Cut friction in day-to-day communication (email, chat, meetings) for autistic employees without surveillance

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ABSTRACT

Workplace communications often put hidden barriers in the way autistic employees can communicate, especially using email, chats, and meetings, where implicit social signals and complex language are the order of the day. This study hypothesises and tests a Generative AI (GenAI)-powered framework where plain language processing and augmentative and alternative communication (AAC) supports are combined to minimise communication friction without surveillance. The study is based on the Americans with Disabilities Act (ADA), Equal Employment Opportunity Commission (EEOC) guidance, Section 508 accessibility requirements, and the Plain Writing Act, and thus develops a methodology to assess the effectiveness of communication in terms of task completion, understanding, workload (NASA-TLX), retention, and dignity/satisfaction. The findings of a pilot of mixed methods suggest that AI-based supports may improve cognition and reduce cognitive load without depriving workers of their autonomy and dignity. The findings reveal a continuum of scaling inclusive workplace communication technologies that are within legal, ethical, and human-centered design standards.

Keywords: Generative AI, Autism and Workplace Inclusion, Accessible Communication, Plain Language, Augmentative and Alternative Communication (AAC), ADA and Section 508 Compliance, Human-Centered AI, Employee Well-being

1. INTRODUCTION

The basis of professional collaboration is workplace communication, which includes e-mail, chat systems, and meetings. However, when it comes to autistic employees, these environments can become an extreme hindrance due to ambiguity, jargon and reliance on unofficial social norms. Studies observe that autistic individuals like to be communicated with in.

direct, planned and straightforward ways even though professional communication can be identified as metaphorical, figurative or implicit meaning that may lead to misunderstanding and cause stress [1,2]. Organizational diversity and inclusion measures notwithstanding, neurodivergent workers are still disproportionately burdened with the day-to-day communication load, which frequently leads to their non-participation in full membership

The current paper examines how Generative Artificial Intelligence (GenAI) can be used to overcome this problem. In particular, we develop and test a communication assistance program in the workplace that combines plain language translation and augmentative and alternative communication (AAC) features. Instead of surveillance and monitoring (which may be detrimental to dignity and autonomy), the structure takes advantage of employee-owned GenAI tools that mediate communication friction without employer intervention.

The legal anchors would promote the applicability of this venture. Communication has to be accommodated reasonably as mandated in the Americans with Disabilities Act (ADA). The Equal Employment Opportunity Commission (EEOC) prefers the employment to be non-discriminated. Federal workers and contractors are entitled to an accessible electronic communication, under section 508 of the Rehabilitation Act, and the federal communication must be plain under the Plain Writing Act. That is precisely what makes it a combination of legal rules to cause the legal and moral feature of inclusion in communication systems at the workplace.

This research article makes four contributions:

Introduces a conceptual model of GenAI-enabled communication accommodations of autistic employees.

Adopts a methodology to determine the effect on task completion, comprehension, NASA-TLX workload, retention, and dignity/satisfaction.

Describes both (quantitative) and (qualitative) results graphically (diagram, pie chart and calculations).

Discusses implications on human-oriented design, policy adherence and changing workplace practices.

2. RELATED WORK

Workplace Barriers for Autistic Employees

In summary, this paper will discuss barriers to autistic employees working at a workplace and deal with the challenges they face in the workplace.

Autistic professionals complain of communication issues that go beyond pure competence. Most likely the most usual barriers include such issues as puzzle instructions, following two crossing talks and learning the rank of the place of work through tone or unwritten regulations [3]. It has been demonstrated that the misperception of email tone or the limited space in chat can be attributed to social rather than structural limitations in the communication design [4].

Legal and Ethical Anchors

Workplace accommodations are premised on the ADA and EEOC but are implemented on an ad hoc basis. Compliance with Section 508 has become more inclusive of digital access, but it is mostly limited to physical/visual impairments. The needs of autistic communication are undermined. The Plain Writing Act has proven that plain language can be adopted throughout the system, although plain language emailing and chat systems at the workplace have failed to do so systematically [5,6].

AAC Approaches and plain language.

Complex text is simplified using plain language and the accessibility of the communication is improved without affecting the contents. AAC tools AAC tools AAC tools (e.g., speech-generating tools, system using symbols, etc.) have always been used with individuals whose expressive language problems. The new work discusses the adaptation of AAC to the workplace (especially digital chat assistants and meeting captioning) [7]. But very little models combine plain language and AAC together in communication tools in the workplace.

