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Designing Social Stories™ with GenAI. A Dialogic environment supporting the Individualized Education Plan

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Abstract: Writing a Social Story requires information about the learner and the situation, together with attention to language and accuracy. Generative artificial intelligence may assist with drafting, but its output requires review before educational use. This paper describes a Social Stories™ generation tool developed within the Socrate platform at the University of Salerno as part of a project supporting Individualized Education Plan design. The tool combines a module for collecting educational information with a technical module for configuring generation and review. Users specify the learner's communication profile, the context, the story's purpose and available support. A Python backend coordinates language model generation, automated checks and revision, with separate drafting and reviewing roles. The procedures are designed to identify structural problems, unsupported assumptions and coercive or judgmental wording. Teachers retain responsibility for checking the narrative and deciding whether it is appropriate for the learner. Feedback and revision records provide material for professional discussion and training. The paper outlines the tool's architecture and the evaluation needed to assess narrative quality and educational use. Future work will compare local and general-purpose models through expert assessment and examine whether stories support learners' understanding in the situations for which they are written.

Keywords: Social Stories™; generative artificial intelligence; autism spectrum disorder; Individualized Education Plan; teacher agency.

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1. Introduction[1]

Social Stories™ is a technique that has proven to be notably effective in supporting children's understanding of the cues and appropriate actions for several social situations (Attwood, 1998, p. 33). Gray (2000, 2010) describes them as accurate accounts of personally meaningful topics, expressed in a patient, positive

[1] The paper is the result of a joint collaboration between the authors. However, Emanuela Zappalà wrote the paragraph "1. Introduction" and "3. Social Stories™ design principles and applications of generative AI"; Umberto Bilotti wrote paragraph "4. Social Stories™ generation tool"; Lucia Campitiello wrote paragraph "2. Social communication and social understanding in ASD"; Stefano Di Tore authored the "5. Challenges and future perspectives" and he is the Scientific Coordinator of the research.

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voice using language suited to the reader. The technique is primarily adopted for learners with autism spectrum disorder (ASD; Como et al., 2024; Reynhout & Carter, 2006; Scattone et al., 2003; Wahman et al., 2022), but it is also useful for pupils who may have difficulties understanding and managing social situations or, more universally, to foster the development of prosocial behaviors (Tan, 2024). Writing Social Stories™ requires knowledge of what happens in that situation and what the learner needs to understand. Within the school setting, a story might clarify or explain how to manage social situations, such as how to join a group activity or what to expect when the timetable changes.

Its effectiveness depends on the information it provides. Actually, teachers need to check that the account is accurate, that interpretations of other people's perspectives are supported, and that the wording does not pressure the learner to behave in a prescribed way.

Considering the pedagogical and inclusive value of Social Stories, this paper describes a generative artificial intelligence (GenAI) tool for drafting and revising them. It was developed at the Teaching Learning Centre for Education and Inclusive Technologies - Elisa Frauenfelder, located at the University of Salerno, and it is part of a broader project on GenAI support for the Individualized Education Plan (IEP) (Zappalà et al., 2025, 2026). The project approaches the IEP as a document that teachers, families, professionals and learners use to plan and review educational provision. This approach draws on research on inclusive teaching and IEP design, including collaboration between schools and families (Aiello et al., 2016; Amatori & Bocci, 2021; Ianes & Demo, 2017; Zollo et al., 2023).

Educational assessment should guide its use with learners who have other neurodevelopmental conditions or social communication needs. In each case, the decision to use a story should address an observed need and take account of the learner's IEP objectives and the conditions in the setting.

Users supply information about the learner and the situation, which the system uses to generate a draft. The drafting and review procedures are designed to favour descriptive sentences, distinguish observations from interpretations and identify coercive or judgmental wording. Teachers and the multidisciplinary team should check the text against the information supplied, correct omissions and decide whether it is appropriate for the learner. Family members' contributions can clarify experiences not apparent in classroom observations. The learner's participation, supported through accessible forms of communication, also informs the story's content. These contributions help the author choose language and explanations that reflect the learner's knowledge, preferences and available support. Decisions about diagnosis and educational objectives remain outside the tool's remit.

