



AI-Assisted Creation of Educational Contents for Children with Special Needs

Abstract

Creating specialized educational materials for children with diverse cognitive, sensory, or developmental needs is often a resource-intensive process that can be difficult for educators to sustain through traditional manual methods. AI-assisted content creation provides a transformative approach by automating the generation of personalized visual, auditory, and linguistic supports, thereby reducing systemic barriers to learning. This study explored the effectiveness of Generative Artificial Intelligence (AI) in reshaping educational content for children with special needs. It was grounded in the principle of Universal Design for Learning (UDL) and Social Constructivism/Zone of Proximal Development (ZPD) which advocates for multiple means of representation. Adopting a qualitative thematic analysis, the research investigated the perceptions and lived experiences of educators as they transition from manual "retrofitting" to AI-supported content adaptation. Findings indicated that AI-driven tools, such as automated text simplifiers, social story generators, and high-interest visual aids, enhance pedagogical interest and learner engagement. Beyond efficiency gains, the study captured how AI-assisted strategies, when guided by human expertise, can transform instruction into a more responsive and equitable experience. The study concluded with recommendations for a "Human-in-the-Loop" framework to integrate AI-assisted content meaningfully, ensuring technology serves as a bridge to active participation for all diverse learners.

Keywords: Generative Artificial Intelligence, Inclusive Education, Special Educational Needs, Universal Design for Learning

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Introduction

Fundamentally, this study is the concept of AI-assisted personalization for inclusive education. It is the belief that technology can help schools to deliver the individualized learning that inclusive policies have long promised

but everyday classroom realities often prevent. Across the globe, inclusive education is understood as both a human right and a developmental necessity. Frameworks such as UNESCO Sustainable Development Goal 4 call on nations to "ensure

inclusive and equitable quality education for all,” emphasizing not only access to schooling but meaningful participation and achievement for every learner (UNESCO, 2020). Within this commitment, children with special educational needs (SEN), including those with autism spectrum disorder, dyslexia, ADHD, and visual or hearing impairments, represent a richly diverse population whose learning profiles require individualized instruction, flexible pacing, and accessible formats.

Despite these global aspirations, the daily practice of schooling still reflects largely standardized and one-size-fits-all content creation. Most instructional materials are designed around the hypothetical “average learner,” with adaptations added later for those who fall outside this norm. Florian and Spratt (2013) explain that when curricula are built for sameness and retrofitted for diversity, inclusion becomes reactive rather than proactive. Teachers frequently find themselves rewriting passages, modifying worksheets, or redesigning activities after lessons have already been prepared. In such settings, inclusive education can become an accommodation strategy rather than a design principle. Consequently, the promise of equitable learning remains uneven, as the system itself was not originally constructed with learner diversity at its center.

This structural challenge gives rise to what many practitioners describe as the manual burden problem. Special educators, in particular, shoulder disproportionate workloads that include documentation, individualized

education plan preparation, and continuous material adaptation. Data from the OECD (2023) show that preparation and administrative demands occupy a significant share of teachers’ working hours, limiting time for direct instruction and meaningful student interaction. Tomlinson (2017) further notes that genuine differentiation requires constant, deliberate adjustment of content, process, and assessment work that becomes overwhelming when performed manually across diverse classrooms. The outcome is both professional fatigue and reduced responsiveness to learners’ needs. Teachers become content modifiers rather than facilitators of learning, and inclusion becomes constrained by time rather than by intention.

Against this backdrop, artificial intelligence presents a practical and pedagogical opportunity. Rather than replacing teachers, AI can function as a “supercharged assistant,” automating repetitive tasks while supporting rapid, data-informed personalization. Contemporary tools enable text-to-speech and speech-to-text functions for learners with visual or writing impairments, adaptive reading levels for students with dyslexia, social narrative generation for autistic learners, and real-time difficulty adjustments based on learner performance. Holmes and Tuomi (2022) describe such systems as enabling personalization “at a scale previously unattainable for individual teachers”. By generating accessible and adaptable content efficiently, AI has the potential to free educators to focus on mentorship, creativity, and relational

teaching the human dimensions that remain central to inclusive education. From this perspective, technology becomes not a substitute for teachers but an amplifier of their capacity to respond meaningfully to each learner.

