective in facilitating the understanding of button concepts in children with moderate intellectual barriers. Nurhadiyati and Timansah (2023) explore the use of flannel fabric media designed with contrasting colors and button shapes to train self-development skills in grade III students at SLB C TPA Jember. The findings of their study using the Single Subject Research (SSR) design showed that the texture and flexibility of the flannel fabric provided good sensory stimulation, thereby significantly increasing the subjects' enthusiasm for learning as well as fine motor skills compared to using regular clothing in the early stages. The results of the evaluation showed a stable positive change, where the subjects were able to master the technique of inserting buttons gradually ranging from large to small sizes. This confirms that the use of appropriate and adaptive media is very important in special education to bridge children's cognitive limitations with a more real and easy-to-understand learning experience.

10. Adaptive Communication for Functional Independence

Adaptive communication between teachers and students is a fundamental instrument in bridging language processing barriers to building functional independence in special education environments. Fadhly, Praptiningsih, and Rahmawati (2026) researched adaptive communication practices at SLBN 8 Jakarta using the Communication Accommodation Theory (CAT) framework. Their research findings show that the use of convergence strategies such as short, concrete verbal instruction, breaking tasks into small steps, and repetition of keywords combined with nonverbal support in the form of gestures and visual media, is highly effective in helping students with disabilities understand work steps. This strategy not only improves the understanding of the assignment, but also creates a safe and stable interaction structure, thus encouraging students to start taking the initiative to start the task and tidying up the learning tools independently. The results of this study confirm that the adjustment of teachers' communication styles is not just an instructional technique, but rather a practice of social accommodation that is essential to facilitate social inclusion and functional autonomy of students in their daily routines.

CONCLUSION

The shaping technique is highly effective in advancing self-care skills, particularly independent dressing, among children with Down syndrome. The intervention's success relies on structured task analysis, step-by-step reinforcement, fading prompts, and sustained positive feedback. Practically, these findings underscore the necessity of active collaboration among therapists, teachers, and parents to execute consistent behavioral modification programs that maximize long-term independence.

A synthesis of various literature shows that various behavior modification strategies have very high effectiveness in developing independence in wearing button-down shirts in children with moderate intellectual disabilities. Structured techniques such as modeling have been shown to drastically increase the subject's ability score from a very low initial state to a high level of stability, while the drill method consistently leads the child to permanent mastery of skills through repeated practice. The use of chaining strategies (both forward and backward) and shaping that break down complex tasks into micro-steps also yielded significant results in reducing children's dependence on total physical assistance from caregivers. The effectiveness of this strategy was found to be more optimal when integrated with

interactive tactile media such as Quiet Book and flannel, which not only made it easier to understand the concept of buttons sensorially but also drastically increased children's enthusiasm and cognitive focus during the self-building learning process.

The success of these interventions is highly determined by the application of in-depth task analysis and the selection of appropriate positive reinforcement to maintain children's motivation and resilience. In addition to the instructional technical aspect, teachers' adaptive communication through convergence strategies plays a crucial role in creating a safe and easy-to-understand interaction structure, thereby encouraging the formation of functional autonomy in children in school routines. However, the literature also confirms that the independence that has been built in the school environment requires synergy and active collaboration between teachers and parents so that these skills can be maintained and generalized in daily life at home. Thus, behavior modification strategies that are applied consistently, personally, and supported by adaptive media and a supportive environment have proven effective in overcoming motor and intellectual barriers in the population of children with moderate intellectual barriers.

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