The environment also allows practitioners to examine suggested corrections and compare alternative formulations. Revision records document how the text changes and why. Users can reject a suggestion or reconsider the purpose of a story, retaining responsibility for the resulting account. These features are intended to support professional agencies; their effects require evaluation. Research on engagement and agency, together with work on autonomy and competence, informs this aspect of the design (Fredricks et al., 2004; Reeve & Tseng, 2011; Ryan & Deci, 2000). Thus, based on these premises, the project presented here addresses the need to combine AI-assisted drafting with review informed by knowledge of the learner.

2. Social communication and social understanding in ASD

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by persistent difficulties in social communication and social interaction, associated with restricted and repetitive patterns of behavior, interests, or activities. These characteristics may manifest with varying degrees of intensity and in different configurations across individuals, contributing to a markedly heterogeneous profile in cognitive, communicative, relational, and adaptive functioning (APA, 2022; WHO, 2022). This heterogeneity is particularly evident in the socio-communicative domain, where individual differences may involve, among other aspects, socio-emotional reciprocity, the use and interpretation of verbal and nonverbal communicative behaviors, and the ability to understand and modulate behavior in relation to different interpersonal contexts. Within this framework, some individuals with autism may experience difficulties in interpreting implicit social cues, inferring others' intentions, understanding social conventions that are not explicitly stated, and anticipating how a given social situation may unfold (Happé & Frith, 2020).

Within this framework, social skills represent a central dimension of socio-communicative functioning. They encompass a broad repertoire of competencies involved in initiating and maintaining interactions, reciprocal exchange, participation in shared activities, and the interpretation of verbal and nonverbal cues that regulate social interactions (Bellini & Peters, 2008). In individuals with ASD, these competencies may show highly heterogeneous profiles and may be influenced by a plurality of individual and contextual factors, including the person's cognitive, social, and emotional characteristics and the specific conditions of the interaction (Yardeni-Stern et al., 2026). Available evidence indicates that interventions specifically targeting social skills can lead to improvements, although outcomes vary according to participant characteristics, intervention type, and implementation procedures (Narzisi et al., 2024). This variability is consistent with the heterogeneity that characterizes ASD and points to the need for approaches tailored to the individual profile and specific needs of the person. Particular attention should also be paid to the generalization of acquired skills across different life contexts, since the transfer of learning beyond the context in which it was initially acquired represents an essential component of its functional relevance in everyday life (Carruthers et al., 2020).

The complexity of social skills and the variability with which they may manifest have contributed to the development of different theoretical models aimed at understanding the cognitive processes involved in the interpretation of interpersonal situations. A significant body of autism research has historically interpreted socio-communicative characteristics through cognitive models focused on the processes involved in social understanding. Among these, the construct of Theory of Mind has assumed particular relevance (Baron-Cohen et al., 1985) and is generally understood as the ability to attribute mental states (such as beliefs, intentions, desires, and emotions) to oneself and others, and to use these representations to interpret and anticipate behavior. The pioneering work of Baron-Cohen, Leslie, and Frith highlighted how some children with autism may experience difficulties in tasks requiring the representation of others' beliefs, contributing to the development of a broad line of research on the relationship between autism, social cognition, and the understanding of mental states.

Alongside this perspective, further models have focused on the processes involved in the elaboration and integration of contextual information. In particular, the weak central coherence theory proposed that, in some individuals with ASD, information processing may be more strongly oriented toward local elements than toward their integration into a global and contextual representation (Frith, 1989; Happé, 1994). This perspective is particularly relevant to social interactions, whose understanding often requires the simultaneous integration of multiple verbal, nonverbal, and contextual cues, including the context in which the interaction takes place, the relationships among participants, prosody, facial expressions, gestures, and the implicit expectations associated with the specific situation. When a substantial part of this information remains implicit, even apparently simple situations may require considerable interpretative effort. Uncertainty regarding others' intentions or social expectations may also reduce the predictability of the experience, making some situations particularly complex to interpret and manage.

