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Human Narrative Intelligence & Artificial Intelligence in Creative Storytelling: A Comparative Case Study

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Abstract

Artificial Intelligence (AI) is increasingly influencing education, such as the development of teachers' skills and metaskills. Creative storytelling provides a pedagogical backdrop for exploring meaning-making and metaskills representation. This mixed-methods case study proposes a methodological approach and provides proof of concept by investigating how Large Language Models (LLMs), specifically ChatGPT 5.3 Instant, support Creative Storytelling. Twelve fourth-year students at the University of Patras participated in two groups. Qualitative content analysis was utilized, and coding was quantified and normalized for descriptive comparison, given the variation in the length of students' narratives. The analysis examined the twelve steps of the Hero's Journey narrative structure, the Hero's Emotional Journey towards catharsis, and representations of metaskills in the students' stories. Findings suggest that AI-Assisted stories showed higher values of the narrative structure and complex problem-solving. Independently written stories showed higher values for diverse socio-emotional, reflective, ethical, and expressive narrative indicators. Students' own concepts and writing remain essential for emotional authenticity, creativity, meaningful interpretation, and originality. However, these findings do not establish intrinsic differences between human and artificial intelligence.

Keywords

Storytelling, Narrative Intelligence, AI-Assisted Storytelling, The Hero's Journey, Catharsis, Metaskills

1. Introduction

In today's world of information and digital overload and complexity, education

increasingly aids learners to learn how to think critically and evaluate what they encounter (Auh, 2026). According to Auh, story is to possess coherence over time, the capacity to connect past experiences, present actions, and future intentions into a meaningful trajectory. It also requires situated experience. In sociocultural learning knowledge, skills and competences are embedded in social, cultural and embodied contexts. Auh suggests that having a story is ability to assign meaning to events rather than merely processing information about them, presenting fact after fact.

Stories can support this process in powerful ways, as they naturally engage students, helping them connect with ideas both emotionally and intellectually, while making concepts easier to create, understand and remember. By giving information context and meaning, storytelling turns abstract ideas into experiences that feel relevant to everyday life (Lambropoulos, 2025). Stories often bring together personal, cultural, historical, and fictional narratives, allowing learners to explore different perspectives, and multiple and deeper layers of meaning. More importantly, storytelling reflects a basic human tendency to organize experiences through narrative to better understand ourselves, others, and the world around us. In this way, narrative thinking helps move understanding beyond the individual and towards shared human experience (Lambropoulos, 2025).

Artificial Intelligence (AI) has already marked the transition to the Fourth Industrial Revolution (Industry 4.0, Meindl & Mendonça, 2021) as a digitized, intelligent, and interconnected ecosystem where AI functions as the "nervous system" of infrastructures, enabling real-time data collection, analysis, and decision-making based on numbers and patterns (Radanliev et al., 2021). AI's application in Education is now expanding, from student-dropout prediction, educational chatbots, adaptive language learning, enhanced engagement and performance tracking among others, expanding AI's potential in modern school contexts (Karaca & Kilcan, 2023). For example, sophisticated language models can generate fluent text across diverse genres and offering real-time feedback throughout these processes (Tate et al., 2023).

Pre-Service Teachers Metaskills

Within this new paradigm, Education and human experience instilled in its structure as learning in creative literacy (Kiosses, 2019), responds by cultivating teachers' 4Cs skills (Döğer & Göçen, 2025) and even metaskills such as emotional intelligence, empathy, creative thinking, complex problem-solving, uncertainty and crisis management, ethical judgment, communication competence, reflective thinking and metacognitive skills, self-regulation, flexibility, freedom of expression, and collaboration in multidimensional digital environments (van Laar et al., 2019; Schleicher, 2018). In Medical Education, the illness narrative skills of attention, representation, and affiliation can help health professionals increase their sensibility and empathy when faced with dilemmas and frustrating clinical or healthcare situations (Liao & Wang, 2021a; Hammer et al., 2012).

The metaskills examined in this study were conceptualized as higher-order, transferable capacities that coordinate cognitive, socio-emotional, ethical, communicative, and self-regulatory processes across contexts. The framework synthesized constructs from emotional intelligence (Mayer et al., 2004), empathy (Davis, 1983), creativity (Runco & Jaeger, 2012), complex problem-solving (Greiff et al., 2013), ethical judgment (Rest, 1986), metacognition (Flavell, 1979), reflective practice (Schön, 1983), and self-regulated learning (Zimmerman, 2002). It was also informed by the OECD Learning Compass 2030, CASEL's social and emotional learning framework, and the World Economic Forum's future-skills framework.

Educators need to equip learners with the 21st-century skills (Trisnawati et al., 2023) such as AI, 21st-century skills, complex problem-solving, collaboration, and preparation for rapidly changing technological environments (Channa et al., 2021). AI-powered tools be utilized to cultivate these skills in storytelling to spark creative expression; Bonneton-Botté et al. (2020) used a tablet over 12 weeks to assess handwriting in 22 students, demonstrating AI-supported digital tools' ability to enhance writing skills. Consequently, this discussion connects these AI-Assisted Learning emerging demands for storytelling as a pedagogical methodology and technique in AI-Assisted Creative Storytelling. Via storytelling, students may use it to confront challenges, reframe characters' perspectives and decisions, and integrate human creativity and insight. As such, combined with AI Large Language Models, storytelling may evolve into a co-creative pedagogical methodology that supports and cultivates metaskills. Storytelling for learning purposes requires narrative logic, structural coherence, and depth of world-building. Traditionally, these elements have demanded a high level of writing skill and experience, as well as narrative intelligence (Kiosses, 2021a). The recent development of LLMs introduces new possibilities, such as the automatic generation of ideas, characters, and narrative structures, as well as the creation of multimodal narratives, and the structuring of whole passages when provided with keywords or basic story frames. However, the impact of LLMs on creativity, authorial voice, and the concept of authorship remains insufficiently studied, particularly in the field of Creative Writing.

In cooperation between the Department of Education and Social Work at the University of Patras and the Department of Language and Intercultural Studies at the University of Thessaly, a case study was conducted aiming to address this gap regarding the "The Future of Creative Writing and Storytelling with Artificial Intelligence: In What Ways Can Artificial Intelligence Serve as an Opportunity or Replace the Creative Process in Story Development within Creative Writing and Storytelling in Sociocultural Learning?"

2. Human Narrative Intelligence

Creative storytelling is deeply connected to the way people experience, observe, and make sense of human behavior and the world around them (Lambropoulos, 2025). Stories are not simply a way of describing events; they are a way of com-

municating feelings, ideas, values, knowledge, and experiences that help people connect with one another (Gersie, 1997). People share perspectives, build relationships, and create common meaning with storytelling so to create a sense of connection and shared understanding (Birch et al., 2017), beyond their own personal experience, as the narrator's voice, style and personal mode of telling a story is also crucial. Penaluna and Ranson (2024) suggest that the teller shapes the narrative through choices of content, style, and emotional engagement controlling the story's flow and deciding on elements to include or omit and setting the tone as comedic or dramatic.

