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Pengembangan Model PEACH untuk Meningkatkan Keterampilan *Toilet Training* Anak Autistik di SLB

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ABSTRAK

Toilet training merupakan keterampilan adaptif dasar yang penting bagi kemandirian anak autistik. Namun, pelaksanaannya di sekolah luar biasa masih sering terkendala oleh keterbatasan media visual, panduan fungsional, dan prosedur pendampingan yang terstruktur. Penelitian ini bertujuan untuk mengembangkan serta menguji kelayakan dan efektivitas awal model PEACH, yaitu integrasi Picture Exchange Communication System (PECS), Affective Communication Training (AFFACT), dan Treatment and Education of Autistic and Related Communication-Handicapped Children (TEACCH), dalam meningkatkan keterampilan toilet training anak autistik jenjang sekolah dasar di SLB Negeri Banyuwangi. Penelitian ini menggunakan desain research and development dengan model 4D melalui tahap analisis kebutuhan, perancangan produk, validasi ahli, uji coba terbatas, dan uji lapangan. Subjek uji lapangan terdiri atas tiga anak autistik dengan desain one-group pretest-posttest. Data dikumpulkan melalui lembar validasi, observasi, wawancara, dan dokumentasi. Hasil validasi menunjukkan bahwa kelayakan materi memperoleh persentase 85,50%, kelayakan media 94,00%, dan kelayakan praktisi 92,50%; seluruhnya termasuk kategori sangat layak. Rata-rata skor toilet training meningkat dari 22,67 menjadi 38,67, dengan N-Gain sebesar 0,63 kategori sedang dan hasil uji t berpasangan yang signifikan (p = 0,001). Temuan ini menunjukkan bahwa model PEACH layak dan memiliki efektivitas awal untuk mendukung kemandirian toilet training anak autistik.

Kata Kunci: anak autistik; dukungan visual; model PEACH; pendidikan khusus; *toilet training*

Development of the PEACH Model to Improve Toilet Training Skills in Autistic Children at SLB

ABSTRACT

Toilet training is a fundamental adaptive skill that supports independence in autistic children. However, its implementation in special education settings is often hindered by limited visual media, functional guidance, and structured assistance procedures. This study aimed to develop and examine the feasibility and preliminary effectiveness of the PEACH model, which integrates the Picture Exchange Communication System (PECS), Affective Communication Training (AFFACT), and Treatment and Education of Autistic and Related Communication-Handicapped Children (TEACCH), to improve toilet training skills among autistic elementary school students at SLB Negeri Banyuwangi. This study employed a 4D research and development design involving needs analysis, product design, expert validation, limited trials, and field testing. Three autistic students participated in a one-group pretest-posttest field test. Data were collected using validation sheets, observation checklists, interviews, and documentation. The feasibility scores for the PEACH material, media, and practitioner assessments were 85.50%, 94.00%, and 92.50%, respectively, indicating that the product was highly feasible. The mean toilet training score increased from 22.67 to 38.67, with an N-Gain score of 0.63 in the moderate category and a significant paired-sample t-test result (p = 0.001). These findings indicate that the PEACH model is feasible and preliminarily effective in supporting toilet training independence among autistic children.

Keywords: *autistic children; PEACH model; special education; toilet training; visual support*

INTRODUCTION

Independence in daily living skills is an essential developmental goal for autistic children, particularly in special education settings. Autism spectrum disorder (ASD) is characterized by persistent difficulties in social communication, restricted or repetitive behaviors, sensory differences, and variations in adaptive functioning (American Psychiatric Association, 2013). These characteristics may affect children's ability to perform activities of daily living, including eating, dressing, personal hygiene, and toilet training. Daily living skills are important indicators of functional independence; however, many individuals with ASD demonstrate lower daily living skill attainment than expected for their age and cognitive capacity (Bal et al., 2015). Therefore, functional guidance in special education should not only focus on academic development but also address adaptive skills that directly support children's independence.

Toilet training is one of the fundamental adaptive skills that supports children's self-care, social participation, and quality of life. For autistic children, toilet training may be more challenging because it requires the integration of physical readiness, communication ability, emotional regulation, sensory tolerance, sequential understanding, and consistent routines. Simon et al. (2022) reported that children on the autism spectrum often achieve toileting independence later than non-autistic children, while existing toilet training interventions are still dominated by behavioral approaches with limited attention to broader developmental needs. Communication difficulties, sensory preferences, anxiety, and environmental barriers may also interfere with successful toilet training (Simon et al., 2022). In addition, classroom-based intensive toilet training has been reported to improve continence and self-initiation among elementary children with ASD, indicating that structured school-based interventions can support toileting development when implemented systematically (Cagliani et al., 2021).