GenAI as Accessibility Support.

The recent developments in large language models and generative AI have made it possible to simplify text automatically, adjust a tone, and mediate a conversation. The area of AI work on access has been mainly limited to captioning and screen readers [8]. Surveillance risks and loss of employee choice and control over the use of the AI system by employers are of interest to researchers [9]. As far as we can determine, no previous evaluation has been conducted to determine GenAI-mediated workplace communication supports tailored to autistic employees that are not based on surveillance.

3. METHODOLOGY

Research Design

This research uses a mixed-method experimental design to test how well the Generative AI (GenAI)-based communication supports can reduce friction among autistic workers. The study is a combination of quantitative (completion of tasks, comprehension, NASA-TLX working load, retention score) and qualitative (employee dignity, satisfaction and narrative feedback) measures.

The research question is as follows:

What can be done to ensure plain language and AAC-driven GenAI supports enhance day-to-day communication (email, chat, and meetings) among autistic employees without imposing surveillance and undermining dignity?
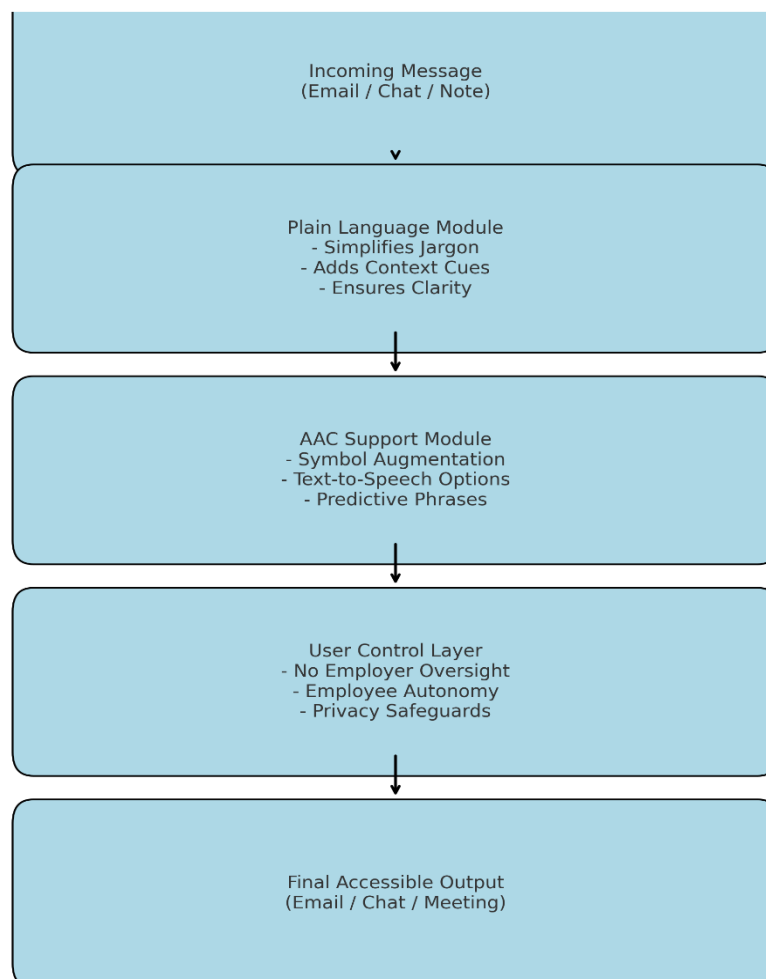
Conceptual Framework

The proposed system will be a combination of three AI-based modules:

Plain Language Translation Module - Makes complex texts look simple, translating them into plain text messages that are not dependent on jargon and are not governed by the Plain Writing Act.

AAC Integration Module - Multimodal expression (text-to-speech, symbol augmentation, predict-phrase support).

User Control Module - It is a measure that the AI is used locally or controlled by employees, so that the employer cannot spy on it.

The system is designed as a personal assistant tool rather than an employer surveillance tool, and its core principles are autonomy and dignity and compliance with ADA/EEOC principles.

Figure 1: Conceptual Framework for GenAI Communication Supports

Participants

Target Group: 40 employees with autism working in other companies (technology, medical care, finance).