These cognitive perspectives are also particularly relevant from an educational standpoint, as they show that the difficulties encountered in some social situations cannot be attributed exclusively to the understanding of others' mental states, but also involve the ability to integrate multiple and often implicit contextual cues. It follows that educational intervention should not be directed solely toward the acquisition or reproduction of behaviors regarded as socially appropriate, but rather toward creating conditions that make social situations more understandable and predictable. This entails making explicit information that, in everyday interactions, frequently remains implicit or is taken for granted, such as the nature of the situation at hand, the reasons underlying it, the people involved, relevant contextual elements, the possible perspectives of the participants, and the different courses of action available.

This interpretation has been further broadened by approaches that have problematized accounts of social communication centered exclusively on individual deficits. Within this framework, Milton's (2012) double empathy problem draws attention to the reciprocal and relational dimension of interpersonal understanding. According to this perspective, communication difficulties between people with and without autism cannot be attributed solely to limitations in the social competence of the person with autism but may also arise from differences in the ways social experience is perceived, interpreted, and communicated. Misunderstanding is therefore conceptualized as a potentially bidirectional phenomenon that may involve both participants in an interaction. This perspective shifts the focus from individual functioning alone to the characteristics of the relationship and the communicative context and, from an educational standpoint, suggests the value of approaches that are not exclusively aimed at adapting the behavior of people with autism to prevailing social expectations, but also at promoting communicative accessibility, participation, and mutual understanding (Milton, 2012).

In light of these considerations, the personalization of educational intervention assumes central importance. The heterogeneity that characterizes ASD means that individuals sharing the same diagnosis may present markedly different profiles with regard to linguistic and communicative abilities, cognitive and executive functioning, sensory characteristics, interests, self-regulation strategies, and previous experiences. This is further compounded by the situated and relational nature of social understanding, whereby the same situation may be interpreted and addressed

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differently depending both on individual characteristics and on the contextual and communicative conditions in which the interaction takes place. Educational interventions aimed at supporting social understanding should therefore be designed on the basis of an in-depth knowledge of the individual, their functional profile, and the specific characteristics of the environment, rather than deriving goals and strategies solely from broad diagnostic categories.

It is within this perspective that the broader field of Social Skills Training (SST) can be situated, understood as a structured and heterogeneous set of intervention strategies aimed at promoting the acquisition, consolidation, generalization, and functional use of social skills across different life contexts. Bellini and Peters (2008) include within SST a range of procedures and approaches, including video modeling, social problem solving, Pivotal Response Training, script-based interventions, priming and prompting procedures, self-monitoring, computer-assisted interventions, and Social Stories. The authors also emphasize the central role of a preliminary and systematic assessment of social skills, regarded as an essential step for identifying the person's specific needs, defining intervention goals, and guiding the selection of the most appropriate strategies (Bellini & Peters, 2008). SST can therefore be conceptualized not as a single procedure, but as a multidimensional intervention framework whose design requires careful consideration of the individual profile, educational goals, and the characteristics of the contexts in which social skills are expected to be practiced and generalized (Bellini & Peters, 2008).

Within this broader framework of interventions, the Social Stories developed by Carol Gray can also be situated, as individualized tools designed to support the understanding of specific social situations through accurate, contextualized information that is consistent with the characteristics of the intended recipient. The need to adapt content, language, and level of detail to the individual profile makes personalization particularly relevant when the design of such tools is supported by artificial intelligence systems. In this context, AI should be regarded as a resource supporting educators' decision-making and design processes rather than as a substitute for professional expertise. The automated generation of a narrative therefore requires subsequent verification of its accuracy, its relevance to the specific situation, its consistency with the recipient's characteristics and needs, and its alignment with the defined educational goals. Personalization thus represents not only a desirable feature of the final product, but also a methodological principle that cuts across the entire design process.