In the Indonesian special education context, toilet training is not only a self-care activity but also part of guidance and counseling services aimed at developing children's functional independence. Preliminary findings at SLB Negeri Banyuwangi indicated that toilet training assistance was still mostly conducted through direct verbal instruction and physical assistance from teachers. Although picture-based media had been introduced in classroom learning, no specific visual media or written guide had been systematically developed to support toilet training for autistic students. Initial field data showed that 6 out of 11 autistic elementary school students, or 54.55%, still used diapers or required teacher assistance during toileting activities. Teachers also reported that emotional aspects, such as fear, refusal, discomfort, and the need for positive reinforcement, had not been consistently integrated into toileting guidance. This condition indicates a practical gap between the need for structured functional intervention and the availability of applicable guidance tools in school settings.

Previous interventions for autistic children have commonly used behavioral approaches, visual supports, or alternative communication strategies. The Picture Exchange Communication System (PECS) is an augmentative and alternative communication approach designed to teach functional communication to children with limited speech by encouraging them to initiate communication through picture exchange (Bondy & Frost, 2001). PECS has also been shown to improve communication and reduce problem behaviors in children with autism (Charlop-Christy et al., 2002). In the context of toilet training, PECS is relevant because it can help children communicate the

need to urinate or defecate using concrete visual symbols. However, communication support alone may not be sufficient because toilet training also involves emotional readiness, sensory adjustment, and willingness to follow unfamiliar routines.

Affective communication support is also important because autistic children may experience anxiety, refusal, frustration, or discomfort during toileting activities. Augmentative and alternative communication interventions have been shown not to inhibit speech development and may support communication development in children with autism (Schlosser & Wendt, 2008). In toilet training, affective communication can help children express discomfort, recognize emotional states, and respond more adaptively during toileting routines. In addition, structured teaching through the TEACCH approach is relevant because autistic children often benefit from visual schedules, environmental organization, predictable routines, and step-by-step task structures. Mesibov and Shea (2010) emphasized that TEACCH is based on structured teaching principles that support learning through visual organization and predictable environments. More recent evidence also suggests that TEACCH may improve social skills, cognitive performance, and fine motor functioning among individuals with ASD, although its effects on daily living skills still require further confirmation (Shi et al., 2025).

Although PECS, affective communication support, and TEACCH have been discussed in previous studies, they are often applied separately. Toilet training interventions are frequently dominated by operant conditioning strategies, such as reinforcement and scheduled toileting, while visual supports often focus on activity sequences without explicitly integrating children's affective responses and communication needs (Simon et al., 2022). This creates a research and practice gap: autistic children require a toilet training model that combines functional communication, emotional support, structured visual routines, and reinforcement in an integrated and practical format. Addressing this gap is important because successful toilet training depends not only on children's behavior but also on their ability to communicate needs, tolerate toileting situations, understand sequential steps, and receive consistent support from adults.

This study responds to that gap by developing the PEACH model, an integrative guidance model that combines Picture Exchange Communication System (PECS), Affective Communication Training (AFFACT), and Treatment and Education of Autistic and Related Communication-Handicapped Children (TEACCH). The novelty of this study lies in the integration of visual communication, affective support, structured teaching, and positive reinforcement into one practical toilet training model for autistic elementary school students. Unlike approaches that focus only on behavioral reinforcement or visual schedules, PEACH is designed to help children communicate toileting needs, recognize emotional responses, follow toileting steps, and gradually reduce dependence on teacher assistance. The model is also supported by visual media, a guidebook, and monitoring sheets to help teachers and parents implement toilet training more consistently.

Based on this background, the present study aimed to develop the PEACH model and examine its feasibility and preliminary effectiveness in improving toilet training skills among autistic elementary school students at SLB Negeri Banyuwangi. Specifically, this study examined the feasibility of PEACH material, the feasibility of PEACH media, the practicality of its implementation, and the preliminary effectiveness of the PEACH model in improving children's toilet training skills.

METHOD

Research Design

This study used a research and development design to produce the PEACH model as an integrative guidance model for improving toilet training skills among autistic elementary school students at SLB Negeri Banyuwangi. The development procedure adapted the 4D model, consisting of Define, Design, Develop, and Disseminate stages (Thiagarajan et al., 1974). This model was selected because it provides systematic stages for developing educational and guidance products, particularly in special education settings. This study also used a mixed-method approach, in which qualitative data were used to identify needs and implementation responses, while quantitative data were used to examine product feasibility and preliminary effectiveness through a one-group pretest-posttest design.

Product Development

The product developed in this study was the PEACH model, which integrates Picture Exchange Communication System (PECS), Affective Communication Training (AFFACT), and Treatment and Education of Autistic and Related Communication-Handicapped Children (TEACCH). The PEACH product consisted of visual media, toilet training sequence cards, affective or emotion cards, a guidebook, monitoring sheets, and observation instruments. The visual media were designed to help children communicate toileting needs, recognize emotional responses, understand toileting steps, and gradually develop independence through structured routines and positive reinforcement.

Participants and Validators

The study was conducted at SLB Negeri Banyuwangi, East Java, Indonesia. The field test involved three autistic elementary school students selected through purposive sampling. The inclusion criteria were students diagnosed with autism, enrolled at the elementary school level, not fully independent in toilet training, and having parental consent to participate in the study.

