Adaptive Teaching Strategies for Facilitating Social Skill Learning among Neurodiverse Forensic Service Users

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Abstract

The research examined the efficacy of adaptive pedagogy in helping neurodiverse forensic service users to develop social skills. It investigated the effectiveness of individualized instructional adaptations, such as structured scaffolding, visual supports, and sensory-informed instructions, in promoting social competence, emotional regulation, engagement, and institutional behavior relative to conventional interventions. A quasi-experimental, mixed-methods design with a pre-test–post-test control group framework was used. Sixty adult neurodiverse forensic service users were assigned to an adaptive teaching group (n=30) or a standard intervention group (n=30). The 12-week program involved weekly sessions of 60–90 minutes. Standardized measures of social skills, emotional regulation, and institutional behavioral incidents were used as quantitative results. The measure of engagement was through attendance and facilitator rating of participation. Data analysis involved paired and independent sample t-tests, effect sizes (Cohen's d), percentage improvement, and proportional incident reduction. Qualitative data were analyzed through thematic analysis of interviews with participants and staff. The adaptive teaching group demonstrated superior improvements. The increment in social skills was 36.9% (52.3 -71.6, $p < 0.001$) as compared to 16.6% (52.3 -71.6, $p < 0.001$) in the standard group. The emotional regulation was also enhanced by 39.5% (48.9 -68.2, $p <0.001$) compared to 16.1% in the control group. The incidence of institutional behavioral incidents significantly declined by 51% (4.3 to 2.1/month, $p < 0.001$) in the control group, but there was a non-significant 16% decline in the standard one. Attendance and engagement were higher in the adaptive group (91% vs. 76% attendance; 4.3 vs. 3.2/5 engagement). Individualized pacing, scaffolding, and visual support-based adaptive teaching have proved beneficial in increasing social skills, emotional regulation, institutional behavior, and engagement in neurodiverse forensic service users. These results confirm the neurodiversity-related pedagogical principles of the secure rehabilitation programs and underline the necessity of additional multi-site, longitudinal, and condition-specific research.

Keywords *Adaptive Teaching, Emotional Regulation, Forensic Rehabilitation, Neurodiversity, Social Skills.*

Introduction

Neurodiversity recognizes inherent differences in cognitive processes, such as autism spectrum conditions (ASC), attention-deficit/hyperactivity disorders (ADHD), intellectual disabilities, and learning variations. In the forensic context, neurodiverse people are overrepresented in contrast to the general population. Numerous forensic service consumers have comorbid mental health issues, communication problems, emotional regulation issues, and a lack of social cognitive abilities [1][7].

Impairments in social skills, like those related to the interpretation of social cues, the perception of limits, conflict management, or pro-social communication, may have a strong influence on the outcome of rehabilitation. These difficulties can promote institutional misconduct in a forensic setting, interpersonal conflict, and reoffending. Conventional group-based psychoeducational programs tend to use commonly used teaching methods that presuppose a neurotypical learning style, abstract thinking, and verbal processing capacity. Consequently, neurodiverse forensic service users might not be able to interact well with the traditional interventions [2].

An alternative to this approach is adaptive teaching that is based on the principles of differentiated instruction, the theory of cognitive load, and the theory of trauma-informed care. These approaches involve individualization of content delivery, pacing, sensory input, mode of communication, and feedback mechanism to meet the individual cognitive and emotional requirements [3]. The use of visual aids, experiential learning, role-play scaffolding, routine, and personalized reinforcement framework could increase social skill acquisition and generalization within the forensic setting [4].

The main aim of the study is to determine how effective adaptive teaching strategies can be in promoting the development of social skills among the forensic service users who have neurodiverse conditions. This research will determine the possibility of positively affecting and inspiring engagement, understanding, and behavioral outcomes through instructional modulations that must be applied individually, by altering content delivery, scaffolding, visuals, and sensory conscious designs. The paper will also compare the relative effectiveness of adaptive instruction with the traditional standardized interventions on social skills that are typically applied in forensic services in evaluating the effect of each model on their respective areas of communication skills, emotional regulation, interpersonal competence, and institutional behavior. Finally, the aim is to investigate whether personalized pedagogical models can reinforce the outcomes of rehabilitative services in secure services.

Although the issue of neurodiversity in forensic populations is gaining prominence, a major gap in the research on the impact of social skills intervention on pedagogically adjusted interventions is observed in response to various cognitive and learning profiles. The current initiatives in forensic settings are based mainly on standardized cognitive-behavioural models that presuppose homogenous learning abilities and communication styles [8]. Although these methods are aimed at risk management and behavioral compliance, little empirical focus has been placed on instructional design procedures that can support neurodivergent requirements, which may include executive functioning, sensory sensitivities, and social cognition limitations. Moreover, the majority of research centers on the community or the educational setting, as opposed to the secure forensic settings, creating a critical gap in the comprehension of how adaptive teaching intervention works in high-security, highly-organized institutional settings. This gap in the targeted research indicates the necessity of evidence-based, neurodiversity-informed models of instruction with specific references to forensic service users [9].