Labov and Waletzky (1967) suggest that narrative is a series of connected statements telling a specific event or experience to make sense of it. This is possible by organising experiences, understanding emotions, explaining events, and connecting with others (Herman, 2002, 2013), that might otherwise feel confusing or fragmented, to explain reality, preserve memories, and communicate shared values and beliefs (Erll & Nünning, 2008). Ideas such as culture, nation, history, justice, and even illness are often understood through the stories societies tell and repeat over time, especially those shaped by groups with social or cultural influence and power (Hall, 1997). According to Polkinghorne (1988), narrative helps people connect past experiences, present actions, and future possibilities into meaningful life stories. With narrative thinking humans turn experiences, memories, and events into stories because stories help organize what happens around them and give it meaning. Through storytelling, people connect personal experiences with cultural, historical, and even fictional elements, creating narratives; storytelling moves beyond individual experience and becomes something shared, helping people connect with others through common meanings and experiences (McAdams, 2001). Stories shape how people think, feel, and understand reality as individuals reflect on their own lives, understand the past, and navigate everyday social relationships and situations. Through stories, people also make sense of how events unfold over time as narrative thinking aids them to connect events, recognize causes and consequences, and understand experiences as part of a larger whole (Bruner, 1991). Stories are also closely connected to identity as people often understand who they are through the stories they tell about themselves, their memories, relationships, struggles, and hopes for the future (McAdams, 2001), also reflecting the values, beliefs, and concerns of the societies and times in which they are created. Stories can reinforce shared cultural meanings and challenge social norms and dominant ways of thinking by presenting different perspectives and moral dilemmas, by questioning, interpreting, and reshaping them (Somers, 1994).

Howard Gardner suggested that intelligence is not a single, fixed ability. In 1983, he introduced the theory of multiple intelligences, arguing that human intelligence is far more diverse and complex than standard academic measures suggest. He suggested that people understand, learn, and express themselves in different ways, and that education should recognize and support these differences.

He defined intelligence as the ability to solve problems or create meaningful outcomes within real cultural and social contexts. Following his definition, Narrative Intelligence (NI, Randall, 1999) relates to several of these forms. It is the human ability to recognize patterns and structures formed as stories, as well as identify central themes and characters, and use this information for better decision-making and to create new narratives that resonate with audiences. It also includes the skill to create compelling narratives that evoke emotion and inspire action, as well as the critical analysis of existing narratives. Kiosses (2021b) advocates for harnessing narrative intelligence to support and enhance narrative literacy, which involves the ability to receive and synthesize narratives across various communicative contexts and media functionally and critically. In this study, narrative intelligence factors can be identified in both AI-Assisted and non-AI students' stories.

3. Narrative Structures: The Hero's Journey

In education, the story development structure is also known as "storyline", which emerged in Scotland in the 1970s. It is a creative, enjoyable, and effective pedagogical approach and teaching method suitable for all grades, all ages, and all forms of education-formal, non-formal, and informal (Harkness, 2016; Bell et al., 2007). The story has structure, themes, plot, content, and form, creating a conceptual model of reality that distinguishes it from other educational approaches. Storytelling structures, such as Campbell's "The Hero with a Thousand Faces" (2008), Vogler's "The Hero's Journey" (2020), Harmon's "Narrative Cycle" (2018), and Snyder's (2005) "Developmental Points of Narrative", refer to structures that help us in creating stories, enhancing the narrative and the plot to organize the meaning-making process (Labov & Waletzky, 1967). These storytelling steps as narrative units organize the information with the temporal and causal relations connecting them. A complete series of narrative sentences creates the story narrative, providing coherence and identity to the story and helping the audience understand and recall the content (Halliday & Hasan, 1976; Georgakopoulou & Goutsos, 1999). For example, the twelve step Hero's Journey structure (Vogler, 2020) can support students to create logical meaning relationships supporting the story continuity. Thus, the story structure aims at the content, coherence, and quality of the information, while the story ideas ensure the context and the audience's emotional involvement in the story. In this study, the Hero's Journey begins with the ordinary world to the imaginary or another world, and back, outlining a journey for a protagonist who undertakes the task of solving a significant problem in twelve steps (Lambropoulos, 2025). The 12-step hero's journey suggests narrative units that correspond to the plot's structural elements and are arranged so that the story acquires the hierarchical macro-structure.

There is limited research on the catharsis scale, such as Liao and Wang (2019; 2021b; 2023), Steckley (2018) and Husain (2020). Liao and Wang examined whether the intervention of narrative medicine to form an empathetic connection could demonstrate differences between the experimental and the control group

on professional identity, self-reflection, emotional catharsis (Aristotle, 1996), and reflective writing competency. Following the authors, emotional catharsis is the process of strongly expressing repressed or immediate negative emotions, such as pity, fear, stress, and anxiety, to release hostility or trauma in the mind and generate a certain positive emotion or change in one's life. They utilized a short form emotional catharsis (ECS-IN) scale based on students' responses.

In this case study, the Emotional Catharsis Scale (ECS) was developed based on the emotional hero's journey and the "beats" of character transformation towards personality flaw symmetry, lesson assimilation and catharsis as the relief of emotions (Lambropoulos, 2025) based on a 0 - 100 coded emotional variables based on the "beats" of the emotional hero's journey development towards catharsis rather than narrative unis as with the twelve steps hero' journey, which is only one of the commonly used narrative structures. This case study investigates the ways these twelve narrative units and the emotional catharsis scale can be utilized in the story development via LLMs, whether there are differences between the two in Human Narrative Intelligence and in Storytelling Artificial Intelligence for narration in AI-Assisted Creative Storytelling, and examine the representation of metaskill-related indicators in pre-service teachers' stories.

4. Artificial Intelligence Large Language Models (LLMs)

The 2020s technologies represent a major development by altering the ways users interact with information, produce and enhance knowledge and skills, and engage with digital environments as a user as well as a learner. Large Language Models (LLMs) and tools that include such applications have rapidly expanded across domains including education, research, productivity, and creative content generation (Bommasani et al., 2021; Brown et al., 2020). LLMs are designed to understand, generate, and process natural language. Unlike earlier computational systems like A. L. I. C. E. chatbot (Lambropoulos, 2007), that relied primarily on rule-based programming and keyword matching, contemporary language models can recognize complex linguistic patterns and producing coherent responses in natural language. A. L. I. C. E. (Wallace, 2009), Artificial Linguistic Internet Computer Entity, is a natural language processing chatbot that engages in conversations with humans using heuristic pattern matching rules. It was inspired by Joseph Weizenbaum's ELIZA program (1996) and has won the Loebner Prize multiple times for its conversational abilities. A. L. I. C. E. was originally developed by Richard Wallace, influencing various aspects of technology, education, art and culture, including the integration in Moodle forums and Spike Jonze's film "Her" (2013). An early example is PhiliPa, an AIML-based chatbot integrated into the Moodle learning management system to provide information, prepare learners, encourage interaction, and support engagement in online learning environments (Lambropoulos, 2007). These functionalities and capabilities allow such systems to perform a variety of tasks including machine translation, predictive text generation, summarization, question answering, and creative writing.