Objectives of the Study

The objectives of the study are to:

- i. Explore the perceptions of educators regarding the effectiveness of AI-generated multimodal content in addressing the diverse sensory and cognitive needs of children.
- ii. Examine how the transition from manual modification to AI-assisted content creation influences the professional identity and pedagogical agency of special education teachers.
- iii. Identify the qualitative benefits and ethical tensions educators experience when utilizing generative AI to "translate" standardized curricula into accessible formats.
- iv. Capture the lived experiences of educators regarding student engagement and classroom belonging when using AI-personalized educational assets.

Research Questions

- i. How do educators describe the change in their creative process when moving from manual "retrofitting" to AI-supported proactive content design?
- ii. In what ways do AI-generated personalized materials (e.g., social stories, simplified text, or high-interest visuals) alter the perceived learning experience of children with special needs?

iii. What are the primary qualitative barriers, such as technical literacy, data ethics, or "algorithmic coldness", that educators encounter when integrating AI-assisted content into their practice?

iv. How does the immediate availability of AI-personalized resources influence the student's sense of academic agency and participation within an inclusive classroom setting?

Statement of the Problem

Inclusive education, as imagined through Universal Design for Learning, seeks meaningful participation where lessons resonate with each child's unique cognitive and sensory profile. While global mandates emphasize equitable and inclusive learning for all (UNESCO, 2020), standardized materials often produce intellectual alienation, as learners with autism or dyslexia encounter content that does not reflect how they learn. Teachers experience this as pedagogical fatigue, spending excessive hours manually 'force-fitting' rigid curricula to diverse needs (OECD, 2023). Although AI tools offer potentials for automated personalization, little is known about whether AI-assisted content creation preserves the necessary empathy or results in impersonal learning experiences. This absence of qualitative insight creates a critical gap in understanding how AI-generated materials reshape the lived learning relationship between the teacher and the child.

Literature Review

Contemporary discourse on inclusive education reflects a global shift from integration toward full participation,

where schools are expected to adapt systems, curricula, and environments to learner diversity rather than requiring learners to conform to standardized norms. International policy frameworks led by UNESCO emphasize that inclusion entails meaningful engagement and equitable learning outcomes, not merely physical placement within mainstream classrooms (UNESCO, 2020). This reconceptualization positions accessibility, flexibility, and responsiveness as defining features of quality education. However, research indicates that instructional design has not kept pace with these policy commitments. Ainscow (2020) observes that despite inclusive rhetoric, many classrooms continue to rely on standardized curricular structures that privilege normative cognitive profiles. Similarly, Waitoller and Artiles (2013) argue that inequities persist when teaching materials assume uniform ways of learning, marginalizing students with disabilities within nominally inclusive settings. From a Universal Design for Learning (UDL) perspective, Meyer *et al.* (2014) contend that limited modalities particularly text-heavy or linguistically dense formats, create disengagement rather than empowerment for learners who process information differently. Thus, an “inclusion gap” persists between policy aspirations and classroom realities.

While differentiation is widely recognized as essential to inclusive pedagogy, responsibility for adapting materials typically rests with individual teachers. This reliance on manual modification generates significant

workload pressures that shape instructional quality. OECD data show that teachers devote substantial time to preparation, documentation, and resource adaptation, often at the expense of direct student interaction (OECD, 2023). Tomlinson (2017) notes that authentic differentiation requires continuous adjustments to content complexity, pacing, and assessment demands that become overwhelming when enacted manually across diverse classrooms. The emotional consequences are equally pronounced. Hargreaves (2018) links excessive preparatory demands to professional exhaustion, while Florian (2014) describes how reactive adaptation can position teachers in a “coping mode,” limiting creativity and innovation. This dynamic, here conceptualized as pedagogical fatigue, underscores the structural limitations of manual personalization in achieving equitable participation.