The hypothesis is that the means of social communication, emotional regulation, and pro-social behavior of neurodiverse forensic service users enrolled in adaptive teaching-based, social skills programs will show a significant improvement as compared to the means of the same within the group of participants with regular, non-adapted interventions. It is also anticipated that adaptive instructional strategies would facilitate increased participant attention, less cognitive overload, and retention and generalization of acquired skills. Moreover, the research hypothesis is that the application of personalized instructions will be linked to the quantified decrease in behavioral cases at the institution and the enhancement of the rehabilitative process in the long run [10].

The present piece of research fits within other domains of the intersection of forensic psychology, rehabilitation science, and pedagogical education, as it proposes and empirically tests a structured adaptive delivery model tailored to neurodiverse forensic groups. The study enhances an individualized and morally responsive model of intervention by incorporating the concepts of differentiated instruction and neurodiversity-informed practice into the field of forensic rehabilitation. The results will be helpful in offering effective recommendations to clinicians, teachers, and policymakers in establishing inclusive social skills programs in safe environments. Also, the research fills a serious gap in the literature with the shift of the focus on the risk-oriented management strategies towards the pedagogically informed processes of acquiring the skills that contribute to long-term behavioral change and social integration.

The article is well-organized empirical research. The Introduction provides the definition of neurodiversity in the context of forensics, the lack of standardized interventions to address, and provides objectives and hypotheses of the study. The Literature Review summarizes the studies on neurodiversity-based practice, adaptive pedagogy, and rehabilitation. The quasi-experimental mixed-method design, setting, participants, adaptive intervention framework, data collection instruments, and statistical analyses are presented in the Materials and Methods section. Results provide both quantitative and qualitative results in terms of comparative adaptive interventions and standard interventions. Discussion is an interpretation of findings, implications, and limitations. Lastly, there is the Conclusion, where some of the main findings, practical applicability, and future research suggestions are presented.

Literature Survey

The concept of neurodiversity-informed practice has been gradually influencing forensic psychological practices with its strengths-based and individualized approach to work, as opposed to the deficit model. Theorize neurodiversity as a system where assessment bias is placed in a different light, and responsive interventions should be designed [1][7]. In a correctional setting, state that rehabilitation programs need to change the content delivery, pacing, and communication method to accommodate autistic persons and those with ADHD or intellectual disabilities [16]. Similarly, stress that systemic adjustments across criminal justice and care systems are essential to reduce exclusion and recidivism among neurodiverse adults [2][6].

The relationships of therapy and inclusive pedagogy are the pillars of successful intervention. emphasize the importance of predictability, clear structure, and relational safety when working with autistic individuals in forensic settings [14]. More deeply promote the principles, co-created learning spaces, and show how participatory co-design improves interactions between neurodiverse youth [3][10]. The development of the workforce is also important; [5] remarks that it is necessary to provide specialists' training so that practitioners are able to integrate interventions in a manner that is highly specific.

There is evidence on the effectiveness of intervention that structured and adaptive approaches are more effective. A systematic PRISMA review established that modified cognitive-behavioral and skills-based initiatives have potential in adults with autism who commit offending behavior, but their methodological quality is inconsistent [18]. Significant emphasis on individualized support is also provided by trauma-informed adaptations [17] and community-based alternatives to institutional care provided by specialists [19]. In youth justice contexts, [20] highlight early identification and tailored programming as protective factors.

Emerging technological innovations also contribute to adaptive instruction. Social competence has been associated with the improvement of attention and emotional regulation skills that have been shown to be improved by augmented reality tools [12] and virtual reality therapies [13]. Educational assessment systems with AI support [11] and cognitive remedial programs [15] are additional examples of scalable personalization strategies.

Taken together, the literature advocates the need for adaptive teaching methods that involve systematic scaffolding, visual support, pacing, and relational sensitivity. These approaches are consistent with neuro-affirmative and have been acknowledged to play a vital role in enabling neurodiverse persons to learn relevant social skills in forensic rehabilitation services.

Materials and Methods

Research Design

The proposed study will have a quasi-experimental mixed-method design to determine the effectiveness of adaptive teaching methods in helping neurodiverse forensic service users learn social skills. A control group design is a pre-test-after-test design used in order to compare the results between the participants who were subjected to adaptive teaching-based social skills intervention implementation and the group who were subjected to standard social skills training implementation, typically implemented in the context of the forensic services. Quantitative data determine the changes in social competence, emotional regulation, and institutional behavior, whereas qualitative data cover the issues of participant engagement, perceived learning experiences, and staff observations. This is a hybrid strategy that enables the simultaneous analysis of the outcome and the context of the intervention processes.