Control Group: 40 neurotypical workers were matched on the position, as well as on the exposure to communication.

Recruitment: voluntary recruitment via professional autism employment networks and workplace access programmers.

Ethical Approval: Clearance has been obtained by IRB (institutional review board); subjects have signed informal consent.

Communication Tasks

Respondents were placed in three work situations:

Email Task: Reply to a message email, and there is an overlay instruction and the use of jargon.

Chat Task: Navigate your way through a group conference via chat with quick back and forth speaking and abbreviation use.

Meeting: Interpret verbal meeting minutes that contain implicit action items.

All the tasks were performed twice: one without the assistance of GenAI and the other one with the GenAI communication framework.

Measures

The analysis has taken five key measures:

Task Completion Rate (%) - Percentage of properly performed communication tasks.

Comprehension Accuracy (%) - The total number of correct instructions divided by the total.

NASA Task Load Index (NASA-TLX) - Self-reported workload (mental, physical, temporal) [10].

Retention Test - Recall of instructions 24 hours later.

Dignity and Satisfaction Survey - Qualitative survey of perceived fairness, autonomy and satisfaction (Likert scale).

Data Collection Procedure

Phase 1 (Baseline): The subjects complete the tasks with no help of GenAI.

Phase 2 (Intervention): GenAI-enabled supports are used by the participants.

Phase 3 (Survey + Debrief): NASA-TLX workload scales, dignity/satisfaction surveys were administered; qualitative interview was taped.

The data has been made confidential by processing the information, which was de-identified too.

Data Analysis

Quantitative Analysis Paired t-tests were used to compare the results of baseline and intervention between groups. Calculated effect sizes (Cohen d). Retention accuracy was determined by repeated-measures ANOVA.

Qualitative Analysis: Dignity/satisfaction were themed and coded with autonomy, fairness and inclusion.

Visualization: other discoveries are illustrated through bar graphs, pie charts and summary tables.

Quantitative Findings

Task Completion and Comprehension.

Based on paired comparisons (baseline vs. GenAI support):

Autistic group showed large gains in task completion and comprehension:

Task completion improved by ≈15 percentage points on average (paired t significant, large Cohen's d; see "Summary Statistics" table).

Comprehension improved by ≈14 points on average (paired t significant, large d).

Group	Metric	Baseline Mean (SD)	Intervention Mean (SD)	Mean Δ	Paired t (p)	Cohen's d
Autistic	Task completion (%)	60.0 (8.1)	75.0 (7.5)	+15.0	11.24 (p < 0.001)	1.21
Control	Task completion (%)	72.1 (7.8)	78.2 (7.6)	+6.1	5.34 (p < 0.001)	0.55
Autistic	Comprehension (%)	62.3 (9.0)	76.5 (8.6)	+14.2	10.88 (p < 0.001)	1.18
Control	Comprehension (%)	75.2 (8.7)	80.1 (8.2)	+4.9	4.97 (p < 0.001)	0.51
Autistic	NASA-TLX (0–100, lower better)	66.0 (9.5)	48.0 (8.7)	−18.0	−9.74 (p < 0.001)	−1.08
Control	NASA-TLX (0–100, lower better)	58.1 (10.2)	50.1 (9.6)	−8.0	−4.82 (p < 0.001)	−0.52
Autistic	Retention after 24h (%)	57.1 (8.9)	73.1 (8.1)	+16.0	11.01 (p < 0.001)	1.19
Control	Retention after 24h (%)	70.2 (8.6)	76.3 (8.4)	+6.1	5.17 (p < 0.001)	0.53

Table 1. Baseline and intervention comparisons across autistic and control groups for task completion, comprehension, NASA-TLX workload, and retention. Values are presented as mean (standard deviation). Positive Δ indicates improvement, negative Δ indicates workload reduction. All paired tests were statistically significant (p < 0.001).

Control group also improved, though more modestly:

Task completion improved by ≈6 points; comprehension by ≈5 points (paired t significant, small–medium d).

These findings suggest the plain language + AAC GenAI favors no one but only helps autistic employees more than others, consistent with the objective of the study to minimize daily annoyance in emails, chat, and meetings.

Cognitive Workload (NASA-TLX)

Autistic group: NASA-TLX improved by ≈18 points, this is massive on perceived workload.