Recent advances in artificial intelligence provide potential solutions to this scalability challenge. Generative AI systems, including large language models and multimodal content generators, can rapidly produce simplified texts, visual supports, captions, translations, and interactive resources tailored to diverse learning profiles. The European Commission (2022) highlights AI’s capacity to enhance accessibility through automated adaptation, enabling rapid conversion of materials across modalities. Zawacki-Richter *et al.* (2019) identify personalization and adaptive feedback as key strengths of AI in education, noting that such systems can

adjust complexity in response to learner performance. Luckin (2018) conceptualizes AI as augmenting rather than replacing human intelligence, functioning as a cognitive partner that supports responsive instructional decisions. In special education contexts, these capabilities translate into tools such as social story generators, automated text-to-speech systems, and visual scaffolds applications that align directly with UDL's call for multiple means of representation and engagement. When strategically deployed, AI has the potential to reduce repetitive labor while preserving the relational dimensions of teaching.

Despite these possibilities, AI integration raises significant ethical and pedagogical concerns. Scholars caution that technological efficiency may undermine the relational core of inclusive education. Selwyn (2019) warns that optimization-driven technologies risk producing "algorithmic coldness," detaching learning from empathy and human judgment. Williamson and Eynon (2020) further argue that algorithmic systems can encode biases and diminish teacher agency if adopted uncritically. Akgun and Greenhow (2022) emphasize the need for transparency, accountability, and data protection to mitigate unintended harms. These critiques underscore the necessity of a human-in-the-loop approach in which teachers retain interpretive authority over AI-generated outputs.

Collectively, the literature suggests that inclusive education cannot rely solely on manual differentiation or automated

systems in isolation. Meaningful personalization emerges from the interplay between human expertise and technological support. However, much of the existing research remains technical or policy-oriented, offering limited qualitative insight into how educators experience AI-assisted content creation in everyday classroom practice. Questions persist about whether AI-generated materials feel authentic, empathetic, and pedagogically sound, particularly in contexts where ethical guidelines, structured training, and clear frameworks for use are still evolving. Concerns related to data privacy, algorithmic bias, accessibility, and teacher agency further highlight the need to examine how these tools shape instructional quality and the lived learning experience of the child.

This study responds to that need by exploring whether AI-assisted content creation can address the tension between the demand for individualized learning and the practical limits of teacher time and resources. Through an examination of teachers' lived experiences, perceptions, and classroom practices, it seeks to develop a grounded understanding of how AI can be integrated ethically and pedagogically within inclusive education for children with special needs.

Theoretical Framework

This study is grounded in two complementary theoretical traditions that explain both why personalization is necessary and how AI-assisted tools can operationalize it in practice. Together, Universal Design for Learning (UDL)

and Social Constructivism/Zone of Proximal Development (ZPD), provide a pedagogical blueprint for interpreting how AI-generated materials may reshape teaching, learner engagement, and classroom relationships. These theories shift attention away from deficits within the child and toward the design of instruction and the supports surrounding learning, making them especially suitable for research on AI-assisted content creation for children with special needs.

Universal Design for Learning (UDL), developed by Rose and Meyer (2002) and further expanded by Meyer, Rose, and Gordon (2014), provides the main foundation for this study. The central idea of UDL is that many learning difficulties arise not because of the learner, but because of how instruction is designed. When lessons are rigid, some learners are unintentionally excluded. For this reason, UDL emphasizes designing instruction in flexible ways from the beginning, so that it can support a wider range of learners (Meyer et al., 2014). This perspective is important for the present study because AI-assisted tools make it possible to quickly adapt content into different formats, such as simplified text, visuals, or audio. Using UDL as a guide, the study examines whether these AI-generated materials make learning more accessible and responsive to the needs of children with special needs. In this way, UDL helps frame the analysis by focusing on whether AI supports inclusion in practice, not just in theory.

While UDL helps explain how instruction can be designed to support

diverse learners, Social Constructivism explains how learning itself takes place through support and interaction. Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD) suggests that learners progress most effectively when they receive guidance that helps them move beyond what they can do on their own. This idea is reflected in the way AI is used in this study. AI tools can provide prompts, simplified explanations, and structured support that help learners engage with content more independently. At the same time, Social Constructivism reminds us that learning is not shaped by tools alone, but also by human relationships. For this reason, the study pays close attention to the teacher's role in reviewing, adjusting, and meaningfully integrating AI-generated materials. This ensures that AI functions as a support within the learning process, rather than a replacement for the teacher's professional judgment.