Validators involved in this study consisted of material experts, media experts, and special education practitioners. The material experts assessed the relevance and feasibility of the PEACH content, the media experts assessed the visual and technical quality of the product, and the practitioners assessed the practicality and applicability of the product in the school context.

Research Instruments

The instruments used in this study included expert validation sheets, practitioner validation sheets, toilet training observation checklists, interview guidelines, and documentation sheets. The toilet training observation checklist consisted of 12 indicators covering physical readiness, communication readiness, toileting process, and independence. Each indicator was scored using a five-level rating scale: 0 = unable, 1 = able with full assistance, 2 = able with partial assistance, 3 = able with supervision, and 4 = able independently. Therefore, the maximum score for each student was 48.

Table 1. Research Data, Instruments, and Data Analysis Techniques

Research data	Instrument	Data source	Data analysis technique
Product feasibility	Material expert validation sheet	Material experts	Feasibility percentage and content validity index
Media feasibility	Media expert validation sheet	Media experts	Feasibility percentage and content validity index

Research data	Instrument	Data source	Data analysis technique
Practical feasibility	Practitioner validation sheet	Special education practitioners	Feasibility percentage and content validity index
Toilet training skills	Toilet training observation checklist	Autistic students	Pretest-posttest comparison, N-Gain, and paired sample t-test
Implementation response	Interview and documentation sheets	Teachers and practitioners	Descriptive qualitative analysis

Table 1 shows the relationship between research data, instruments, data sources, and analysis techniques used in this study. Product feasibility was assessed using validation sheets completed by material experts, media experts, and special education practitioners. The effectiveness of the PEACH model was examined using toilet training observation data collected before and after the intervention. Qualitative data from interviews and documentation were used to support the interpretation of quantitative findings and describe the implementation process in the field.

Research Procedure

The research procedure consisted of four development stages. The Define stage was conducted to identify the initial condition of toilet training among autistic students, analyze student characteristics, examine toileting task sequences, and identify the need for an integrative guidance model. Data at this stage were collected through observation, interviews with teachers, and documentation of existing school practices. The results of this stage became the basis for determining the components and structure of the PEACH model. This stage included front-end analysis, student characteristics analysis, task analysis, and model needs analysis.

The Design stage involved preparing the PEACH model prototype, designing visual media, arranging toilet training sequence cards, developing affective or emotion cards, preparing the guidebook, and constructing research instruments. The prototype was designed to combine three main components. PECS was used to support functional communication of toileting needs, AFFACT was used to support emotional expression and positive reinforcement, and TEACCH was used to provide structured visual routines for toileting activities.

The Develop stage consisted of expert validation, product revision, limited trial, and field testing. Expert validation was conducted by material experts, media experts, and special education practitioners using validation sheets with a five-point Likert scale. The validation assessed content feasibility, visual design, technical quality, practicality, and product applicability. After validation, the product was revised based on expert and practitioner suggestions. A limited trial was then conducted to examine the clarity of instructions, children's initial responses to the media, teachers' ease of use, and the practicality of the guidebook and monitoring sheets. The revised product was subsequently implemented in a field test using a one-group pretest-posttest design.

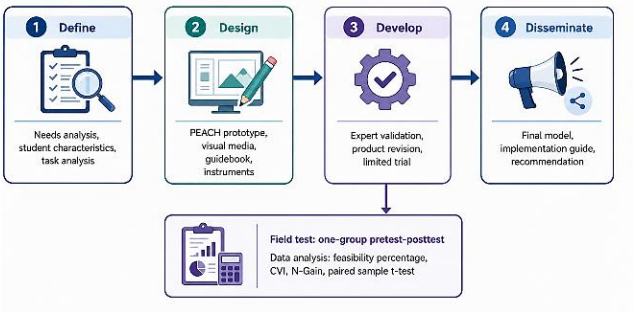

Figure 1. Research and Development Procedure of the PEACH Model

Figure 1 illustrates the PEACH model development procedure, beginning with needs analysis, product design, expert validation, product revision,

limited trial, field testing, data analysis, and final product refinement. The figure also shows that the effectiveness of the model was examined through a one-group pretest-posttest design.

The Disseminate stage was conducted by finalizing the PEACH product into a model guide that could be recommended for use by teachers, practitioners, and parents. In this study, dissemination was limited to final product refinement and recommendation for implementation in special education settings.

Data Analysis

Product feasibility was analyzed using percentage analysis. The formula was:

$$P = \frac{f}{N} \times 100\%$$

Where P is the feasibility percentage, f is the obtained score, and N is the maximum score. The feasibility score was interpreted using product feasibility criteria commonly applied in development research. A percentage of 81%–100% was categorized as highly feasible (Akbar, 2013; Riduwan, 2015).