3. Social Stories™ design principles and applications of generative AI

According to Gray (2000, 2001) and Smith (2027), Social Stories™ describe situations, skills or concepts relevant to the learners, making explicit information that may remain implicit in everyday communication. In particular, Gray (in Reynhout & Carter, 2006) states that: "A social story is a process that results in a product for a person with autism spectrum disorder (ASD). First, as a process, a social story requires consideration of - and respect for - the person with ASD. As a product, a social story is a short story defined by specific characteristics - that describes a situation, concept, or social skill using a format that is meaningful for people with ASD. The result is often renewed sensitivity of others to the experience of the person with ASD, and an improvement in the response of the person with ASD" (p. 1).

A story may explain what happens when the teacher takes attendance, whom to ask for help when an object is lost, or preparing the learner for changes such as the unexpected absence of a teacher or the classmate who sits next to them, of for events such as a fire drill, by explaining what to expect and suggesting strategies they can use. The topic is usually selected following an assessment of the learner's abilities and support needs, informed by discussions with parents or other caregivers who can share knowledge of the individual and the circumstances where they may face difficulties. Social Stories™ may also describe a successful experience or recognize an established skill, explaining what the learner did, why it mattered and how the same skill could help him/her in other social situations. It explains what happens and what support is available, avoiding judgements about the individual or demands for compliance. Thus, the purpose of this technique is to provide information that may support the learner's understanding of a situation. Gathering information may also reveal a need to change the environment or the way adults communicate.

The text is usually composed of a title and an introduction that identifies the topic, a main body that explains it, and a conclusion that reconsiders the essential information. The questions "where?", "when?", "who?", "what?", "how?" and "why?" help the author select relevant details. For example, a story about waiting at the doctor's surgery might explain where the child waits, who accompanies them and what they can do while waiting. Each detail should reflect the actual situation and help the learner understand it.

The language used should be accessible to the learner and maintain a patient, respectful tone. Length and format depend on the individual's language skills, attention span and interests. Age alone is insufficient to determine the number of sentences. Furthermore, photographs, pictures, symbols or audio reading may be selected according to how the individual prefers accessing information.

The narrative should be used by the first or third person and refer to past, present or future events. Metaphors, ambiguous expressions and generalizations require particular attention because words, such as "always" or "everyone", should be avoided. Moreover, statements about thoughts and emotions should also have a sound basis: attributing an emotional state without knowing how someone feels can make the account inaccurate. Careful attention to accuracy during the design process may help the teachers to take into account difficulties that some learners with ASD may experience in understanding others' perspectives, interpreting details within a broader context and planning or organizing actions. These difficulties are discussed in theoretical accounts of theory of mind, weak central coherence and executive functioning.

Before use, the text should be reviewed with people who know the reader. Its introduction and subsequent reading should be planned, with attention to which information the reader understands and which passages need revision. Evaluation therefore concerns both the narrative and its use in the actual situation.

Tools such as Toontastic 3D, Powtoon, Canva, Stories Online for Autism (SOFA; Camilleri, Maras and Brosnan, 2023) App and StoryboardThat offer ways to create and present visual narratives. Depending on the tool, teachers may use storyboards, illustrations or animations to adapt the format and delivery to the learner's needs and preferences. Nonetheless, creating accurate Social Stories™ that reflect autistic learners' social needs and preferences still remains a demanding task