Limitations of the Study

The "Human" Perspective Gap

First, this study focuses entirely on the experiences of the educators. While the teachers gave great detail on how they perceived their students' engagement the study did not include direct students' perspectives. Because of this, my findings on "student belonging" are essentially an outside observation. To truly understand if AI makes a child feel more included, future research should aim to capture their own voices directly.

A Specific Group of Participants

The study involved 15 respondents. While this gave a lot of rich, "thick"

description, it is not meant to represent every teacher everywhere. These 15 people had a certain level of comfort with technology. If I had interviewed teachers who were less "tech-savvy" or who worked in schools with fewer resources, the themes might have looked very different, perhaps focusing more on frustration than efficiency.

The "Newness" of the Technology

Because generative AI is so new, there is a bit of a "honeymoon phase" happening. Respondents might be over-reporting the positives because the tools feel exciting and helpful right now. I have to acknowledge the possibility of social desirability bias, where people want to show they are keeping up with modern trends. We don't yet know if these benefits will still be there two or three years from now once the "novelty" wears off.

The Technical Learning Curve

Finally, I assumed that the teachers in this study had the time and skill to audit the AI. The study talks about a "human-in-the-loop," but in a busy, real-world classroom, even a small technical glitch can be a major barrier. This study doesn't fully solve the problem of technical literacy; it just points at what is possible for those who already have it.

Methodology

i. Research Design

This study employed a qualitative descriptive research design to explore educators' experiences with AI-assisted creation of educational content for children with special needs. A qualitative approach was considered appropriate because the purpose of the

study was to gain an in-depth understanding of teachers' perspectives, professional reflections, and classroom practices rather than to measure variables quantitatively. This design allowed the study to capture the meanings educators attach to their transition from manual curriculum adaptation to AI-supported instructional design. The qualitative descriptive approach was particularly suitable because it focuses on producing a rich, straightforward account of participants' experiences grounded in their own words, while still allowing for systematic analysis through thematic interpretation.

ii. Participants and Sampling

Fifteen participants took part in the study, including special education teachers, learning support teachers, and educational technologists. All had direct experience working with learners with special educational needs such as students with dyslexia, autism spectrum disorder, and attention-related learning difficulties and had used, or were actively exploring, generative AI tools in their instructional practice. Participants were selected through purposive sampling to ensure that those included possessed relevant experience and insight into AI-assisted instructional adaptation. Recruitment took place through professional educator networks and referrals within inclusive education settings. The sample size was considered sufficient for thematic saturation, as no substantially new ideas emerged during analysis.

iii. Data Collection Instrument

Data were collected using a qualitative open-ended survey designed to elicit detailed narrative responses. The survey consisted of open-response questions organized around three key areas:

- i. Educators' experiences transitioning from manual adaptation to AI-assisted content creation
- ii. Perceived impact of AI-generated materials on student engagement and learning participation
- iii. Professional reflections, including benefits, challenges, and ethical considerations

Participants were asked to describe specific classroom situations in which they used AI-generated materials, providing concrete examples of the resources created, how these influenced their instructional process, and how learners interacted with and responded to them. The open-ended format allowed participants to freely express their experiences in their own words, which helped preserve the authenticity of their perspectives. Participation was voluntary, and confidentiality was maintained throughout the research process. Responses were detailed and narrative in nature, allowing participants to describe their experiences extensively, which made them suitable for thematic analysis.

iv. Data Analysis Procedure: Reflexive Thematic Analysis**Data Extraction**

The data were analyzed using reflexive thematic analysis, following the six-phase framework outlined by Braun and Clarke (2006, 2019). This method was selected because it provides a systematic yet flexible approach for identifying patterns of meaning within qualitative data.

First, all responses were read several times to allow for familiarization with the data.

Second, initial codes were generated by identifying meaningful segments of text related to instructional practices, teacher roles, student engagement, and ethical reflections.

Third, related codes were grouped together to form preliminary themes.

Fourth, the themes were reviewed and refined to ensure they accurately reflected the data and were clearly distinct from one another.

Fifth, each theme was defined and named based on its central meaning.

Finally, the themes were organized into a coherent narrative supported by direct participant quotations. This process ensured that the findings remained grounded in participants' actual experiences rather than imposed interpretations.