In 2017, Vaswani introduced one of the most influential AI architectures, the Transformer. LLMs use the transformer architectures (Vaswani et al., 2017); they operate through probabilistic pattern recognition and deep learning across vast textual corpora, enabling them to simulate coherence, style, and patterns, in this case, narrative structures, without any intentionality, consciousness, or lived experience. They learn statistical relationships between words, sentences, and ideas, enabling them to generate contextually relevant responses to user prompts (Jurafsky & Martin, 2023), such as extremely large datasets consisting of books, websites, academic articles, and other textual resources.

Transformer-based systems enable models to process language by analyzing relationships between words across major sequences of text. Building on this architecture, the Generative Pre-trained Transformer (GPT) series developed by OpenAI employed a two-stage training paradigm, the pre-training and fine-tuning (Radford et al., 2018; Brown et al., 2020). During pre-training, these models are exposed to vast and diverse datasets, learning statistical patterns of language through objectives such as next-token or word prediction. In this phase, the model acquires linguistic knowledge, such as grammar and syntax embedded in the text. The second phase adapts the model to specific tasks or domains incorporating human feedback (inferences) to improve relevance, coherence, and safety (Ouyang et al., 2022). GPT scale has increased dramatically as these models can perform tasks with minimal or no explicit training examples (Brown et al., 2020).

As such, AI-assisted storytelling can be situated within the broader sociocultural framework of distributed cognition (Hutchins, 1995), where cognitive processes are extended across human and technological agents or the Communities of Practice and the use of tools and artefacts (Lave & Wenger, 1991). Lim et al. (2026) underscore the importance of sustained professional development and authentically designed learning experiences to support effective AI integration in K-12 Education. However, critical questions remain about human creativity, emotional authenticity, and ethical responsibility, and the role of AI within storytelling education related to the narrative intelligence development for university students.

5. Research Methodology

The case study primary aim was to propose and new methodological approach so to investigate how and to what extent LLMs can support creative writing and storytelling among pre-service teachers at the University of Patras. Based on the proposed approach for Human Narrative Intelligence versus Artificial Intelligence and Storytelling Analytics, the three research questions investigated the differences between Human and AI Narrative Intelligence for Human and AI-Assisted Storytelling focusing on the comparison between of writing conditions for the:

1) Twelve steps of the Hero's Journey as a common story narrative structure,
2) Hero's Emotional Journey development in a story towards catharsis, and
3) Identified metaskills in the pre-service teachers' stories.

Twelve fourth-year students voluntarily participated in the study and attended

an one-hour seminar on the Hero's Journey. All participants were subsequently given the same instructions. The participant list was placed in random order using MS Excel. Students were then allocated alternately from that ordered list to the non-AI and AI-assisted conditions. Six students formed the non-AI group, which completed the task without using AI, while the remaining six students formed the AI-assisted group, using ChatGPT 5.3 Instant available in March 2026 accessed through their own computers. The study did not collect or retain ChatGPT interaction histories, including students' prompts, model responses, or successive exchanges. The final stories were analyzed as products of an AI-assisted writing condition for the second students' group.

One of the researchers was present throughout the activity but did not intervene, allowing students in both groups to write their stories freely. Both groups completed their stories using online Google Docs. The students in the AI-assisted group were free to use any prompts they wished when interacting with ChatGPT (Kasneci et al., 2023), with no restrictions on their use of the tool. After they finished their story, they responded to a Google Questionnaire (Likert scale 1 - 4 for absolute positive or negative responses) measuring basic demographics and information. As such, along with the stories texts analysis, it was possible to acquire richer and more detailed data (Gallagher, 2009), also enabling a reflexive process of re-working and reunderstanding the data (Davis, 2000). In result, the study adopted a mixed-methods research approach.

Alongside the suggested framework-guided coding, thematic analysis of the students' stories explored patterns of meaning across the narratives. These themes provided an interpretive account of the narrative content and contextualized comparisons based on the predefined Hero's Journey, emotional catharsis, and metaskill-related categories. The research methodological contribution therefore lies in integrating structural, emotional, and thematic textual analysis as well as ECS. The analytical framework comprised three predefined areas: the twelve steps of the Hero's Journey, this is the narrative structure taught in the seminar, the dimensions of the Emotional Catharsis Scale (Lambropoulos, 2026a), and metaskill-related narrative indicators. These domains guided the identification and interpretation of meaningful narrative segments. Hero's Journey coding concerned structural functions within the plot following the twelve steps (Lambropoulos, 2025); ECS ratings concerned the represented emotional progression and transformation of the protagonist (coding manual, Lambropoulos, 2026b); and metaskill-related coding concerned textual representations of actions, perspectives, and decisions associated with the selected constructs. ECS-100 scoring proceeded from annotated textual evidence to indicator ratings, dimension subtotals, and the overall story score. Each of the twenty indicators was rated from 0 to 5 using the instrument's universal anchors. Four indicator ratings were summed within each dimension, producing a score from 0 to 20; the five-dimension scores were then summed to produce the story's ECS-100 maximum total, and no additional rescaling was required.

Definitions and decision rules were refined during review of the corpus. Recurring patterns such as vulnerability, relational support and identity recovery were used to elaborate the interpretation of those categories. The narrative framework, segment-level ratings and whole-story ECS rubric are reported separately. Also, following Cook and Brown (1999) it was possible to extract informal learning concepts such as interdependent textual elements, by initial examination of the corpus towards the low-level theorizing form of category and concept. These are then classified as categories under higher-order, more abstract formations. Following thematic analysis (Braun & Clarke, 2022), and systematic coding, theme generation and pattern identification by Boyatzis (1998), the overall coding manual was refined iteratively through examination of the stories and review of coding disagreements. This process clarified the wording, boundaries, and application of operational indicators within the existing framework. Narrative segments were assigned to the twelve Hero's Journey steps according to their primary narrative function. Where multiple segments represented the same stage within a story, their ratings were averaged to obtain a story-level stage score. Group trajectories were subsequently calculated as the arithmetic mean of the available story-level scores at each stage, giving each contributing story equal weight. Steps absent from a story were recorded separately as structural absences. A zero emotional rating was reserved for assessable segments following the ECS definition of an absence of the relevant feature. The codes related to the research questions had been developed in a continuum following an iterative examination and coding of the corpus, developing themes and codes and validating and using the code scheme. Themes and clusters for developing protocols were grouped based on a developmental scale on cognitive complexity (Boyatzis, 1998: p. 143). In addition, three documents were developed to ensure reliability and internal consistency, instruction for AI Storytelling, a storytelling data normalization techniques report, and the emotional catharsis scale. Given the interpretive nature of the analysis, emphasis was placed on conceptual agreement rather than statistical inter-rater reliability. Coding must "usable" by other researchers for a high inter-rater reliability level; simple to understand and remember; relevant to the context; allow quantitative analysis; and use of a wide variety of information (Lambropoulos, 2009).