Content validity was analyzed using the Item-Level Content Validity Index (I-CVI). An item was considered relevant when validators gave a score of 4 or 5 on a five-point scale. The formula was:

$$I - CVI = n_{e/\mathrm{N}}$$

Where I-CVI is the item-level content validity index, ne is the number of validators who rated the item as relevant, and N is the total number of validators. The average scale-level content validity index was obtained by averaging all I-CVI values. A high I-CVI and S-CVI/Ave indicate strong agreement among validators regarding item relevance (Polit et al., 2007; Yusoff, 2019).

Reliability was examined using Cronbach's Alpha for the validation instruments. The instrument was considered reliable when the alpha coefficient was at least 0.70. This threshold is commonly accepted for internal consistency in educational and social research (Tavakol & Dennick, 2011). In this study, the validation instruments were tested using Cronbach's Alpha with $\alpha \geq 0.70$ as the reliability criterion.

The improvement in students' toilet training skills was analyzed using N-Gain. The formula was:

$$N - Gain = \frac{(S_{post} - S_{pre})}{(S_{max} - S_{pre})}$$

Where Spost is the posttest score, Spre is the pretest score, and Smax is the maximum score. The N-Gain result was interpreted as low, moderate, or high improvement based on the normalized gain category (Hake, 1998).

A paired sample t-test was used to determine whether the difference between pretest and posttest scores was statistically significant. The formula was:

$$t = \bar{d} / (sd / \sqrt{n})$$

Where t is the paired sample t-test value, $\bar{d}$ is the mean difference between pretest and posttest scores, sd is the standard deviation of the differences, and n is the number of participants. The hypothesis was tested at a significance level of 0.05. The PEACH model was considered effective when the posttest score was higher than the pretest score and the significance value was lower than 0.05. The use of paired sample t-test was appropriate because the data were obtained from the same participants before and after the PEACH intervention.

Qualitative data from interviews, observations, and documentation were analyzed descriptively. The analysis focused on children's responses to the PEACH media, teachers' perceptions of product usability,

implementation obstacles, and revision needs. These qualitative findings were used to support the interpretation of quantitative results and to refine the final PEACH model.

RESULTS AND DISCUSSION

Results

The first result of this study was the development of the PEACH model as an integrative toilet training guidance product for autistic elementary school students. The product was designed based on the needs analysis conducted at SLB Negeri Banyuwangi, which showed that toilet training assistance had previously relied mostly on direct teacher instruction and physical assistance, without being supported by specific visual media or written implementation guidelines. Therefore, the PEACH model was developed to provide a more structured, visual, affective, and practical guidance system to support children's toileting independence.

The PEACH model integrates three main components: Picture Exchange Communication System (PECS), Affective Communication Training (AFFACT), and Treatment and Education of Autistic and Related Communication-Handicapped Children (TEACCH). PECS was used to support children's functional communication, particularly in expressing the need to urinate or defecate. AFFACT was used to support children's emotional recognition, emotional readiness, and positive reinforcement during toileting activities. TEACCH was used to provide structured visual routines so that children could understand and follow the sequence of toilet training activities more consistently.

The product development resulted in two main outputs: PEACH visual media and the PEACH guidebook. The PEACH visual media was designed as printed visual media in A3+ size with glossy finishing. The media contained visual symbols, toileting sequence cards, affective or emotion cards, and reinforcement components. The visual design was intended to help students understand toileting steps concretely, communicate their toileting needs, recognize emotional conditions, and follow structured routines. The glossy finishing was selected to improve visual clarity, durability, and practicality for repeated use in school and home settings.

The PEACH guidebook was developed as an operational manual for teachers, special education practitioners, assistants, and parents. The guidebook was designed in A5 size with a buffalo paper cover to make it practical, easy to carry, and durable for repeated use. The guidebook contained an introduction to the PEACH model, objectives, target users, implementation steps, instructions for using the visual media, reinforcement procedures, monitoring sheets, and evaluation procedures. This guidebook was developed because visual media alone would not be sufficient without clear guidance for consistent implementation.

Table 2. Design Specification of the PEACH Product

Product component	Design specification	Function in toilet training guidance
PEACH model	Integration of PECS, AFFACT, and TEACCH	Provides an integrative guidance framework combining communication, affective support, and structured routines
PEACH visual media	Printed A3+ visual media with glossy finishing	Helps children understand toileting steps, communicate needs, recognize emotions, and follow routines
PECS cards	Visual symbols or cards for toileting needs	Supports children in expressing the need to urinate or defecate
AFFACT cards	Emotion cards and positive reinforcement components	Helps children recognize feelings, reduce refusal, and receive reinforcement
TEACCH sequence cards	Step-by-step visual toileting sequence	Helps children follow toileting activities in a

Product component	Design specification	Function in toilet training guidance
		structured and predictable order
PEACH guidebook	A5 printed guidebook with buffalo paper cover	Guides teachers, practitioners, assistants, and parents in implementing PEACH consistently
Monitoring sheet	Observation and progress recording sheet	Documents children's assistance level, emotional response, success, and development

Table 2 shows that the PEACH product was not developed merely as visual media, but as an integrated guidance system consisting of a model framework, visual media, communication cards, emotion cards, structured sequence cards, a guidebook, and monitoring sheets. These components were designed to complement one another. PECS supports functional communication, AFFACT supports emotional readiness and reinforcement, while TEACCH provides structured visual routines. The guidebook and monitoring sheet strengthen implementation consistency and help teachers document children's progress during toilet training.