Figure **1** Study Design Flow Diagram for Adaptive Teaching Intervention

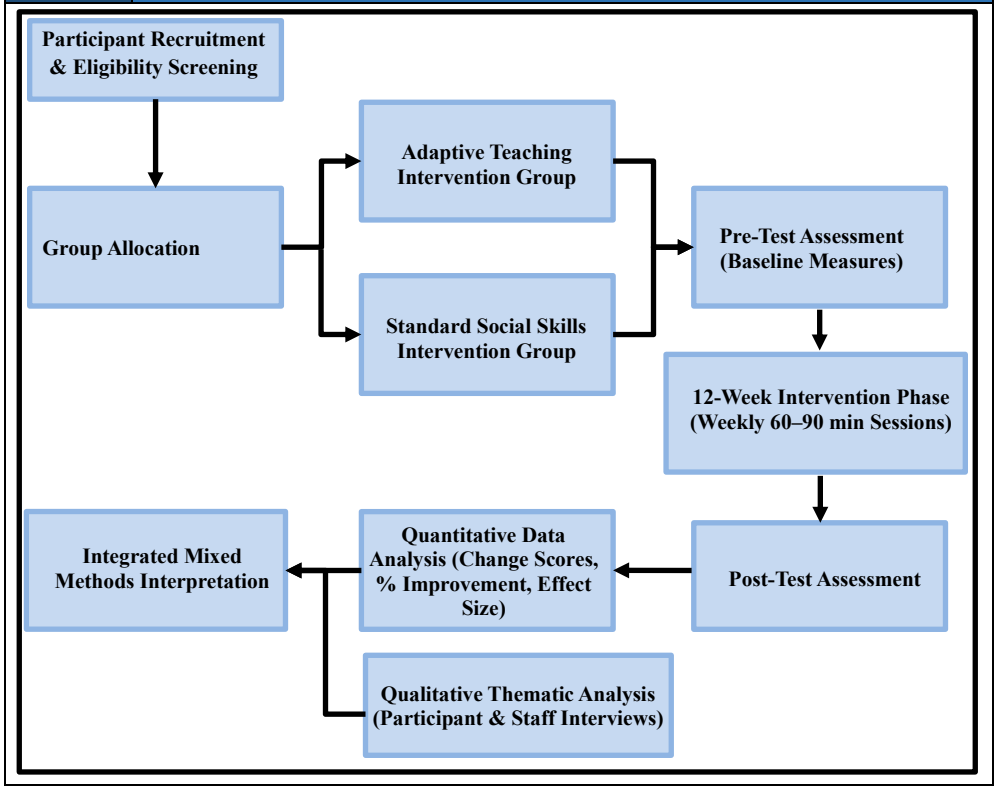


Figure 1 shows the general quasi-experimental mixed methodology that will be used in the study. It illustrates recruitment of study participants and screening of eligibility, assignment to adaptive intervention and standard intervention groups, baseline (pre-test) evaluation, 12-week intervention administration phase, post-test evaluation, and quantitative and qualitative data analysis. The model diagram illustrates the arrangement of pre-test and post-test control groups visually and shows how the outcome measurements and the data collected during interviews come to a common point in the mixed-methods evaluation model.

Setting

The research is carried out in a safe forensic mental health service that offers rehabilitation and risk management among adult service users. The institutional environment consists of planned daily activities, interdisciplinary care teams, and conventional therapeutic programs. The social skills intervention is incorporated into the current rehabilitative programs in order to provide ecological validity and feasibility in the real-life mathematical forensic settings.

Participants

The participants will be adult forensic service users who have formally been diagnosed as neurodiverse, with one group of people having been diagnosed with the autism spectrum condition, attention-deficit/hyperactivity disorder, intellectual disabilities, and other related neurodevelopmental profiles. The criteria of eligibility are the ability to make informed consent, a steady state of mental health that allows them to participate in the group, and the presence of social skill deficits identified in the clinical tests. The participants will receive the adaptive intervention group or standard intervention group based on unit assignment or matched clinical characteristics. The demographic information, including Age, diagnosis, length of stay, and history of offenses, is obtained to put the findings into perspective.

Intervention Framework

Adaptive teaching intervention is constructed based on the concepts of differentiated instruction, cognitive load regulation, trauma-informed care, and neurodiversity-affirming practice. The program is aimed at basic social skills, such as communication clarity, emotional recognition, boundary awareness, conflict resolution, and perspective-taking.