An analysis of 25% of the data was conducted by an independent researcher based on the codes for the hero's journey twelve steps, the hero's emotional journey catharsis scale and evidence of metaskills following these steps without any prior discussion with an initial reliability of 3% on the data. The classification indicators were rewritten in a clearer and simpler way and a further 10% of the data was coded giving a reliability of 50%. Then, the themes and clusters were discussed and analyzed with the independent researcher giving a reliability of 90% on a further 25% of the data. A second independent researcher verified the process with a reliability of 93% on a 25% sample which was acceptable. Overall, the textual narrative units related to the emotional hero's journey were discussed as explicit or implicit narrative moments expressing emotional conflict, transformation, vul-

nerability, cathartic release, or reflective awareness, following the three research dimensions. As such, the numerical results are composite indicators derived from evaluators' ratings, normalized values, and code frequencies. There were 216 primary-code assignments, 216 Hero's Journey entries, and 864 numerical ratings: 128 segments in the non-AI corpus and 88 in the AI-assisted corpus. Each segment contained a primary code assignment, a Hero's Journey assignment entry, and four numerical ratings covering emotional intensity, stability, internal conflict, and catharsis contribution.

The Emotional Catharsis Scale (ECS, Lambropoulos, 2026a) used five equally weighted dimensions (20 points each), scored through 20 observable indicators rated 0 - 5: 1) emotional journey progression, 2) emotional cycles, management and character symmetry, 3) assimilation of lesson in relation to character's flaw or other issue, 4) final catharsis and emotional resolution, and 5) overall emotional balance and catharsis. Also, the ECS was compared and distributed throughout the Hero's Journey 12 steps to compare the narrative structure peaks and the character's emotional development towards catharsis.

Data were extracted from questionnaires, students' stories as creative texts. Data analysis involved descriptive quantitative analysis of questionnaire responses, and comparative thematic analysis of texts produced with and without the use of LLMs as well as qualitative analysis of interview data. Due to the fact the number of the words of students' stories differ significantly, quantified qualitative analysis was conducted to qualitative data and then four normalization techniques were necessary (Lambropoulos, 2026b). Group A average word count was 1268 words, whereas Group B was 1760 words. One story in the AI group had 5425 words, while several others had fewer than 1000 words. Raw narrative-unit counts were adjusted before comparison to account for differences in the amount of text available for coding. Four normalization techniques were applied to questionnaire open questions data; story assessment scores, for example, measurements in relation to text length; and missing data (Little & Rubin, 2019). Following Lambropoulos (2026b), the normalization framework distinguished questionnaire-score normalization, adjustment for valid-response counts, normalization of story-assessment dimensions, and adjustment of textual frequencies for story length. As such, questionnaire-score normalization, adjustment for valid-response counts, story-assessment normalization, story-length normalization was utilized. Questionnaire dimension scores are calculated after any necessary reverse-scoring and expressed relative to their theoretical scale limits. Categorical responses are expressed as percentages of valid respondents for the relevant item. Story-assessment dimensions with different numerical ranges are transformed to a common 0 - 100 metric before composite calculation, whereas coded-feature frequencies are expressed per 1000 words. ECS-100 totals retain their original 0 - 100 metric because the twenty indicator ratings already sum to a maximum of 100.

The number of narrative units for the Hero's Journey is used as a quantified qualitative indicator of the degree of narrative elaboration, narrative attention,

and structural development allocated to each Hero's Journey step. It performs an identifiable narrative function within a particular stage of the Hero's Journey. Consequently, a greater number of units may indicate that a step is more extensively elaborated, for example, through additional actions, conflicts, decisions, emotional reactions, reflections, or consequences, but it does not necessarily indicate deeper psychological or emotional development, this is measured by ECS. Thus, character's emotional development towards was assessed qualitatively and particularly whether they represented changes in the protagonist's emotional state, decisions, self-awareness, relationships, responses to conflict, assimilation of the story's lesson, and progression from the initial flaw or imbalance toward transformation and catharsis. This distinction is needed for the comparison between human and AI-Assisted Storytelling, as the latter may contain a larger number of narrative units or more extensively developed Hero's Journey steps without necessarily demonstrating stronger emotional transformation or cathartic integrity. As such, the frequency of narrative units is interpreted alongside their narrative, emotional, and transformational functions (Table 1).

Table 1. Example for ECS scoring in Patras non-AI story 02.

Step	Corpus evidence and scoring
Story identification	Patras Non-AI Story 02, *The Sound of Silence*.
Narrative Segment	"Πήρε την κιθάρα. Έπαιξε. Και έπειτα, με σταθερά χέρια, μίλησε στον πατέρα του. 'Δεν θέλω να σας σώσω με χρήματα. Θέλω να σας τιμήσω με αυτό που είμαι'".
English translation	"He picked up the guitar. He played. Then, with steady hands, he spoke to his father. 'I do not want to save you with money. I want to honor you through who I am.'"
Relevant ECS indicator	3.3 Demonstrated assimilation: the protagonist enacts learning through a consequential choice, behavior, relationship, or new interpretation.
Interpretation of the evidence	Keito moves from concealing his music and fearing parental disappointment to openly playing and articulating his identity. His changed understanding is expressed through action and communication, providing evidence relevant to lesson assimilation.
Indicator-level rating	Not separately recorded in the retrieved report. The passage supports Indicator 3.3, but its original 0 - 5 rating cannot be inferred from the dimension subtotal.
Recorded dimension subtotal	D3 = 16/20, as reported in the earlier ECS analysis. The four constituent indicator ratings are not supplied.
Recorded whole-story score	D1 = 16, D2 = 16, D3 = 16, D4 = 16, D5 = 16. Therefore, \(ECS = 16 + 16 + 16 + 16 + 16 = \mathbf{80/100}\). No additional rescaling is required.
Recorded group aggregate	The six Patras Non-AI story totals are 79, 80, 80, 79, 79, and 77. Their arithmetic mean is \((79 + 80 + 80 + 79 + 79 + 77)/6 = 474/6 = \mathbf{79.0}\) ECS points.

In another passage, the protagonist recognizes that fear has motivated avoidance and subsequently acts to support another character provides potential evidence for ECS Indicator 3.3, "Demonstrated assimilation." The complete narrative supported a recognizable and generally coherent enactment of learning, so the indicator received a rating of 3 ("Functional"). With four Dimension 3 ratings of 4, 3, 3, and 4, the subtotal is 14/20. Dimension totals of 16, 15, 14, 17, and 16 yield an overall ECS score of 78/100, without further normalization. Under an equally weighted story-level aggregation rule, six story totals of 78, 74, 80, 76, 82, and 78 yield a group mean of 78.0 ECS points.