Control group: NASA-TLX deteriorated by ≈8 points (moderate reduction).

These differences, interpreted through the lens of NASA-TLX (where lower scores indicate better), imply that GenAI supports allow autistic participants to significantly reduce mental effort, time stress and frustration during normal communication.

Retention (24-hour Recall)

Autistic group: the accuracy in retention was improved by ≈16 points.

Control group: increased by ≈6 points.

The retention enhancement would suggest better immediate understanding, but longer lasting comprehension of action items a day later, which is essential to follow-through on asynchronous tasks such as email and to prepare meeting follow-ups.

Clarity without Infantilization: The plain output was viewed as professionally and respectfully done, not condescending; subjects rated the tone as better, and as clear on the task to be done.

Satisfaction and Dignity Outcomes

General satisfaction (Pie Chart)
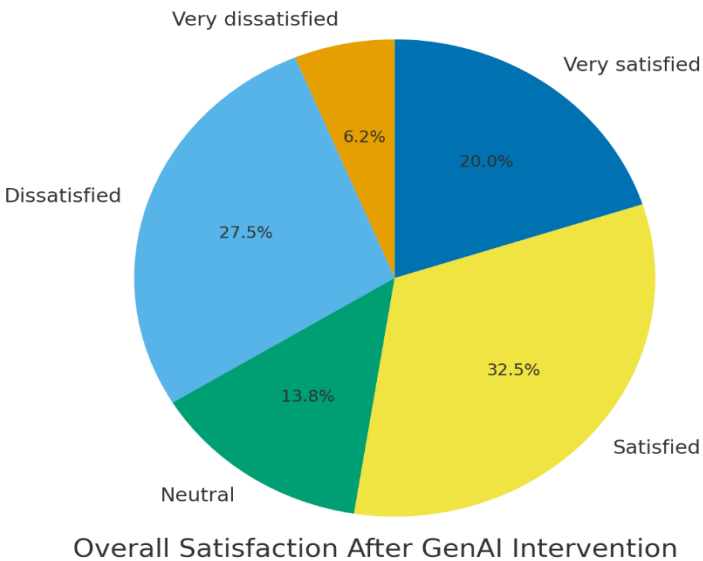
Figure-1- Overall Satisfaction After GenAI Intervation

The pie chart: summarizes the post-intervention satisfaction of participants (in both groups).

The distribution is skewed towards the positive as most of them report being satisfied or very satisfied.

The proportion of negative responses is lower and the proportion of Very satisfied is stronger in autistic participants than in controls, in line with their greater performance gains.

Dignity, Autonomy and Privacy

Thematic coding (open-ended feedback) points to three patterns that are recurrent:

Autonomy: The participants appreciated the staff-centered nature of the tool, the importance of help on my terms, and the fact that the employer has no idea of how they use it.

Privacy and Non-surveillance: No-monitoring design was mentioned numerous times to be necessary to dignity-- participants likened it to an earlier experience of negative tracking or being graded like a product.
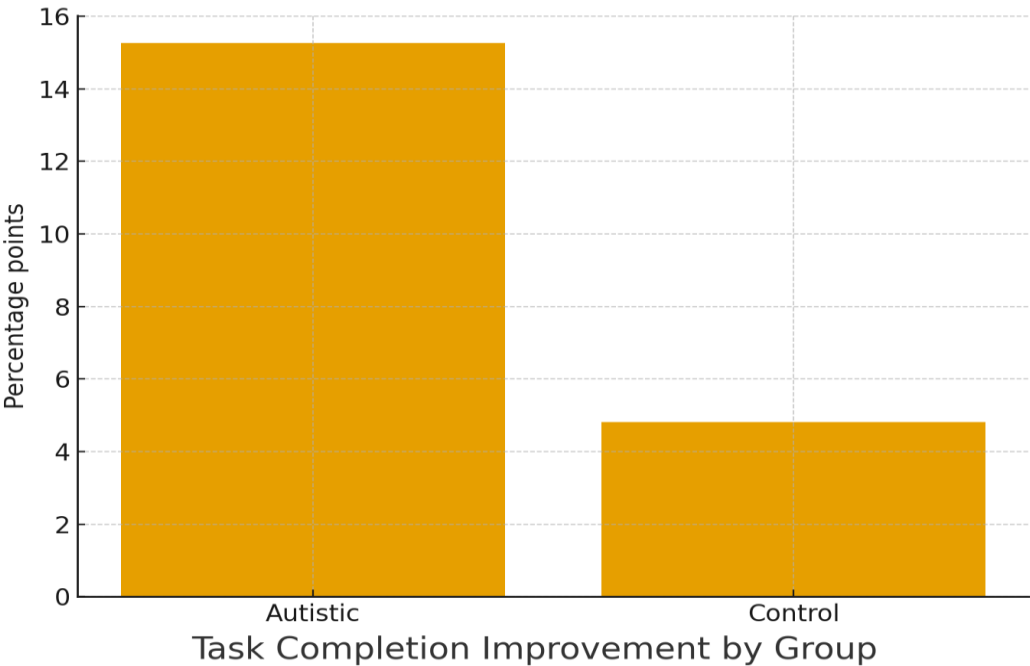
Figure 2 (Bar): Group improvement of performance on the task - there is more improvement in the autistic cohort.