Adaptations in instruction encompass provision of structured session routines, simplified language, visual aids, modeling, role-play exercises, scaffolded role-play exercises, sensory-informed environmental changes, and customized feedback strategies. The timing of the content is varied based on the understanding ability of the participants, and repetition is also used to reinforce the learning. The selected sessions are provided in small groups to facilitate interaction and ensure each person is assisted individually.

The comparison group gets the conventional social skills curriculum in place in the current forensic service, which is usually in the cognitive-behavioral psychoeducation models presented in a group format, and with no systematic instructional concessions. The two interventions will be administered in 12 weeks, and the sessions will last between 60 and 90 minutes per week.

Data Collection Measures

The quantitative data will be collected at the baseline and immediately following the intervention period. The communication competence, emotional regulation, and social responsiveness are measured with the help of standardized social skills assessment tools. Behavioral incident reports are discussed to explore the differences in institutional behavior that comprise reported cases of conflict, rule violation, or aggression occurrence.

The level of engagement is determined based on attendance sheets, participative scales rated by facilitators, and task achievement scales. The qualitative data have been collected using semi-structured interviews with participants and staff, the perceived accessibility of the teaching approach, obstacles to learning, and observed behavioral changes.

Data Analysis

Inferential statistics is applied in analyzing quantitative data. Repeated measures analysis or paired sample t-tests are used to show changes in within-groups with time, and independent sample comparisons are used to show the difference between adaptive and standard intervention groups. The size of the effects is computed to identify the magnitude of the intervention effect. Comparisons of rates are made between pre- and post-intervention period behavioral incident data to analyze them.

Change scores for outcome variables are computed using the pre–post difference formula:

$$\Delta X = X_{post} - X_{pre} \tag{1}$$

In equation (1), X_{post} represents the post-intervention score, and X_{pre}represents the baseline score.

Percentage improvement is calculated as:

$$\%Improvement = \left(\frac{X_{post} - X_{pre}}{X_{pre}}\right) \times 100 \tag{2}$$

This equation (2) is applied to social skills and emotional regulation measures to quantify relative improvement over time.

Behavioral incident reduction is calculated using the proportional reduction formula:

$$Incident\ reduction\ (\%) = \left(\frac{BI_{pre} - BI_{post}}{BI_{pre}}\right) \times 100 \quad (3)$$

In equation (3), BI_{pre}denotes the mean number of monthly behavioral incidents before intervention, and BI_{post}denotes the post-intervention rate.

Between-group effect size is calculated using Cohen's d:

$$d = \frac{\dot{X}_1 - \dot{X}_2}{S_{pooled}} \quad (4)$$

In equation (4), $\dot{X}_1$and $\dot{X}_2$represent group means, and S_{pooled}represents the pooled standard deviation.

Thematic analysis is used in analyzing qualitative data. Transcribed interviews will be coded to detect regular themes on the issues of engagement, understanding, emotional safety, and skill generalization. The quantitative and qualitative findings are also triangulated, which enhances the interpretative validity and gives a full picture of the effectiveness of the interventions.

Ethical Considerations

The appropriate institutional review board and forensic service governance body also provides ethical approval. Participants will be involved on a voluntary basis, and this will be ensured by obtaining informed consent before information is gathered. Data code anonymity and storage of data are ensured through confidentiality. Since the forensic population is quite vulnerable, it pays specific attention to reducing the risk of coercion, making sure that the participant is able to provide consent, and remains therapeutically neutral during the research process.

Results

Participant Characteristics

A total of 60 neurodiverse forensic service users participated in the study. Thirty participants were allocated to the adaptive teaching intervention group and thirty to the standard intervention group. The average Age of the participants was 31.4 years (SD = 6.8), and there was no statistically significant difference between the ages of the groups. Autism spectrum condition (40%), attention-deficit/hyperactivity disorder (25%), intellectual Disability (20%), and mixed neurodevelopmental profiles (15%) were all used in the diagnostic representation. Pre-intervention baseline measures ensured that groups did not have significant differences in terms of social skills, emotional regulation, or institutional rates of behavioral incidents.

Table 1	Participant Demographic and Baseline Characteristics		
Variable	**Adaptive Group (n=30)**	**Standard Group (n=30)**	**p-value**
Mean Age (years)	30.9 (SD=6.5)	31.8 (SD=7.1)	0.62
Autism Spectrum Condition (%)	43%	37%	0.78
ADHD (%)	23%	27%	0.74
Intellectual Disability (%)	20%	20%	1.00
Baseline Social Skills Score	52.3 (SD=7.4)	51.8 (SD=8.1)	0.81
Baseline Emotional Regulation Score	48.9 (SD=6.9)	49.2 (SD=7.2)	0.88
Monthly Behavioral Incidents (Mean)	4.3 (SD=1.8)	4.5 (SD=1.9)	0.73

The demographic and baseline features of the participants of the adaptive and standard intervention groups are summarized in Table 1. There were no statistically significant differences between the Age, diagnostic composition, baseline social skills, emotional regulation scores, or monthly behavioral incidents, and this showed that the groups were similar at the start of the intervention.