6. Results

Twelve four-year undergraduate pre-service teachers at the Department of Education and Social Work, University of Patras voluntarily participated and gave their consent to join this case study. In Group A (non-AI) there were 5 females (83.3%) and 1 male (16.7%), whereas in Group B (AI-Assisted Storytelling) all 6 participants were females (100%). The age distribution of participants appears relatively balanced between the AI and non-AI groups. Most participants in both groups fall within the 20 - 25 age range, indicating that the majority are traditional university-age students. A small number of students belong to the 36 - 45 and 46 - 55 age range, suggesting limited representation of mature students (Figure 1).

Most participants in both groups were enrolled in the 4th year of study (advanced undergraduate students), while 1 from each group was in the 5th year.

In Figure 2 it appears that here were differences between the two groups regarding prior experience in creative writing and storytelling. In the AI Group, two of the participants (N = 6) reported some experience (1 - 2 courses), while a smaller number reported moderate or extensive experience. In the non-AI Group, 4 participants reported moderate experience (N = 6, 66.7%).

Both groups included 1 participant (16.7%) with no prior experience, suggesting that most participants had some minimum familiarity with creative writing before the study.

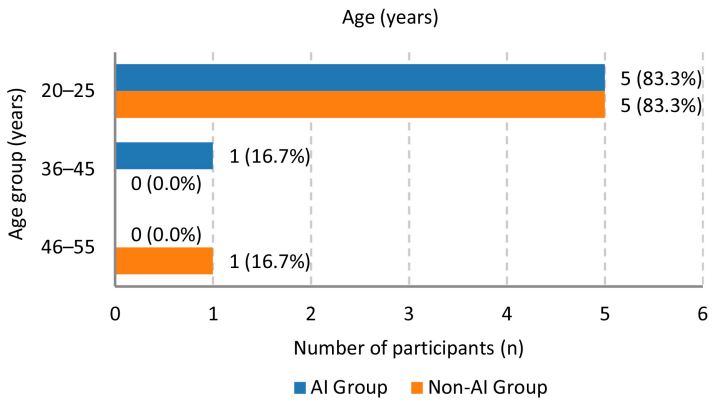

Figure 1. Age distribution.

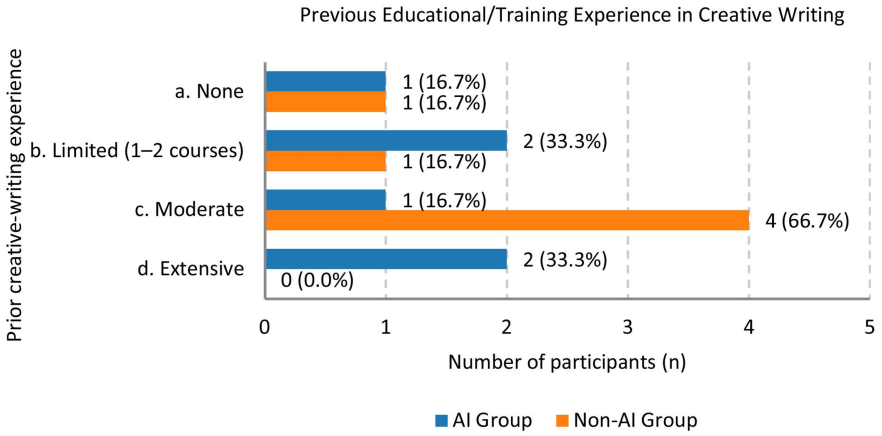

Figure 2. Educational/training experience in creative writing before the study.

6.1. Comparative Hero's Journey Analysis

The stories followed the twelve steps of the Hero's Journey; students wrote their stories following the Hero's Journey twelve steps. Mean drafting time was 166.6 minutes for the non-AI group and 130.0 minutes for the AI-assisted group, equivalent to approximately 2.78 and 2.17 hours, respectively. The average words for Group A were 1268 words, and 1760 words for Group B. The Hero's Journey comparative analysis investigates how students applied the twelve-step Hero's Journey framework in stories written and without AI assistance. Following the percentage of identification and reference of non-AI and AI-assisted stories, it appears that Group B demonstrated stronger structural consistency and clearer sequential progression across the steps as narrative units.

Figure 3 indicates that both groups achieved relatively high completion rates across the twelve stages of the Hero's Journey and depicts the diverse percentage profiles for the non-AI group (Group A) and the AI-assisted group (Group B). Group B has higher plotted values in eight of the twelve stages, whereas Group A has higher values in four. The unweighted arithmetic mean of the twelve plotted values is 82.1% for Group A and 86.0% for Group B, giving a mean difference of approximately 3.9 percentage points.

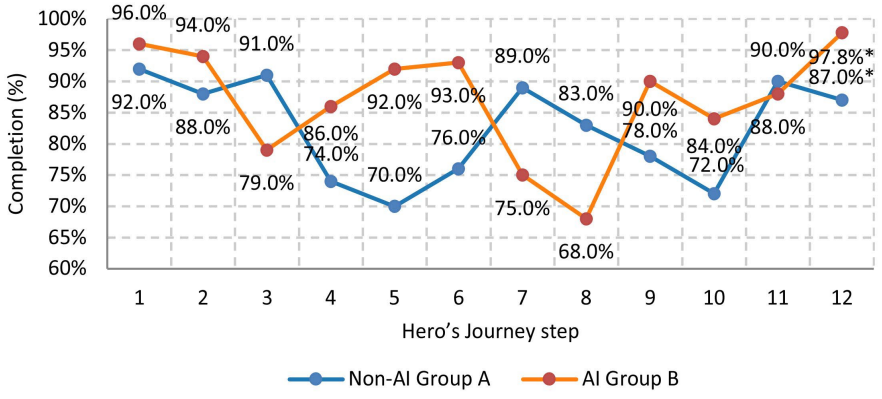

Figure 3. Percentage distribution for Hero's Journey steps across the two groups.

The largest difference favoring Group B occurs at Crossing the Threshold, where the plotted value is 92%, compared with 70% for Group A (22% difference). The next largest difference occurs at Trials and Allies (93% versus 76%; 17%). Group B also has higher values at Mentor Guidance (86% versus 74%), Reward/Victory (90% versus 78%), and New Conflicts (84% versus 72%), with differences of 12 percentage points in each case. Smaller differences occur at Awareness of the Problem (94% versus 88%; 6 percentage points) and the Ordinary World (96% versus 92%; 4 percentage points). Group A has higher plotted values at Life-Threatening Crisis (83% versus 68%; 15%), Inner Challenge (89% versus 75%; 14%), and Resistance to Change (91% versus 79%; 12&), and Transformation is also slightly higher (90% versus 88%; 2%). These contrasts occur in stages whose labels concern resistance, challenge, crisis and change. At the final ending (step 12), 87.0% for Group A and 97.8% for Group B, there is a difference of 10.8 percentage points favoring Group B. Compared with Transformation at step 11, the plotted value decreases by 7.5% in Group A (from 90.0% to 82.5%) and by 1.1% in Group B (from 88.0% to 86.9%). As such, Group A has the higher value at Transformation, while Group B has the higher value at the final ending.