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(Kokina & Kern, 2010). To facilitate this, recent studies have explored whether GenAI may assist with drafting and adapting these narratives (Danish & AlShammarim, 2024; Feng et al., 2025; Frolli et al., 2024; Lyu et al., 2024a; Lyu et al., 2024b). More particularly, Frolli et al. (2024) explore how AI could support pupils with ASD by helping teachers to adapt learning materials and communication to individual needs. Actually, it emerges that AI systems may offer alternative explanations, generate activities based on pupils' responses and interests, and also let the teachers, or the pupils him-/herself customize the task difficulty. One example is shared, referring to the study by the research group of Lampos (2021) that used machine learning to predict pupils' responses to teachers' communication strategies, including speech, gestures, pictures and physical objects. Predictions improved when the model incorporated information about the pupil and previous interaction. This suggests a possible role for AI in supporting teachers when selecting communication strategies, even if predictive accuracy doesn't demonstrate itself in improvements in learning outcomes. Moreover, Frolli et al. (2024) also described applications for practicing conversation and understanding emotions. They mention virtual conversational partners that allow autistic adolescents to discuss interests, practice communication and receive support with daily routines. Another example is EmoEden, developed by Tang et al. (2024), which uses generative AI to adapt emotional learning activities and conversational content. Frolli et al. (2024) reports that the system could respond to incomplete or grammatically inaccurate expressions and vary its responses to support different ways of expressing an idea. In the end, regarding Social Stories™, it emerged that the proposed use of language models is to draft narratives about situations relevant to an individual pupil and adapt their wording and content; text-to-image systems may also help produce accompanying illustrations. These applications offer ways to prepare personalized materials and opportunities for practice, but the paper doesn't establish their effectiveness through an original classroom intervention. Nonetheless, the authors also identify data privacy, bias and unequal access as concerns, and argue that AI should support the work of teachers and other professionals while preserving human interaction.

The study conducted by Danish and AlShammari (2024) stems from an interest in using artificial intelligence to personalize Social Stories™ and the hypothesis that digital presentation may sustain the attention of autistic students. The authors aim to examine how AI-supported stories contribute to the development of social skills by comparing them with a traditional intervention. The study involves two students, observed initially without intervention and subsequently after the presentation of the stories. For the first participant, the behavior tracked involves initiating conversations and interacting with the teacher during classroom activities. Following the initial assessment, the student participates in 20-minute sessions using traditional Social Stories; the behavior is then observed in the classroom for another 20 minutes. For the second participant, observation focuses on initiating exchanges and interacting with peers and the teacher during a 30-minute break. The intervention consists of 10-minute individual sessions using an AI-supported Social Stories application on a tablet in an empty classroom. Follow-up observations take place during the break, immediately after each session. The authors report more favorable outcomes for the participant who used the application, particularly in initiating conversations and understanding social cues. They also note his interest in viewing

the stories on the tablet and suggest that the multimedia format and adapted content contributed to these outcomes. However, the study compares two pupils observed in different settings who received interventions of different durations. It therefore cannot distinguish the contribution of AI from that of the digital format, individual differences or the conditions of delivery. The quantitative reported data is also insufficient to assess the extent of the changes, and the study does not establish whether improvements persisted or transferred to other situations. A separate concern is the suitability of AI-generated stories for learners whose experiences are poorly represented in the training data. Generated narratives may contain stereotypes, unsupported assumptions or suggestions that are inappropriate for a particular learner or setting. These are potential risks rather than findings demonstrated by this comparison. Teachers and other practitioners need to review each story against their knowledge of the learner and the situation before using it. The study offers preliminary evidence that warrants further investigation under comparable conditions, with measures of learning, maintenance and transfer alongside assessment of the generated content

In addition, Feng et al. (2025) use language models to generate stories about everyday situations, following constraints on structure, descriptive language and situational safety. They developed a dataset of more than 5,000 stories through generation and human filtering, then used it to train smaller models. Their results suggest that domain-specific training can improve story generation while reducing reliance on complex prompts and larger proprietary models. The educational opportunity lies in providing a wider range of drafts for practitioners to adapt. However, the study evaluates the generated texts rather than their effects on children's understanding or behavior.