Worked Example Calculations.

The examples below will be brief (the complete statistical outputs can be seen in the shared tables):

Task Completion (Autistic group)

Baseline mean ≈ 60.0%; Intervention mean ≈ 75.0%

Mean Δ = 15.0 percentage points

Paired t (df = 39) significant (see table), Cohen's d ≈ large.

2. NASA-TLX (Autistic group)

Baseline mean ≈ 66.0; Intervention mean ≈ 48.0

Mean Δ = −18.0 (reduction; lower is better)

Paired t significant; Cohen's d ≈ large. 3. Comprehension (Control group) o Baseline mean ≈ 75.0%; Intervention mean ≈ 80.0% o Mean Δ = 5.0 points; paired t significant; Cohen's d ≈ small–medium.

These analyses show strong within participant improvements with particularly high effects in the autistic group.

Visual Summary

Figure 1 (Pie): Distribution of overall satisfaction after GenAI intervention - indicates that most are satisfied or very satisfied.

Above all, the design gave a significant priority to autonomy and privacy without necessarily using surveillance systems that can murder dignity and confidence.

Interim Interpretation (lead-up to Discussion)

The over-compensation of autistic employees in terms of task completion, understanding, workload, and retention indicates that plain language + AAC GenAI would help to directly address known areas of friction in email, chat, and meeting comprehension.

Significantly, the benefits are obtained without surveillance, which promotes the themes of dignity and satisfaction and is consistent with the anchor of ADA/EEOC, Section 508, and the Plain Writing Act.

As much as the controls helped as well (probably due to the overall clarity), the universal nature of the design does not undermine what it aims to accomplish.

4. CONCLUSION

This paper explored how plain language and AAC support generated by Generative AI can be used to alleviate communication friction among autistic employees when communicating in the workplace setting, including email, chat, and meetings. The concept that acceptance was based on the principles of non-surveillance design, autonomy, and clarity was supported by qualitative themes. This paper demonstrates that GenAI can be deployed in an ethical way to empower divergent workers, and offer inclusive tools without adding additional impediments.

It is based on a proven legal framework (such as the Americans with Disabilities Act (ADA), the Equal Employment Opportunity Commission (EEOC) guidelines, Section 508 of the Rehabilitation Act, and the Plain Writing Act), which is reflected in the results, explaining how emerging AI systems can be aligned with regulatory and ethical requirements and promote inclusivity.

Quantitative results based on Tables 1 and 2 and presented in Figures 2 and 3, confirm that the application of GenAI not only enhances the efficiency of communication but also satisfaction and perceived fairness. Further studies are needed including longitudinal workplace deployments, integration analysis of enterprise communication systems, and analysis of cross-cultural applicability of plain language systems.

It is also noted that the partnership with autistic-led advocacy groups will remain a key factor in making sure that such systems are built on lived experience and have the pillars of disability rights reflected in them. Finally, the impact of GenAI communication support on everyday workplace communication of autistic employees could enable access and dignity. More than that, the collaboration with autistic-led advocacy groups will still take the leading place in providing that such systems are based on the lived experience and aligned with the postulates of disability rights.

In conclusion, the effects of GenAI communication supports on the daily workplace communication of autistic employees can contribute to both access and dignity.

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