Overall, all twelve stages have recorded narrative evidence in each of the six stories in both groups. The percentage profile shows higher plotted values for Group B in eight stages of the narrative structure, particularly Crossing the Threshold and Trials and Allies, and higher values for Group A in four stages, particularly Life-Threatening Crisis, Inner Challenge and Resistance to Change. Although the Group B demonstrated greater overall completion of the Hero's Journey steps, Group A showed stronger representation of internal resistance, crisis, and transformation, revealing a distinction between structural completeness and psychological-emotional depth. Conclusions about these differences in narrative elaboration, emotional development or the quality of the final ending require further analysis as this is a small-scale proof-of-concept case study.

6.2. The Hero's Emotional Journey towards Catharsis

The Hero's Emotional Journey is examined through emotional-intensity scores following the Emotional Catharsis Scale (ECS). Figure 4 compares the profiles of the non-AI group (Group A) and the AI-assisted group (Group B) across twelve normalized narrative positions. The plotted values represent emotional-intensity scores.

Figure 4 shows fluctuating emotional-intensity profiles in both groups, with their highest plotted values occurring at narrative position 9. Group B begins at 65.7, compared with 61.2 for Group A, a difference of 4.5 score points. The groups converge at position 2, where their values are 72.7 and 72.4, respectively. At position 3, Group A records a slightly higher value than Group B (74.6 versus 72.3). The profiles diverge more clearly at positions 4 and 5. Group A falls to 66.8 at position 4 and then rises to 69.6 at position 5, whereas Group B increases to 75.3 and 77.7, respectively. Group B consequently exceeds Group A by 8.5 points at

position 4 and 8.1 points at position 5. This ordering reverses at positions 6 and 7, where Group A records higher values: 81.2 versus 77.0 and 79.6 versus 78.0. Group B subsequently rises to 86.5 at position 8 and reaches its maximum of 88.5 at position 9. Group A records 78.1 and 86.0 at these positions, producing between-group differences of 8.4 and 2.5 points, respectively. Thus, the difference is more pronounced immediately before the shared peak position than at the peak itself. Following position 9, emotional intensity decreases in both groups. Group A records 81.9 at position 10 and 77.8 at position 11, compared with 80.4 and 74.6 for Group B. At the final position, Group B rises to 84.0, whereas Group A declines further to 75.5, yielding a difference of 8.5 points. This indicates different patterns of emotional intensity at the endings, but higher text intensity should not automatically be interpreted as stronger catharsis or a more effective resolution.

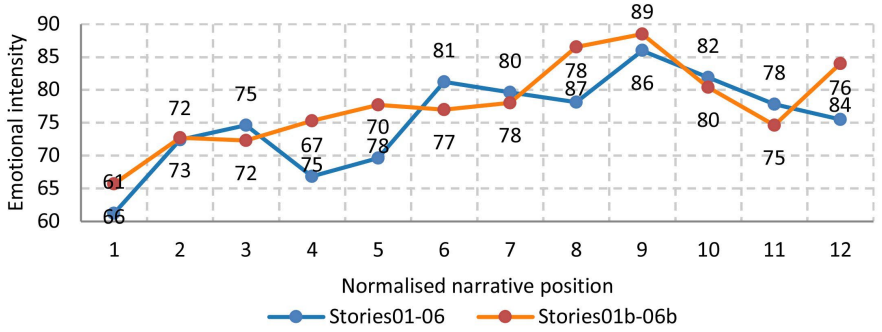

Figure 4. Comparative emotional intensity profiles across the normalised hero's journey steps in non-AI and AI-assisted stories.

Overall, Group B has higher plotted emotional-intensity scores at seven of the twelve positions, while Group A has higher scores at five. The figure therefore suggests differences in the distribution of emotional intensity across the narrative sequence rather than a uniform advantage for either group. However, Group A stories ended in a more balanced and stable way, showing fewer emotional fluctuations in their final stages and steady movement towards the ending catharsis as the release of emotions and achieving story balance, depicted in Figure 5.

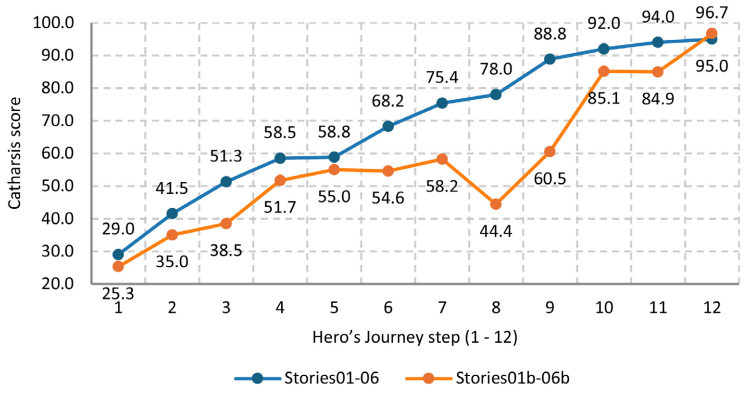

Figure 5. Comparative emotional catharsis scale arcs across the 12 steps of the Hero's journey.

In Figure 5 it appears that the two catharsis arcs following the 12 steps with substantial differences related to emotional release and transformational development. The group-level descriptive values reveal two distinct ECS trajectories across the normalized narrative positions. Group A stories 01 - 06 follow a comparatively gradual and consistent upward progression, increasing from 29.0 at step 1 to 95.0 at step 12. Across the Hero's Journey 12 steps, Group A stories 01 - 06 record a higher mean catharsis contribution (69.2) than Group B stories 01b - 06b (57.5), a difference of approximately 11.7 points. Group A remains higher at eleven of the twelve positions; the ECS contribution increases at every successive position, although the rise is relatively limited between step 4 and 5 (58.5 - 58.8). This pattern suggests a progressively constructed emotional trajectory in which tension, emotional meaning, and movement towards catharsis accumulate throughout the narrative.

Group B stories 01b - 06b begin at a slightly lower level (25.3), develop less consistently through the middle of the narrative, and then rise sharply towards the conclusion, reaching 96.7 at step 12, displaying a more uneven trajectory. After rising from 25.3 to 55.0 across steps 1 - 5, the curve remains almost unchanged at step 6 (54.6), rises modestly at step 7 (58.2), and then falls substantially to 44.4 at step 8. The difference between the groups is greatest at this point: 78.0 for Group A compared with 44.4 for Group B, a gap of 33.6 points. A similarly large difference remains at step 9 (88.8 versus 60.5). These results identify steps 8 and 9 as the principal points of divergence between the two emotional arcs. Group B subsequently demonstrates a pronounced late acceleration, rising from 60.5 at step 9 to 85.1 at step 10. Following a minor decline at step 11 (84.9), it reaches 96.7 at the final position, slightly exceeding the 95.0 recorded by Group A.