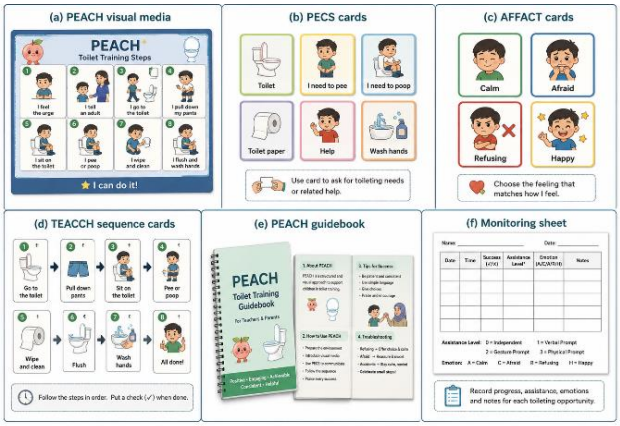

Figure 2. Design Components of the PEACH Product

Figure 2 presents the final design components of the PEACH product, including the visual media, toileting sequence cards, emotion cards, guidebook, and monitoring sheet. The figure illustrates that the PEACH model was developed as a practical product package to support toilet training guidance for autistic elementary school students.

The results of this study are presented based on three main aspects: the feasibility of the PEACH model, the improvement of students' toilet training skills, and the statistical effectiveness of the model. Product feasibility was evaluated by material experts, media experts, and special education practitioners. The field test was conducted with three autistic elementary school students at SLB Negeri Banyuwangi using a one-group pretest-posttest design.

Table 3. Feasibility Validation Results of the PEACH Model

Validation aspect	Obtained score	Maximum score	%	Category
Material feasibility	171	200	85.50%	Highly feasible
Media feasibility	188	200	94.00%	Highly feasible
Practitioner feasibility	185	200	92.50%	Highly feasible
Average			90.67%	Highly feasible

Table 3 shows that the PEACH model was considered highly feasible by all validators. The material feasibility score reached 85.50%, indicating that the content of the PEACH model was relevant to toilet training objectives, the characteristics of autistic children, and the need for structured functional guidance. The media feasibility score reached 94.00%, indicating that the visual media was considered attractive, readable, practical, and suitable for repeated use. The practitioner feasibility score reached 92.50%, indicating that the product was applicable in the context of special education services at SLB Negeri Banyuwangi.

The highest feasibility score was obtained from media validation. This finding indicates that the visual components of PEACH, including visual cards, sequence cards, and emotion cards, were considered suitable for helping autistic children understand

toileting routines. Practitioner validation also confirmed that the product was practical, safe, and potentially acceptable for use by teachers and school practitioners. However, validators suggested several minor revisions, such as adding more realistic images, providing toilet sequence cards, adding gender-related toilet symbols, and improving the durability of the media. These suggestions were used to refine the final product.

The field test was conducted to examine changes in students' toilet training skills before and after the implementation of the PEACH model. The pretest and posttest scores are presented in Table 4.

Table 4. Pretest and Posttest Scores of Toilet Training Skills

Subject	Pretest	Posttest	Difference
S1	22	37	15
S2	23	40	17
S3	23	39	16
Mean	22.67	38.67	16.00

Table 4 indicates that all subjects experienced an increase in toilet training scores after the PEACH model was implemented. The mean pretest score was 22.67, while the mean posttest score increased to 38.67. The average score difference was 16.00 points. This result shows that students' toilet training skills improved after receiving guidance using PEACH visual media, PECS cards, affective communication support, structured toileting sequences, and positive reinforcement.

Before the intervention, students generally still required partial assistance in toileting activities. After the intervention, their scores increased toward a higher level of independence. This improvement suggests that the PEACH model helped students understand toileting steps, communicate their toileting needs, respond better to toileting routines, and reduce dependence on direct teacher assistance.

Figure 3 shows the percentage improvement in four aspects of toilet training skills. Physical readiness increased from 58.33% to 66.67%, communication readiness increased from 50.00% to 75.00%, the toileting process increased from 51.39% to 87.50%, and independence increased from 0.00% to 75.00%. The greatest improvement occurred in independence, indicating that students began to perform toileting activities with reduced direct assistance after the PEACH intervention.