Lyu et al.'s (2024b) paper focuses on emotional learning through narratives connected to familiar settings and interests. Working with five experts, the authors develop design guidance and generate 56 stories covering seven emotional categories. Examples include happiness associated with recovering a lost object and situations involving birthdays, school or home. Expert feedback informs revisions to vocabulary, sentence length and explanations of emotional events. This work illustrates how AI-generated content can be reviewed and adapted during development, but the proposed game had not yet been evaluated with children.

Then, in the EMooly study (Lyu et al., 2024a) develops these ideas into a tablet game combining generated stories, caregiver participation and augmented reality. Children can select a character and an emotion, then scan a familiar object to incorporate it into the narrative. A caregiver supports them to discuss the story and practice facial expressions, while interactive activities provide opportunities to recognize emotions. In a controlled study involving 24 autistic children and their caregivers, the EMooly group showed greater improvement on an immediate emotion-recognition quiz than a group using slide-based activities. Importantly, the comparison materials also contained stories generated by the same AI model. The findings therefore concern the combined EMooly experience; they do not isolate the contribution of AI generation.

These studies suggest that AI may assist with producing several narratives and connecting learning activities to children's interests and surroundings. Expert review and caregiver involvement remain necessary to check the content and support its use. The evidence is strongest for text-generation quality and short-term

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performance within the evaluated activities; sustained learning and transfer to everyday social situations require further investigation.

Taking into account these premises, the project that will be presented aims to present a Social Stories™ generation tool. It collects information about the situation, the learner's communication profile and available support, then uses it to produce a draft. Automated checks and language model review identify passages that may require correction, while teachers assess the narrative's accuracy and relevance to the learner's IEP. Feedback and revision records allow practitioners to examine how the text was developed and discuss the reasons for proposed changes. The following section describes the tool's interface and the procedures used to organize generation and review.

4. Social Stories generation tool

The Social Stories generation tool is one of the features provided within the Socrate platform, developed by the *Teaching Learning Centre for Education and Inclusive Technologies - Elisa Frauenfelder* at the University of Salerno. The Socrate platform was established with the objective of making explicit some of the primary AI-based technologies increasingly adopted in educational and instructional settings. Indeed, Socrate enables a more conscious exploration of readily available online tools, with a particular focus on technologies that can be easily repurposed as educational tools. The primary goal of the Socrate project is therefore to facilitate the transition from AI-based technologies for education to AI-based educational technologies through a two-fold strategy: on the one hand, it offers users direct, hands-on experience in configuring parameters and design choices that are typically reserved for service providers; on the other hand, it grounds pedagogical challenges within a local, highly individualized context, counteracting the "oracular" nature of current AI methods. Accordingly, Social Stories presents itself as an interface designed for story design, structured into two modules: a narrative-educational module where textual content required for creating the story is provided, and a technical module dedicated to configuring the pipeline that manages the LLM models. The input fields within the narrative-descriptive module are detailed in Table 1.

Table 1. This table lists the fields of the narrative-educational module and describes their functions.

Field	Function
Age or Age Group	Defines the chronological age (in years) to calibrate narrative tone, register and lexical complexity
Linguistic Level	Selection among 4 language proficiency levels, ranging from "Simple sentences" to "Adolescent / Adult".
Communication Mode	Selection of the final delivery format: Text-only, Audio file via Text-To-Speech (TTS), or Text + Symbols (AAC).
Concrete Situation	Input field for the baseline narrative scenario to be structured according to Carol Gray's model.