Social Skill Outcomes

The adaptive teaching group, in comparison to the standard intervention group, showed statistically significant changes in the overall social skill performance at the end of the 12 weeks of intervention.

The within-group analysis revealed that the mean social skills score of the adaptive group rose between 52.3 and 71.6, or 36.9% ($p < 0.001$). Conversely, the control group rose from 51.8 to 60.4, which was an improvement of 16.6% ($p < 0.01$). The comparison of groups at the post-test revealed a significant difference in favor of the adaptive teaching condition ($p < 0.001$), and the effect size was large (Cohen d = 0.92).

Table 2	Pre- and Post-Intervention Social Skills Scores			
Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Mean Change	p-value
Adaptive Teaching	52.3 (7.4)	71.6 (6.8)	+19.3	<0.001
Standard Intervention	51.8 (8.1)	60.4 (7.6)	+8.6	<0.01

Table 2 is a summary of the pre- and post-intervention scores of social skills in adaptive and standard intervention groups. The adaptive group had a larger improvement than the standard group, which showed that adaptive teaching had significantly increased social skill learning.

Figure 2 Social Skills Outcomes Across Intervention Groups

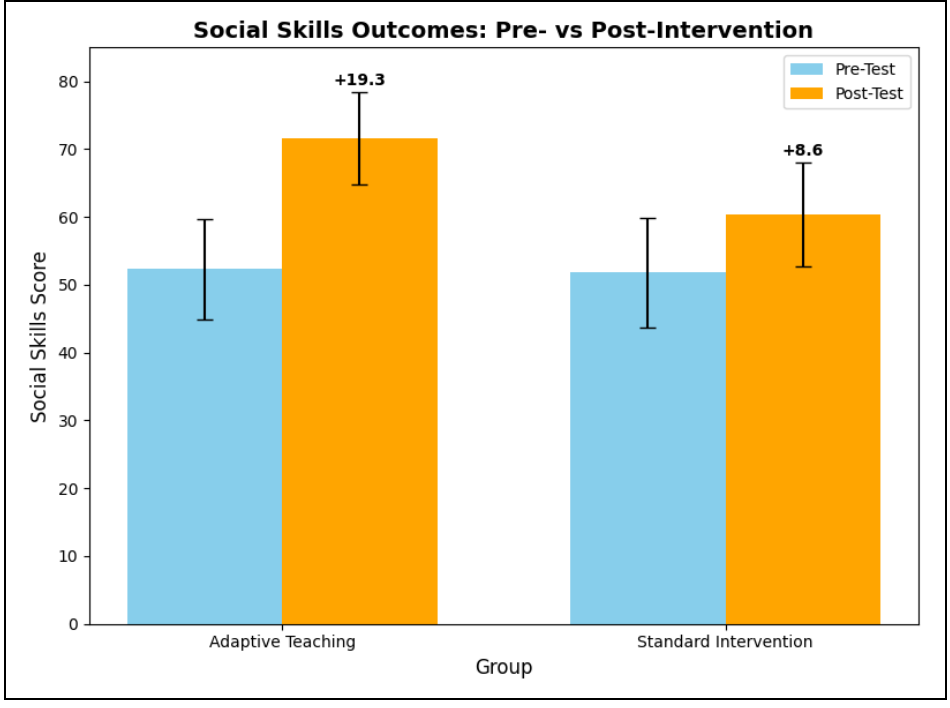


Figure 2 indicates the pre- and post-intervention social skills scores in the Adaptive Teaching and Standard Intervention groups. Bars are used to symbolize the mean plus standard deviation. The Adaptive Teaching group improved by 36.9%, and the Standard Intervention group improved by 16.6%, meaning that there was a greater improvement in social skill learning in the Adaptive instructional strategies group.

Emotional Regulation Outcomes

The adaptive group also had significant improvement in emotional regulation scores. The participants who were receiving adaptive teaching showed an increase in mean of 48.9 to 68.2 ($p < 0.001$), whereas the standard group had an increase of 49.2 to 57.1 ($p < 0.05$). Post-intervention comparison between the groups showed a statistically significant difference in favor of the adaptive group ($p < 0.001$), and the effect size is also large (Cohen's d = 0.88).

Table 3	Pre- and Post-Intervention Emotional Regulation Scores			
Group	**Pre-Test Mean (SD)**	**Post-Test Mean (SD)**	**Mean Change**	**p-value**
Adaptive Teaching	48.9 (6.9)	68.2 (7.1)	+19.3	<0.001
Standard Intervention	49.2 (7.2)	57.1 (6.9)	+7.9	<0.05

Table 3 shows the pre-intervention and post-intervention scores of emotional regulations of adaptive teaching and the standard intervention groups. The increment of emotional regulation was higher in the adaptive group than in the standard group, which demonstrates that adaptive teaching was more effective.