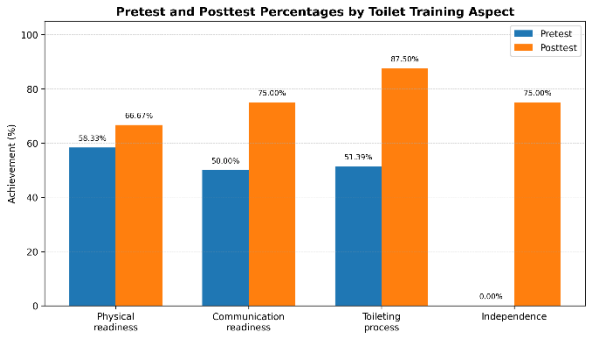

Figure 3. Pretest and Posttest Percentages of Toilet Training Skills

The increase in communication readiness indicates that the use of PECS cards helped students communicate toileting needs more clearly. The increase in the toileting process indicates that visual sequence cards based on TEACCH principles helped students follow toileting steps more systematically. Meanwhile, the increase in independence shows that the integration of communication support, affective support, structured routines, and reinforcement contributed to students' ability to complete toileting activities with less assistance.

The improvement was further analyzed using N-Gain. The N-Gain results by aspect are presented in Table 5.

Table 5. N-Gain Results by Aspect of Toilet Training Skills

Aspect	Pretest	Posttest	N-Gain	Category
Physical readiness	58.33%	66.67%	0.20	Low
Communication readiness	50.00%	75.00%	0.50	Moderate
Toileting process	51.39%	87.50%	0.74	High
Independence	0.00%	75.00%	0.75	High

Table 5 shows that the N-Gain values varied across the four aspects. Physical readiness had the lowest N-Gain value of 0.20, which was categorized as low. This result is understandable because physical readiness, such as the ability to control urination or defecation, is related to bodily control and biological habit formation that may require a longer intervention period. Communication readiness obtained an N-Gain of 0.50, categorized as moderate. This indicates that students showed meaningful progress in communicating toileting needs after using PECS-based visual cards. The toileting process obtained an N-Gain of 0.74, categorized as high, while independence obtained an N-Gain of 0.75, also categorized as high. These findings show that the PEACH model was particularly strong in helping students follow toileting steps and reduce dependence on teacher assistance.

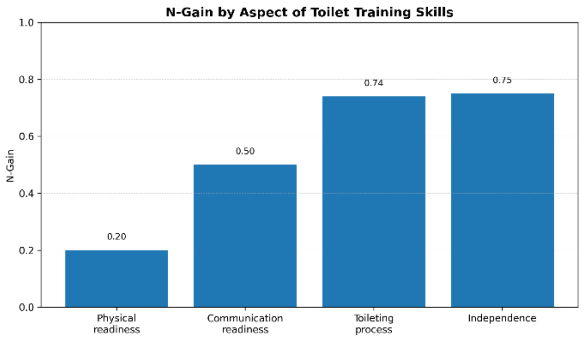

Figure 4. N-Gain by Aspect of Toilet Training Skills

Figure 4 visualizes the N-Gain results for each toilet training aspect. The figure confirms that the strongest improvement occurred in the aspects of toileting process and independence. This indicates that structured visual routines and repeated practice were effective in helping students understand and perform toileting activities more independently. The moderate gain in communication readiness also suggests that PECS-based support contributed to students' ability to express toileting needs more clearly.

The statistical effectiveness of the PEACH model was examined using a paired sample t-test. The result is presented in Table 6.

Table 6. Paired Sample t-test Result of Toilet Training Skills

Data pair	Mean difference	SD	t-value	df	Sig. (2-tailed)	Decision
Posttest–Pretest	16.00	1.00	27.71	2	0.001	Significant

Table 6 shows that the paired sample t-test produced a t-value of 27.71 with df = 2 and a significance value of 0.001. Since the significance value was lower than 0.05, the null hypothesis was rejected. This means that there was a significant difference between toilet training skills before and after the implementation of the PEACH model. Therefore, the PEACH model can be considered preliminarily effective in improving toilet training skills among autistic elementary school students at SLB Negeri Banyuwangi.

Figure 5. Documentation of the PEACH Model Development and Implementation Process

Figure 5 shows that the PEACH model was developed and implemented through a systematic process, beginning with needs assessment, expert and practitioner validation, classroom-based guidance using PEACH visual media, and direct toilet training practice. The documentation supports the field implementation of the model and illustrates how visual communication, structured guidance, and teacher assistance were

applied in a real special education setting. The documentation includes: (a) initial interview and needs assessment with the teacher; (b) material validation activity; (c) media validation discussion; (d) practitioner validation activity; (e) expert/practitioner validation meeting; (f) classroom introduction of PEACH visual media; (g) guided use of PEACH visual cards by a student; and (h) toilet training practice after PEACH guidance.