Informative Goal	Specifies the pedagogical/social purpose of the story, serving as the guiding anchor for LLM generation
Target Name	Optional field to specify the proper name of the story's main character
Narrative Perspective	Sets the narrative point of view: First person ("I"), Third person ("He/She"), or Neutral-descriptive.
When/ Where/ Who is Involved	Contextual details (location, time, key individuals) to enrich narrative accuracy.
Concrete Events/ Action Flow	Logical and chronological sequence of the actions and events portrayed in the story.
Key Cues to Recognize	Key environmental or social cues that the student needs to learn to identify.
Uncertainties or Difficulties	Mapping of potential challenges, anxieties, or misconceptions faced by the recipient in the situation.
Available Supports	Physical, visual, or environmental aids actually present during the activity.
Knowing Successful Strategies	Behavioral patterns or educational strategies previously proven effective with the student.
Elements to Avoid	Negative constraints (negative prompting): explicitly excludes metaphors, rewards/punishments, or figurative language.
Recipient's Perspective / Assumptions	Analysis of the user's potential misconceptions, assumptions, or altered perceptions regarding the situation.
Information Sources	Identifies the origin of the data used (e.g., direct observation, caregiver/teacher interviews).
Implementation Timing and Method	Planning of the schedule and delivery methods for introducing the story to the student.
Sensory Sensitivities	Specific details on auditory, visual, or tactile hypo/hypersensitivities to prevent distressing elements in the story.
Personal Interests	Special interests or passions of the student to integrate into the narrative to enhance engagement.
Format	Output display structure (page layout, grid arrangement, visual cards).
Maximum Sentences	Sets the upper limit on sentence count (minimum 5) to control total narrative length
Notes	Open text field for additional customization notes, special instructions, or edge cases for the model.

The technical module features a Python-based backend that manages two structured pipelines. This architecture ensures that the Social Story benefits not only from the prompt fed into the language model, but also from automated validation steps and functions assigned to clearly defined, distinct roles (Generator vs. Reviewer). The technical module allows users to choose between the default

pipeline and the agentic pipeline. The default pipeline consists of sequential phases managed by Python:

1. Goal Pre-review (LLM Reviewer): before writing the story, an LLM analyzes the user's initial intent to eliminate pedagogically inappropriate or harmful concepts (such as moralism, shaming, punishment, masking, or unrealistic expectations) and reframes the goal accordingly.

2. Initial draft generation (LLM Generator): a model generates the title and body of the story based on the sanitized goal and user parameters.

3. Non-AI automated check (Python Validator): Deterministic code strictly verifies formal rules and structural constraints (e.g., sentence length, sentence-type ratios, presence of coaching or problematic patterns, narrative point of view, and personalization).

4. Review and repair loop (LLM Reviewer / Critic): if the validator detects issues, the draft - along with the corresponding error reports - is sent back to the model to be rewritten or corrected sentence by sentence (Critic).

5. Final analysis and output: if enabled, the system generates a final pedagogical analysis of the story (under the strict constraint that the story's text should remain unaltered during this phase).

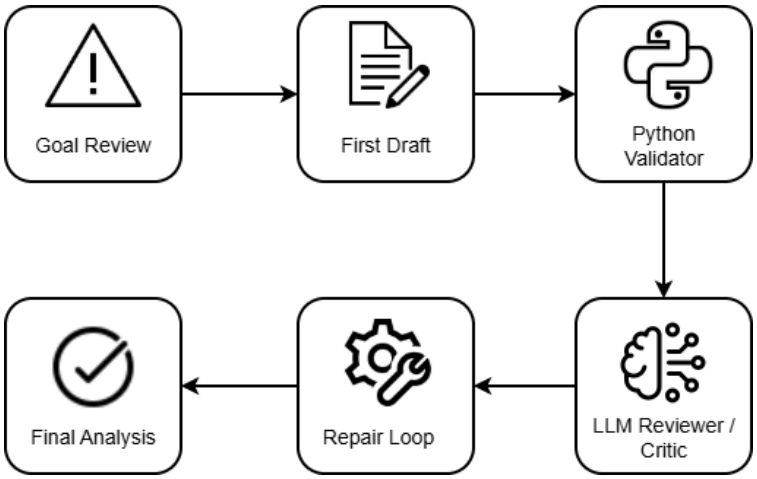
The workflow behavior and the number of LLM calls vary depending on the mode selected by the user:

1. fast mode: performs text correction only if automated validation fails or triggers critical warnings (maximum 2 attempts). It can deliver the story without an LLM reviewing the initial draft if the Python code considers it already valid.