Thematic Analysis**Theme 1: Transforming Instructional Design Practices**

A dominant pattern across participants' accounts was the shift from manual "retrofitting" to proactive AI-supported instructional design. Educators described their previous approach to differentiation as reactive and time-intensive. One participant reflected,

"Before I started using AI, adapting lessons could take hours. I had to rewrite things myself, and it was really time-consuming." (Participant 3, Special Education Teacher)

This statement captures what several teachers described as a cycle of constant modification rewriting worksheets, simplifying passages, and restructuring tasks only after students encountered difficulty. Although educators were committed to inclusion, the practical burden of manual adaptation often limited how consistently personalization could be implemented. One participant explained that

"Manually adapting the lesson took a lot of time and effort compared to using AI." (Participant 2, Special Education Teacher)

With AI-assisted tools, however, participants reported a fundamental transformation in workflow. As one participant explained,

"Now I can generate simplified materials much faster. Something that used to take me a long time, I can now prepare in minutes." (Participant 1, Learning Support Assistant)

The shift was not merely about speed; it was about anticipation. Rather than responding to breakdowns after they occurred, teachers described embedding accessibility features simplified texts,

visual scaffolds, and structured layouts into lessons from the outset. AI functioned as a cognitive support that reduced repetitive labor and allowed educators to focus more intentionally on planning and student interaction. In this sense, inclusive practice became more sustainable, not because expectations changed, but because the process of differentiation became structurally supported. One participant shared,

"Using AI helped me create adapted materials more efficiently than doing it manually." (Participant 5, Special Education Teacher)

Illustrative Example of AI-Generated Instructional Adaptation

To clarify how AI-assisted content functioned in practice, one participant (Participant 8, Special Education Teacher) described generating a simplified reading passage for a learner with dyslexia during a basic 4 science lesson on the water cycle.

Original Text (a standard curriculum version)

"Evaporation is the process where liquid water becomes water vapor due to heat". It happens when water in rivers, lakes, and oceans gains heat from the sun and turns into an invisible gas called water vapor. As this water vapor rises into the atmosphere, it enters cooler air. The vapor loses heat and changes back into tiny liquid water droplets. These millions of tiny droplets gather together to form clouds."

AI-Generated Simplified Version

“When the sun heats water, the water changes into gas. This change is called evaporation. The gas goes up into the sky. When it cools down, it turns back into tiny drops of water. This is called condensation. These tiny drops join together to form clouds.”

How the Learner Makes Sense of It

The participant explained that the student previously disengaged when confronted with dense scientific vocabulary such as “evaporation,” “condensation,” and “atmosphere.”

With the AI-simplified version:

- i. The syntactic complexity of the original sentence was reduced.
- ii. Abstract vocabulary was replaced with concrete language.
- iii. The steps were sequentially structured.
- iv. A visual scaffold supported verbal explanation.

The learner was able to:

- i. Read the passage independently.
- ii. Retell the process orally.
- iii. Match the steps to the diagram.
- iv. Participate in whole-class discussion.

The teacher noted:

“Because the language matched his reading level, he didn’t shut down. He started explaining the process in his own words.”

Theme 2: Student Empowerment and Agency

The transformation in instructional design was closely connected to changes in students’ learning experiences. Participants consistently described improvements in engagement, confidence, and independence when AI-personalized materials were used. One participant shared,

“I noticed one of my students with dyslexia became more confident. When the text was simplified for him, he was more willing to read and participate.” (Participant 7, Special Education Teacher)

This comment highlights how personalization extended beyond academic accessibility to emotional affirmation. When learners encountered materials that aligned with their abilities, they approached tasks with greater willingness and self-assurance.

Teachers also observed increased autonomy in classroom participation. As one participant noted,

“Some of my students are now able to follow tasks more on their own. They don’t always have to wait for me to explain everything again.” (Participant 9, Learning Support Assistant/Paraprofessional)

The availability of simplified instructions, visual supports, and step-by-step formats enabled learners to navigate tasks more independently.