Discussion

The findings show that the PEACH model was feasible and preliminarily effective in improving toilet training skills among autistic elementary school students. The high feasibility scores from material experts, media experts, and special education practitioners indicate that the model met theoretical, visual, technical, and practical requirements for use in special education settings. The material feasibility score demonstrates that PEACH content was aligned with the needs of autistic children who require visual support, affective guidance, structured routines, and repeated practice. The media feasibility score indicates that the visual design was considered clear, attractive, readable, and practical. Meanwhile, the practitioner feasibility score confirms that the product could be implemented in the school context with minor revisions.

These findings support the argument that toilet training for autistic children should not rely only on direct verbal instruction or physical assistance. Children with ASD often benefit from structured, predictable, and visually supported learning environments. The TEACCH approach emphasizes visual organization, structured routines, and clear task sequences, which can help autistic children understand what to do, when to do it, and what happens next (Mesibov & Shea, 2010). In this study, the strong improvement in the toileting process aspect suggests that visual sequencing based on structured teaching helped students follow toileting steps more consistently.

The increase in communication readiness also indicates that PECS contributed to students' ability to express toileting needs. PECS is designed to support functional communication through picture exchange and has been shown to improve communication among children with autism (Bondy & Frost, 2001; Charlop-Christy et al., 2002). In the context of toilet training, PECS cards provided concrete visual cues that helped students communicate the need to urinate or defecate. This is important because toileting independence does not only depend on physical readiness but also on children's ability to communicate their needs at the right time.

The improvement in independence was the most notable result of this study. Before the intervention, students had not yet demonstrated independent toileting behavior, as shown by the 0.00% pretest percentage for the independence aspect. After the intervention, independence increased to 75.00%, with an N-Gain of 0.75. This finding suggests that the PEACH model helped students move from direct assistance toward supervised performance. The integration of visual communication, affective support, structured routines, and reinforcement may explain this improvement. Positive reinforcement and repeated routines are important in toilet training because they help children associate toileting activities with predictable expectations and successful experiences.

The findings are consistent with previous studies showing that structured toilet training interventions can improve toileting outcomes in children with autism. Cagliani et al. (2021) reported that classroom-based intensive toilet training could support toileting progress among children with ASD. Simon et al. (2022) also emphasized that autistic

children often require structured and evidence-based toilet training interventions because they tend to reach toileting independence later than non-autistic children. The present study extends these findings by integrating PECS, AFFACT, and TEACCH into one guidance model. Unlike interventions that focus only on reinforcement or scheduled toileting, PEACH addresses communication, emotional readiness, visual structure, and behavioral reinforcement simultaneously. Several studies have also emphasized that toilet training interventions for autistic children can be implemented effectively in school, outpatient, and home-based settings when the program includes scheduled toileting, reinforcement, systematic prompting, and consistent adult support (Cocchiola et al., 2012; Kroeger & Sorensen, 2010; LeBlanc et al., 2005). In addition, visual supports are recommended because they can reduce anxiety, increase predictability, support communication, and improve participation among individuals with autism (Rutherford et al., 2020).

The affective component of PEACH is also important. During toilet training, autistic children may experience fear, discomfort, resistance, or anxiety. If emotional responses are ignored, children may resist toileting routines even when visual or behavioral strategies are available. The AFFACT component in this model was used to help children recognize emotional responses, express discomfort, and receive positive reinforcement. This integration strengthens the model because toilet training is not merely a motor or behavioral task but also involves emotional adjustment and adult-child communication.

Although the results are promising, they should be interpreted carefully because the study involved only three participants. The one-group pretest-posttest design also did not include a comparison group; therefore, the findings represent preliminary effectiveness rather than broad generalizable evidence. Nevertheless, the consistent improvement across all subjects, the high feasibility validation scores, and the significant paired sample t-test result provide initial evidence that PEACH is a relevant and practical model for toilet training guidance in special education settings. Future studies should involve larger samples, longer intervention periods, more diverse school contexts, and stronger experimental designs to confirm the effectiveness of the PEACH model.

Overall, the PEACH model offers a practical contribution to guidance and counseling services in special education. It provides teachers and parents with a structured model, visual media, a guidebook, and monitoring tools that can support consistent toilet training practice at school and at home. The integration of PECS, AFFACT, and TEACCH makes the model suitable for autistic children who need concrete communication tools, emotional support, visual routines, and repeated reinforcement to develop functional independence.

CONCLUSION

This study developed the PEACH model as an integrative guidance model to improve toilet training skills among autistic elementary school students at SLB Negeri Banyuwangi. The model integrates PECS, AFFACT, and TEACCH to support children's functional communication, emotional readiness, structured toileting routines, positive reinforcement, and gradual independence. The development process produced a practical product package consisting of PEACH visual media, PECS cards, AFFACT emotion cards, TEACCH sequence cards, a guidebook, and monitoring sheets.