Both groups achieved a high ECS level, but they reach it through different narrative patterns. Group A stories distribute ECS development more consistently across the narrative, whereas Group B stories concentrate a greater proportion of emotional release within the final steps. Mean segment-level catharsis contribution ratings were calculated separately for each story by summing its segment ratings and dividing by the number of coded segments. Across the six non-AI stories, these means ranged from 66.6 to 70.6 points; across the six AI-assisted stories, they ranged from 52.9 to 62.4 points. Story04 had the highest mean in the non-AI group (70.6), and Story01b had the highest mean in the AI-assisted group (62.4). Figure 6 values summarize coded catharsis-related content across narrative segments on a 0 - 100 rating scale.

Figure 6 compares the mean segment-level Catharsis Contribution ratings. Each story mean was calculated by summing the ratings assigned to its coded segments and dividing by its number of segments. Bars show mean catharsis contribution ratings on a 0 - 100 scale. Labels give the rating, the number of coded segments (n), and each story's percentage of all coded segments within its writing condition (non-AI N = 128; AI-assisted N = 88). Percentages describe corpus

composition. Whole-story ECS-100 totals are a separate measure. The non-AI stories contained 16 - 24 segments each, whereas the AI-assisted stories contained 12 - 16, creating averages for each story to accommodates the different segment counts. For example, Story01 contains 24 segment ratings summing to 1599: 1599 ÷ 24 = 66.625, displayed as 66.6. The non-AI story means ranged from 66.6 to 70.6 points, compared with 52.9 to 62.4 points for the AI-assisted stories. Story04 had the highest mean in the non-AI group (70.6), followed by Story02 (69.3), while Story01 had the lowest (66.6). In the AI-assisted group, Story01b had the highest mean (62.4) and Story05b the lowest (52.9); Story06b scored 54.0.

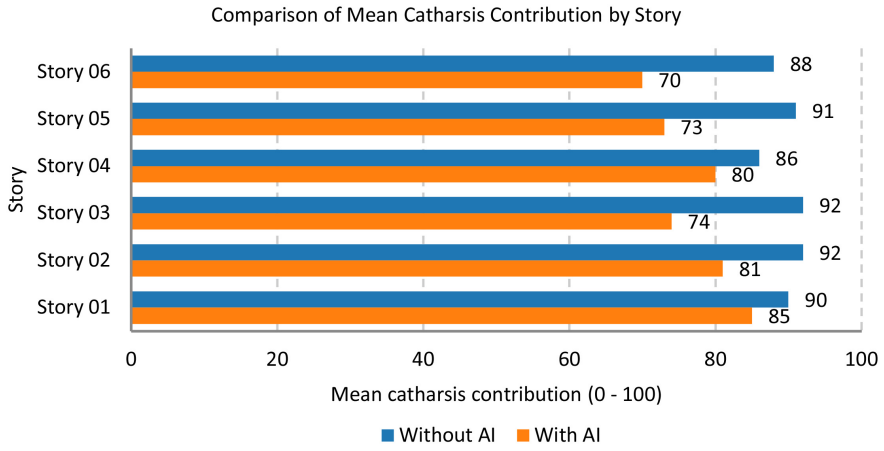

Figure 6. Mean segment-level catharsis contribution rating by story.

All six non-AI story means exceeded the highest AI-assisted story mean in this corpus. When each story receives equal weight, the group means are 68.0 points for the non-AI condition and 56.6 points for the AI-assisted condition. The difference is 11.5 scale points, a difference in coded textual ratings; also, the group means are averages of the six-story means. Between-story variation was smaller in the non-AI group: the range width was 4.0 points, compared with 9.5 points in the AI-assisted group. The findings therefore indicate higher average coded catharsis-related textual contribution in the non-AI stories within this small-scale case study.

6.3. Metaskills Representation in Pre-Service Teachers' Stories

As before, the qualitative analysis first identified narrative units as meaningful textual segments rather than individual words or sentences, that corresponded to the predefined operational indicators. For example, a narrative unit was coded as empathy when the text represented the recognition of another character's emotional state, perspective, suffering, or needs. Similarly, units were coded as complex problem-solving when characters identified interconnected problems, considered alternatives, anticipated consequences, or developed solutions. The qualitative coding frequencies were subsequently quantified and normalized to ac-

count for differences in story length and in the total number of narrative units produced by each group. The normalized values were then converted to a 0 - 100 scale and aggregated at the group level to enable comparison between the two corpora. Metaskills identification investigated whether the suggested key metaskills appeared in students' stories within the two groups. The percentages do not represent objective psychometric measurements, but comparative coding tendencies identified across the narrative corpus. Thus, the percentages measure the relative textual visibility and narrative elaboration of metaskill-associated themes, not the psychological development or actual competence of the student authors.

Across Group A stories (Figure 7), there was more extensive textual representation of emotional intelligence, empathy, freedom of expression, reflective thinking, and symbolic emotional processing. Their stories explored trauma, loss, moral dilemmas, and emotional transformation with greater vulnerability and personal voice. They also displayed stronger metacognitive reflection and emotional self-awareness.

As for the narratives, they contained introspective moments, internal conflicts, and emotionally layered symbolic imagery, suggesting emphasis on catharsis and emotional authenticity and transformation over structural perfection following the hero's journey steps. Across Group B stories, the coding identifies movement from fear, war trauma, domestic or social confinement, emotional avoidance, moral hesitation, or existential uncertainty toward agency, relational support, and identity recovery toward catharsis. Stories 01b and 02b use forced migration and loss to produce survival and catharsis; Stories 03b and 04b follow classic task-oriented courage arcs; Story 05b allegorizes social awakening; Story 06b internalizes the journey through vulnerability and conscious love.

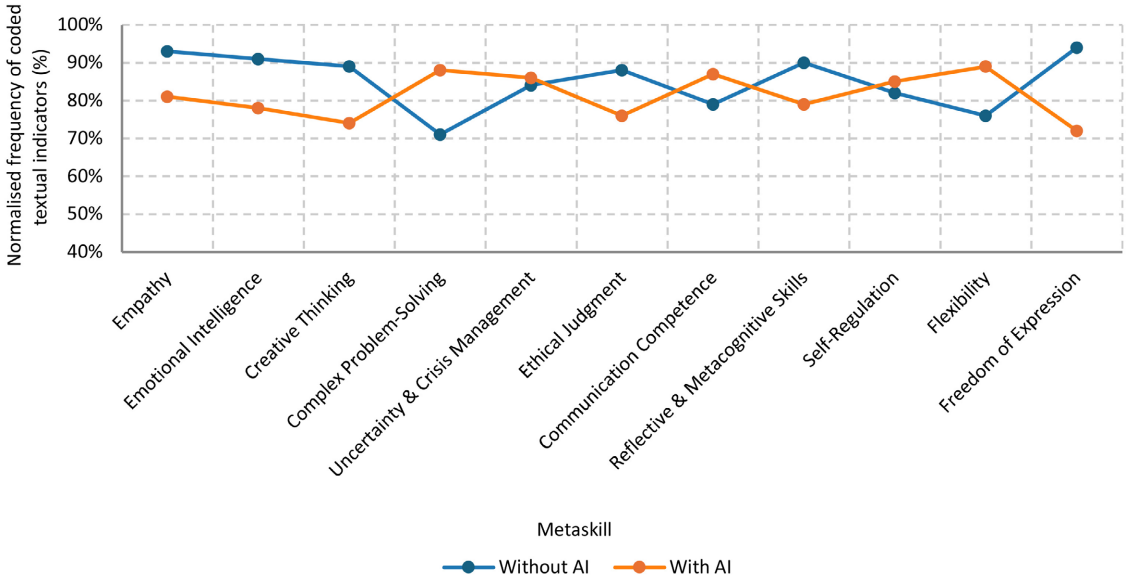

Figure 7. Comparative normalized percentages for coded metaskill-related textual indicators (The connecting lines do not represent a temporal sequence).