Figure 3 Emotional Regulation Outcomes: Adaptive vs Standard Teaching Intervention

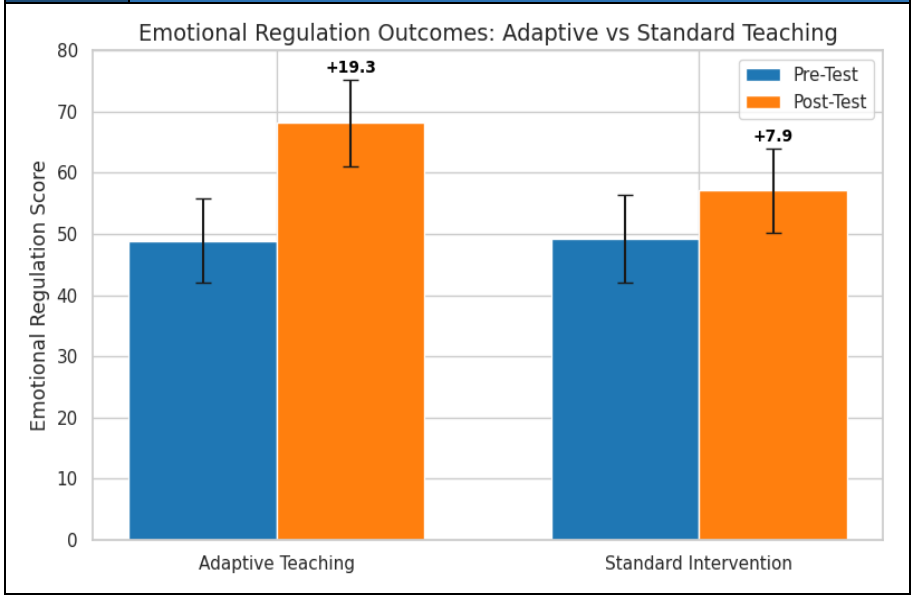


Figure 3 shows the baseline scores (pre-intervention) and post-intervention scores of emotional regulations of neurodiverse forensic service users. The emotional regulation change increased significantly in the adaptive teaching group (48.9 to 68.2) and was smaller in the standard intervention group (49.2 to 57.1). The findings suggest that adaptive intervention strategies proved more effective in improving the emotional self-regulation of the participants through the 12-week intervention period.

Institutional Behavioral Incidents

Institutional behavioral report analysis showed that there was a substantial decrease among participants in the adaptive teaching group in recorded incidences. It was shown that the average monthly incident rate dropped to 2.1 incidents after intervention was applied, as compared to 4.3 incidents before intervention, a 51 percent reduction ($p < 0.001$). The normal treatment group had a smaller decrease of 4.5 to 3.8 incidents ($p = 0.08$), which was not significant.

Table 4	Monthly Behavioral Incident Rates			
Group	**Pre-Intervention Mean (SD)**	**Post-Intervention Mean (SD)**	**Reduction**	**p-value**
Adaptive Teaching	4.3 (1.8)	2.1 (1.4)	51%	<0.001
Standard Intervention	4.5 (1.9)	3.8 (1.6)	16%	0.08

Table 4 provides a summary of monthly instances of behavioral incidents in the institutions of the adaptive teaching and standard intervention groups. The incidents were significantly reduced in the adaptive group (4.3 → 2.1; 51% decrease, $p < 0.001$), but only slightly, and not significantly, in the standard group (4.5 → 3.8; 16% decrease, $p = 0.08$), indicating the effectiveness of adaptive teaching in enhancing the conduct of the institutions.

Figure 4 | Reduction in Institutional Behavioral Incidents Pre- and Post-Intervention