The feasibility validation results showed that the PEACH model was highly feasible for use in special education settings. Material validation reached 85.50%, media validation reached 94.00%, and practitioner

validation reached 92.50%. These results indicate that the product was considered appropriate in terms of content, visual design, technical quality, practicality, and field applicability. The field test also showed positive improvement in students' toilet training skills. The mean score increased from 22.67 in the pretest to 38.67 in the posttest, with an average increase of 16.00 points. The average N-Gain was 0.63, categorized as moderate improvement, and the paired sample t-test showed a significant difference between pretest and posttest scores ($p = 0.001$). The strongest improvements were found in the toileting process and independence aspects. These findings indicate that the PEACH model is feasible and preliminarily effective for supporting toilet training independence among autistic children.

However, this study was limited by the small number of participants and the use of a one-group pretest-posttest design without a control group. Therefore, future research is recommended to involve more participants, longer intervention periods, and stronger experimental designs. Further studies may also examine the application of the PEACH model to other daily living skills, such as dressing, handwashing, eating, and personal hygiene, and evaluate its consistency when implemented collaboratively by teachers and parents at school and at home.

REFERENCES

Akbar, S. (2013). *Instrumen perangkat pembelajaran*. Remaja Rosdakarya.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

Bal, V. H., Kim, S. H., Cheong, D., & Lord, C. (2015). Daily living skills in individuals with autism spectrum disorder from 2 to 21 years of age. *Autism, 19*(7), 774–784. https://doi.org/10.1177/1362361315575840

Bondy, A., & Frost, L. (2001). The Picture Exchange Communication System. *Behavior Modification, 25*(5), 725–744. https://doi.org/10.1177/0145445501255004

Cagliani, R. R., Snyder, S. K., & White, E. N. (2021). Classroom based intensive toilet training for children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 51*, 4436–4446. https://doi.org/10.1007/s10803-021-04883-3

Charlop-Christy, M. H., Carpenter, M., Le, L., LeBlanc, L. A., & Kellet, K. (2002). Using the Picture Exchange Communication System (PECS) with children with autism: Assessment of PECS acquisition, speech, social-communicative behavior, and problem behavior. *Journal of Applied Behavior Analysis, 35*(3), 213–231. https://doi.org/10.1901/jaba.2002.35-213

Cocchiola, M. A., Jr., Martino, G. M., Dwyer, L. J., & Demezzo, K. (2012). Toilet training children with autism and developmental delays: An effective program for school settings. *Behavior Analysis in Practice, 5*(2), 60–64. https://doi.org/10.1007/BF03391824

Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American Journal of Physics, 66*(1), 64–74. https://doi.org/10.1119/1.18809

Kroeger, K., & Sorensen, R. (2010). A parent training model for toilet training children with autism. *Journal of Intellectual Disability Research, 54*(6), 556–567. https://doi.org/10.1111/j.1365-2788.2010.01286.x

LeBlanc, L. A., Carr, J. E., Crossett, S. E., Bennett, C. M., & Detweiler, D. D. (2005). Intensive outpatient behavioral treatment of primary urinary incontinence of children with autism. *Focus on Autism and Other Developmental Disabilities, 20*(2), 98–105. https://doi.org/10.1177/10883576050200020601

Mesibov, G. B., & Shea, V. (2010). The TEACCH program in the era of evidence-based practice. *Journal of Autism and Developmental Disorders, 40*(5), 570–579. https://doi.org/10.1007/s10803-009-0901-6

Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity?

Appraisal and recommendations. *Research in Nursing & Health, 30*(4), 459–467. https://doi.org/10.1002/nur.20199

Riduwan. (2015). *Skala pengukuran variabel-variabel penelitian*. Alfabeta.

Rutherford, M., Baxter, J., Grayson, Z., Johnston, L., & O'Hare, A. (2020). Visual supports at home and in the community for individuals with autism spectrum disorders: A scoping review. *Autism, 24*(2), 447–469. https://doi.org/10.1177/1362361319871756

Schlosser, R. W., & Wendt, O. (2008). Effects of augmentative and alternative communication intervention on speech production in children with autism: A systematic review. *American Journal of Speech-Language Pathology, 17*(3), 212–230. https://doi.org/10.1044/1058-0360(2008/021)

Shi, S., Song, S., Wang, H., Li, P., & Zhang, X. (2025). Effects of TEACCH on social functioning in individuals with autism spectrum disorders: A systematic review and meta-analysis. *BMC Pediatrics, 25*, Article 569. https://doi.org/10.1186/s12887-025-05921-0

Simon, M., Wilkes-Gillan, S., Chen, Y. W. R., Cordier, R., Cantrill, A., Parsons, L., & Phua, J. J. (2022). Toilet training interventions for children with autism spectrum disorder: A systematic review. *Research in Autism Spectrum Disorders, 99*, Article 102049. https://doi.org/10.1016/j.rasd.2022.102049

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2*, 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd

Thiagarajan, S., Semmel, D. S., & Semmel, M. I. (1974). *Instructional development for training teachers of exceptional children: A sourcebook*. Indiana University.

Yusoff, M. S. B. (2019). ABC of content validation and content validity index calculation. *Education in Medicine Journal, 11*(2), 49–54. https://doi.org/10.21315/eimj2019.11.2.6