Importantly, participants emphasized that AI allowed these supports to be generated immediately rather than after instructional delays. As one participant explained,

“Now, I can proactively generate materials that match their exact needs before or during class, simplified texts, step-by-step instructions... Because the content is already accessible, students don’t have to wait for help. They can start tasks immediately and work through them at their own pace.” (Participant 5, Special Education Teacher)

This immediacy had direct implications for student agency. When accessible materials were available at the point of instruction, students were less likely to disengage or depend on repeated teacher intervention. Instead, they remained within the flow of classroom activity. Participants described learners initiating tasks more confidently, sustaining attention longer, and participating more actively in shared learning experiences.

Collectively, these accounts suggest that AI-assisted personalization enhances academic agency not only by simplifying content but by ensuring continuity of participation. Support is embedded within the material itself, reducing the temporal and cognitive barriers that often disrupt inclusion.

Theme 3: Professional Repositioning and Ethical Stewardship

Although AI reduced mechanical workload and supported student independence, participants did not describe a loss of professional authority.

Instead, many articulated a subtle shift in identity. One participant summarized this change by stating that:

“AI has made me feel less like I am constantly modifying and more like I am guiding the learning process.” (Participant 1, Learning Support Assistant)

This reflects a movement from content modifier to facilitator. Rather than spending extensive time rewriting materials, educators described focusing more on interpreting, contextualizing, and refining AI outputs within meaningful teaching moments. AI functioned as an assistive partner, but the teacher remained central to pedagogical decision-making.

At the same time, participants acknowledged qualitative tensions. Several described AI-generated materials as technically accurate yet emotionally flat. One participant explained that,

“Sometimes what the AI generates (social stories) are correct, but it doesn’t always sound natural. I still need to adjust it so it feels more appropriate for my students.” (Participant 2, Special Education Teacher)

This concern pinpoints the limitations of automated outputs in relational teaching contexts. Teachers consistently emphasized the importance of review and refinement, with one participant noting that,

“I don’t just use it directly. I always review and edit it before giving it to my

students.”(Participant 5, Special Education Teacher)

These practices demonstrate that AI integration was mediated through professional judgment. An educational technologist described a similar sense of professional responsibility, but from a participant perspective:

“Even though the AI generates the content, I still have to check and make sure it works properly for the intended use. My role is to support the teachers and ensure the technology is used appropriately.” (Participant 10, Educational Technologist / IT Support)

Educators did not adopt outputs uncritically. Instead, they exercised oversight to ensure emotional resonance and contextual appropriateness. In this way, AI-assisted practice was characterized not by replacement, but by augmentation where efficiency gains were balanced by ethical stewardship.

Discussion

These findings matter because they move beyond claiming that AI-assisted personalization is broadly helpful and provide a theoretically grounded and practice-oriented blueprint for how generative AI can be implemented in inclusive classrooms. Rather than positioning AI as a productivity tool, the study demonstrates that its pedagogical value lies in operationalizing proactive accessibility transforming differentiation from reactive retrofitting into anticipatory design. This directly addresses the manual burden described by participants and echoes international concerns that inclusion often collapses

under unsustainable teacher workload (OECD, 2023).

In alignment with the 2023 Global Education Monitoring Report, which cautions that technology must redesign learning systems rather than simply digitize existing inequities (UNESCO, 2023), the findings show that AI-assisted content creation embeds flexibility at the point of lesson design. This shift reflects the foundational logic of Universal Design for Learning (UDL): barriers arise from inflexible curricula, not from learner deficits (Meyer *et al.*, 2014). Participants’ accounts of generating simplified texts, multi-modal explanations, visual schedules, and structured prompts in advance demonstrate how generative AI can scale UDL’s principles of multiple means of representation and engagement without exhausting teacher capacity.

Importantly, the findings extend UDL theory by integrating it with contemporary AI scholarship. Holmes and Tuomi (2022) argue that AI systems enable personalization at a scale previously unattainable. However, this study grounds that claim in lived classroom practice: personalization was not abstract but embedded in real-time instructional flow. Rather than waiting for post-hoc accommodations, students engaged immediately with accessible materials. In this way, AI reduced temporal exclusion where learners with special needs often pause while adaptations are prepared, and instead facilitated continuity of participation.