2. Adaptive standard mode: similar to Fast mode but allows a higher correction margin (maximum 3 attempts) and activates the LLM Critic if issues persist after the first attempt.

3. High-quality mode: the text always undergoes targeted correction, sentence-by-sentence analysis (Critic), and a final LLM analysis

Figure 1. In this figure, a diagram summarizing the main phases of the default pipeline.



The agentic pipeline is configured as a monolithic and highly efficient system designed for local execution via open-weight models (such as Qwen or Gemma) served on dedicated infrastructure through vLLM, intending to minimize the total number of LLM calls by delegating control logic to the local Python script. Unlike the default pipeline, the agentic one does not rely on an independent reviewer model: through a single initial call, the local model simultaneously generates the initial draft, its self-revised version, the pedagogical goal reframing, and a self-evaluation report. Subsequently, the Python code applies deterministic corrections and validates the output; only if validation fails is a second request for repair and refinement dispatched to the exact same model. Throughout this process, Codex serves exclusively as a secure harness or sandbox for executing the local model, with the backend imposing strict operational constraints, prohibiting shell commands, file system access, web searches, and external tool usage, thereby ensuring that the logical orchestration of the entire workflow remains fully under the control of the Python script[2].

5. Challenges and future perspectives

The development of GenAI-supported Social Stories™ raises challenges related not only to model performance, but also to reliability, educational appropriateness, sustainability and transparency. The architecture presented in this paper suggests that output quality should not be attributed to model size alone, but to the interaction between domain-relevant information, explicit constraints, automated validation, revision procedures and professional review. Accordingly, the possibility

[2] At the following link it is possible to take a look at some sections of the platform: https://drive.google.com/drive/folders/1LeLUOi_5hzvHjF7P6mxpsoTpU-f7s-Kz?usp=sharing More specifically, Figure 2 shows a section of the interface with an example of data entered into the various fields; and Figure 3 shows the output of the default pipeline is displayed, highlighting the Social Story, the compliance checks against Gray's guidelines, the sentence-type breakdown of the final result, and the various corrections implemented by the reviewer model.

that intermediate-sized local models may perform comparably to larger general-purpose systems should be treated as a hypothesis to be systematically tested. This perspective is consistent with previous research showing that domain-specific training and curated datasets can improve Social Stories generation while reducing reliance on complex prompting and large proprietary models (Feng et al., 2025).

A key priority is the development of shared evaluation protocols. Generated stories should be assessed for linguistic quality, accuracy, accessibility, adherence to Social Stories™ principles, absence of coercive or judgmental language, and consistency with information about the learner and the educational context. Expert assessment and inter-rater agreement will be important for comparing models and identifying errors that remain difficult to detect automatically. Evaluation should also move beyond text quality to examine whether generated stories support learners' understanding, maintenance and transfer across everyday situations.

Professional judgement remains pivotal. Automated validation and LLM-based review may identify structural problems, unsupported assumptions or problematic formulations, but cannot independently determine whether a story appropriately reflects the learner's experience, communication profile, preferences and available support. Teachers and multidisciplinary teams should therefore retain responsibility for reviewing and adapting the final narrative.

Future work will compare local open-weight and general-purpose models, extend expert validation, and examine sustainability, privacy, computational cost and transparency. The broader objective is not to automate the production of ready-made Social Stories™, but to develop a transparent and revisable environment in which GenAI supports, rather than replaces, professional knowledge and educational responsibility.

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