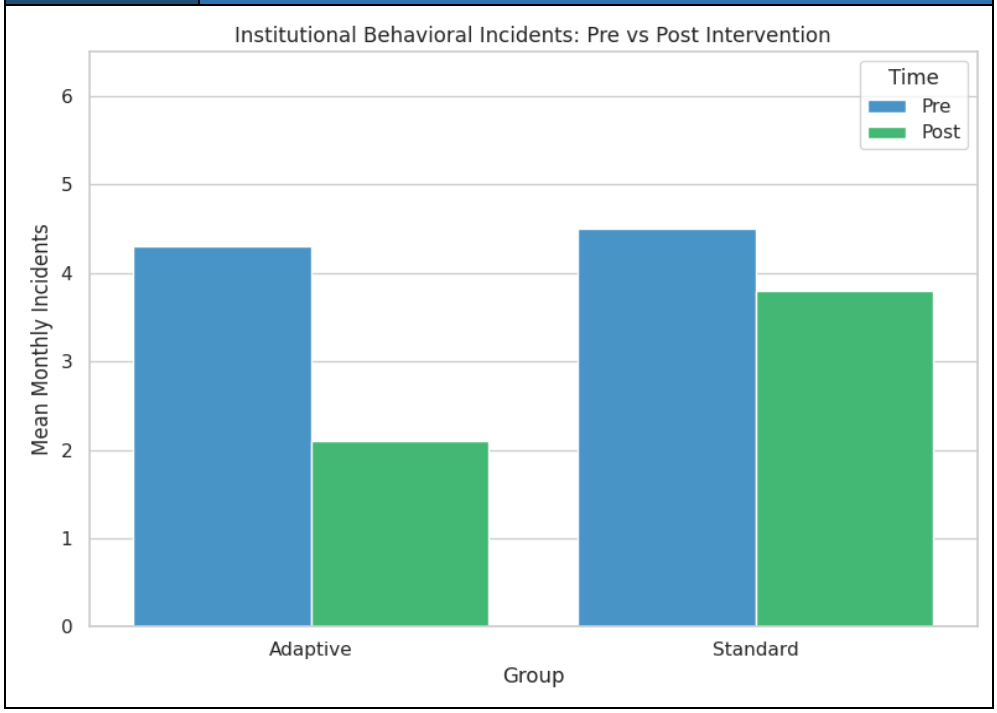


Figure 4 represents the average behavioral occurrences per month in participants of the adaptive teaching and standard intervention groups. The adaptive group recorded a significant drop of 4.3 to 2.1 incidents per month (51%), whereas the standard group recorded a slight drop of 4.5 to 3.8 incidents. The data highlight the effectiveness of adaptive instructional strategies in reducing institutional behavioral incidents.

Participant Engagement

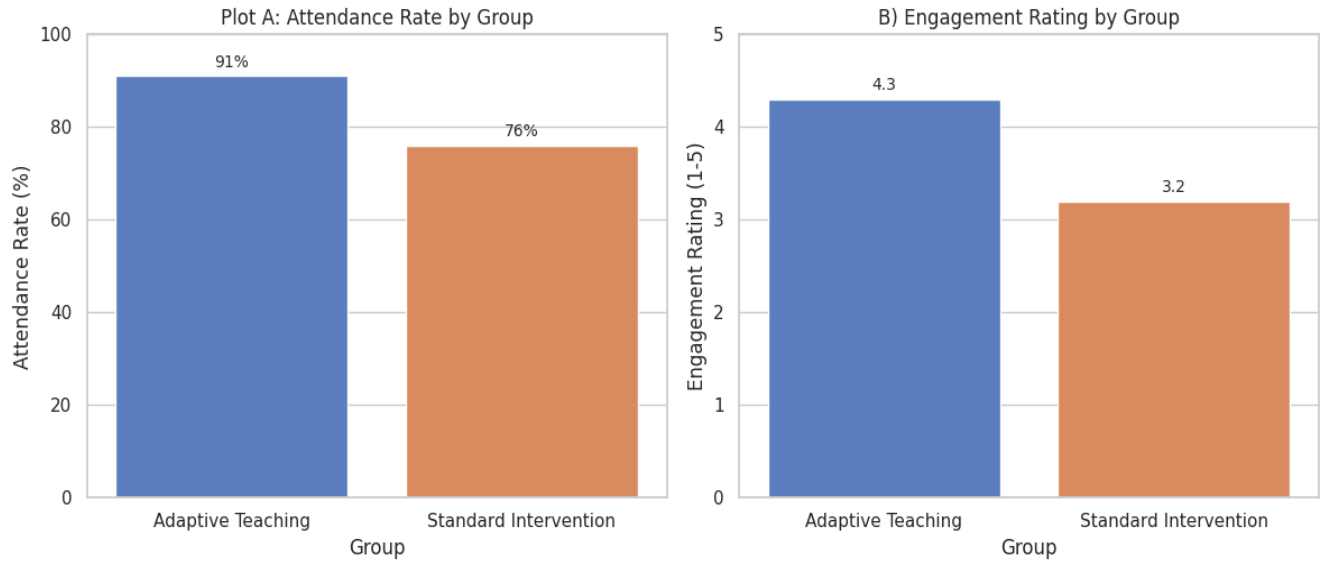
The scores of attendances and facilitator-rated engagement were significantly better in the adaptive teaching group. The adaptive group showed a mean attendance rate of 91% as compared to the standard group with 76% ($p < 0.01$). The average of the rating of the facilitators (on a 5-point scale) was 4.3 in the adaptive group and 3.2 in the standard group ($p < 0.001$).