The discussion also makes an explicit theoretical connection to Vygotsky's Zone of Proximal Development (ZPD). When the learners initiated tasks independently using AI-adjusted materials, they were operating within their optimal developmental range (Vygotsky, 1978). Recent analyses of large language models suggest that generative systems can dynamically calibrate linguistic complexity and provide scaffolded prompts (Kasneci *et al.*, 2023). This study adds qualitative depth to that claim by showing that such scaffolds not only support comprehension but strengthen academic agency. Students were not merely assisted they remained positioned as capable participants within the classroom community. Several educators also linked this immediacy of access to improved classroom belonging, as learners no longer experienced visible delays in receiving adapted materials.

At the same time, the findings reveal that technological scalability must be ethically mediated. Participants consistently described reviewing and humanizing AI-generated outputs, particularly in contexts such as social stories where emotional nuance is critical. This aligns with Akgun and Greenhow's (2022) warning that AI systems can reproduce bias or obscure accountability if adopted uncritically. It also echoes Selwyn's (2019) concern about "algorithmic coldness," where technically accurate outputs may lack relational sensitivity. What emerges from this study is not a narrative of automation, but one of professional repositioning? Teachers described feeling less like constant modifiers and

more like facilitators and ethical curators. In practice, they enacted a "human-in-the-loop" approach consistent with European Commission (2022) guidance emphasizing transparency, oversight, and pedagogical control.

Thus, what is new in this synthesis is the integration of three domains often examined separately: generative AI capability, UDL design principles, and lived teacher mediation. The study moves from asking whether AI supports inclusion to clarifying how it must be implemented, ethically curated, pedagogically aligned, and relationally grounded. AI does not replace professional expertise; rather, it redistributes cognitive labor, enabling educators to devote greater attention to interpretation, emotional attunement, and instructional creativity.

Conclusion

This study examines how educators experience the shift from manual curriculum retrofitting to AI-assisted proactive design in inclusive classrooms. As reflected in participants' accounts of reduced adaptation burden, faster material customization, and increased instructional responsiveness, AI-assisted content creation does more than improve efficiency, it restructures inclusive practice. The central finding is that AI's effectiveness is not inherent in the technology itself but contingent upon intentional, ethically mediated implementation.

When grounded in Universal Design for Learning (UDL), which locates barriers in inflexible curricula rather than in

learner deficits (Meyer *et al.*, 2014), AI enables anticipatory accessibility through multimodal supports, simplified representations, and adaptive scaffolds. Consistent with UNESCO's (2023) call for technology to redesign systems rather than reproduce inequities, participants described embedding flexibility at the outset of instruction rather than retrofitting materials after exclusion occurs. This shift reduces the unsustainable workload pressures documented in international education reports (OECD, 2023) while preserving teacher agency.

Interpreted through Vygotsky's Zone of Proximal Development (ZPD), AI-generated scaffolds functioned as calibrated supports that allowed learners to initiate tasks independently and remain within the instructional flow (Vygotsky, 1978). Importantly, educators also linked this immediacy of access to strengthened classroom belonging, as students were no longer visibly separated through delayed accommodations. Thus, AI-assisted personalization supported not only comprehension but participation and dignity.

However, the findings also reaffirm that inclusive education is fundamentally relational. Participants consistently reviewed and humanized AI outputs, reinforcing concerns raised in recent scholarship about ethical oversight and algorithmic bias (Akgun & Greenhow, 2022). AI did not replace professional expertise; rather, it redistributed cognitive labor, enabling educators to focus more deeply on interpretation,

emotional atonement, and pedagogical creativity.

Recommendations

It is recommended that schools and educational leaders adopt AI-assisted content creation within a clearly defined, human-centered framework. Rather than treating AI as a replacement for teacher expertise, institutions should position it as a supportive design tool that helps educators proactively embed accessibility into lesson planning. Professional development should focus on helping teachers critically evaluate AI-generated materials for clarity, inclusiveness, emotional tone, and alignment with diverse learner needs.

In addition, schools should develop shared guidelines for ethical use, data protection, and quality assurance to ensure that AI integration strengthens equity rather than introducing new forms of bias or exclusion. Collaborative repositories of well-designed, AI-enhanced instructional resources could further reduce duplication of effort and support sustainable inclusive practice.

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