Table 5	Engagement Indicators		
Variable	**Adaptive Group**	**Standard Group**	**p-value**
Attendance Rate (%)	91%	76%	<0.01
Engagement Rating (1–5)	4.3 (0.6)	3.2 (0.8)	<0.001

Table 5 presents the adaptive and standard intervention participant engagement indicators. The adaptive group also experienced higher attendance, and the facilitator-rated scores of engagements were higher, so the adaptive teaching strategies led to an increase in attendance and active engagement during the sessions.

The adaptive teaching group showed better rates of participation in both measures, with an average attendance rate of 91%, in comparison to 76% in the control group (as Figure 5A shows), and a higher facilitator-rated engagement score of 4.3, in comparison to 3.2 (as Figure 5B shows). These findings suggest that adaptive teaching methods are effective in improving attendance and engagement in neurodiverse forensic service users.

Figure **5** Participant Engagement Outcomes Across Intervention Groups. A) Attendance Rate by Group. B) Engagement Rating by Group



Discussion

This paper has explored the usefulness of adaptive teaching techniques in enhancing social skills, emotional regulation, institutional behaviors, and engagement of neurodiverse forensic service users. The adaptive teaching group had very significant improvements compared to the standard intervention group. The adaptive group showed an increase in social skills by 36.9% versus 16.6% in the standard group, and emotional regulation improved by 39.5% versus 16.1%. Behavioral incidences in the institution declined by 51% in the adaptive group, but in the standard group, it was non-significantly 16%. The adaptive group also had better attendance (91% vs. 76% attendance) and facilitator-rated engagement (4.3 vs. 3.2 engagement score).

The results show that adaptive instructional strategies based on the differentiated instructions, visual instructions, role-play scaffolding, and individualised pacing are effective in addressing heterogeneous learning needs of neurodiverse service users. Social skills and emotional regulation are also improved; hence, personalized structured interventions are known to improve both cognitive and emotional outcomes of social functioning. These extensive institutional incident reductions suggest that these competency areas result in safer and more controlled behavior in safe settings. Increased attendance and engagement imply that adaptive strategies also promote motivation, involvement, and openness to learning.

These findings underscore the rehabilitative potential of adaptive teaching to improve the outcomes of rehabilitation in a forensic context. Individualized neurocognitive instructional approaches have the potential to enhance social competence, decrease behavioral events, and potentially assist in safer reintegration into less restrictive or less secure environments. The research focuses on the need to incorporate neurodiversity-based pedagogical programs into clinical and forensic interventions in order to achieve significant behavioral and cognitive results.

Only one institution was used as a study, which diminished the generalizability. The subjects were not randomly allocated, and intervention was not allowed to take much more than 12 weeks; this limited the long-term outcome results. The measures of engagement were based on the rating of facilitators, who can be biased. Variations in particular neurodevelopmental profiles were not compared.

The future study needs to utilize multi-site randomization, longitudinal follow-up to evaluate ability retention, and condition-specific response. Additional individualization, engagement, and learning outcomes might be achieved through the inclusion of objective behavioral measures and technology-based resources.

Conclusion

This paper was a response to the need to promote the development of social skills in neurodiverse forensic service users in secure mental health environments, in which traditional interventions do not necessarily support the needs of each person. The research employed a 12-week quasi-experimental design that was utilized to examine the efficacy of adaptive instructional plans based on a neurodiverse profile.

The results show that adaptive teaching was significantly superior to the regular interventions on various grounds. Adaptive group showed a 36.9% and 39.5% improvement in social skills (mean increase 52.3 → 71.6, $p < 0.001$) and (48.9 → 68.2, $p < 0.001$) improvement in emotional regulation, respectively, over 16.6% and 16.1% increase, respectively. The behavioral incidents of the adaptive group reduced by 51% (4.3 → 2.1 incidents/month, $p < 0.001$), whereas in the standard group, the reduction was non-significant (16%). The participation and attendance rates were also much better with adaptive group recording 91% attendance compared to 76% in the standard group, and a mean score of facilitator-rated engagement at 4.3/5 as compared to 3.2/5.

These findings suggest that adaptive teaching instructions and designed scaffolding, visual aids, pacing, and scaffolded role-play may positively influence the cognitive and behavioral achievements in secure forensic settings. The paper highlights the practical advantages of neurodiversity-informed pedagogy and shows that specific interventions may enhance social competence, emotional control, institutional behavior, and engagement all at once.

Future studies ought to include multi-site randomized trials, longitudinal follow-up to determine how skills are retained, and condition-specific modifications to different neurodevelopmental profiles. Personalized support can be further improved through the incorporation of technology-aided learning and objective behavioral tests. On the whole, the research confirms that adaptive teaching is a useful and evidence-based intervention to achieve maximum rehabilitative results among neurodiverse forensic service users.

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