Figure 7 compares normalized values for textual indicators associated with eleven metaskills in the non-AI stories (Group A) and AI-assisted stories (Group B). The comparison concerns the representation of metaskill-related content within the narratives and does not directly measure the writers' metaskill competence or development.

Figure 7 shows different profiles of metaskill-related textual representation across the two groups. The unweighted arithmetic mean of the eleven plotted category values is approximately 85.2% for Group A and 81.4% for Group B, a difference of approximately 3.8%, summarizing the displayed category values. Group A records higher normalized values in six of the eleven categories. The largest difference is in Freedom of Expression (94% versus 72%), a gap of 22%. Group A also has higher values for Creative Thinking (89% versus 74%; 15%), Emotional Intelligence (91% versus 78%; 13 points), Empathy (93% versus 81%; 12%), Ethical Judgment (88% versus 76%; 12%), and Reflective and Metacognitive Skills (90% versus 79%; 11%).

These values show greater normalized representation of expressive, creative, socio-emotional, ethical and reflective indicators in the non-AI narratives. Group B records higher normalized values in the remaining five categories, with the largest advantage in Complex Problem-Solving (88% versus 71%), a difference of 17%. Higher values are also recorded for Flexibility (89% versus 76%; 13%), Communication Competence (87% versus 79%; 8%), Self-Regulation (85% versus 82%; 3%), and Uncertainty and Crisis Management (86% versus 84%; 2%).

Following Figure 7, it appears that greater normalized representation of problem-solving, adaptation and communication indicators exist in the AI-assisted narratives, with smaller differences in regulation and crisis-management indicators. The gaps in Uncertainty and Crisis Management and Self-Regulation are the smallest descriptive differences. The larger gaps in Freedom of Expression, Complex Problem-Solving, Creative Thinking, Emotional Intelligence and Flexibility are more pronounced numerically.

Overall, Figure 7 indicates category-specific differences rather than a uniform advantage for either writing condition. Group A has higher values for socio-emotional, reflective, creative, ethical and expressive indicators, while Group B has higher values for problem-solving, adaptive and communicative indicators. Its advantages in self-regulation and crisis management are comparatively modest. A narrative that contains more empathy-related indicators does not necessarily demonstrate that its writer has greater cognitive or emotional empathy or has developed that skill through the activity. Likewise, textual representations of problem-solving or self-regulation should not be equated with measured student competence. Thus, Figure 7 supports a descriptive comparison of metaskill-related narrative indicators, rather than a direct assessment of students' abilities. Establishing the development of cognitive and emotional empathy—or any other metaskill—would require an appropriate validated measure administered before and after the intervention, so the metaskills results are comparative indicators of

narrative content rather than objective measures of student competence. To summarize, the findings appeared to be the following:

- AI-assisted writing was faster and longer: average drafting time was 130 versus 166.6 minutes, with 1760 versus 1268 words for non-AI stories.
- Both groups represented all twelve Hero's Journey steps, but their emphasis differed: AI-assisted stories scored higher in plot progression, particularly threshold crossing and trials; non-AI stories scored higher in resistance, inner struggle and crisis.
- Non-AI stories developed catharsis more gradually and consistently. AI-assisted stories showed a less even middle trajectory followed by a sharp rise towards the ending. Both reached similarly high final catharsis ratings (95.0 versus 96.7).
- Non-AI stories had higher average segment-level catharsis contribution ratings: every non-AI story mean (66.6 - 70.6) exceeded every AI-assisted story mean (52.9 - 62.4).
- Non-AI stories showed stronger expressive and socio-emotional indicators, particularly freedom of expression (94% versus 72%), creative thinking, emotional intelligence, empathy, ethical judgment and reflection.
- AI-assisted stories showed stronger adaptive and solution-oriented indicators, particularly complex problem-solving (88% versus 71%), flexibility and communication.

A central implication suggests that structural fluency and production efficiency do not necessarily imply stronger emotional development and catharsis.

7. Discussion

Zawacki-Richter and colleagues (2019) suggested that most studies in education rely on statistical analyses of data and outcomes derived from the development of predictive models, while almost completely neglecting the pedagogical, social, and psychological dimensions involved in learning, in creative writing pedagogy (Kiosses, 2021a). To deal with the learning issue, the methodological proposition, the dataset and the coding manual were anchored in the dual trajectories of the hero's journey and the hero's emotional journey towards character's transformation and learning in each story. The datasets appeared to be useful for enabling comparison of external plot movement with internal emotional reorganization as well as metaskills evident in the text. This method demonstrated that the Hero's Journey can be quantified alongside the Emotional Hero's Journey representing characters' metaskills: the decisive movement is not only external action, but measurable inner reorganization across intensity, stability, conflict and catharsis, evident in the textual elements.

For the Hero's Journey, 80% of the non-AI stories and 90% of the AI-Assisted stories followed the Hero's Journey exact steps, as the same information was presented to the students from both groups in the form of a seminar and a worksheet. The findings suggest that AI-assisted stories showed higher overall coded cover-

age of the narrative structure, while independently written narratives showed more extensive coded representation of internal conflict and emotional transformation and transformative depth in the process of catharsis (Murray, 2017). AI-Assisted Storytelling may strengthen narrative organization and structural coherence of textual elements, while independently written stories preserve stronger emotional arcs, catharsis peaks, originality, symbolic complexity, and transformation (Bender et al., 2021). Regarding the emotional Hero's Journey toward catharsis following ECS, AI-Assisted Storytelling showed more rapid and dynamic emotional escalation and stronger short-term emotional peaks, while non-AI stories demonstrated a more organic and rhythmically balanced emotional arc progression throughout the narrative structure. Overall, the comparison suggested that non-AI stories were associated with more stable and cumulative EC development, whereas AI-Assisted stories concentrated emotional release more heavily toward the conclusion step (Hogan, 2011; Herman, 2013). Collectively, the data suggest that AI assistance may support narrative organization and pacing, whereas independently written stories showed a more gradual and sustained progression in ECS ratings across narrative stages, emotional complexity, and transformative emotional engagement. The results support human creativity as it remains central to Creative Storytelling (Floridi & Chiriatti, 2020; Boden, 2016). On one hand, human-AI reconceptualizes AI as a cognitive partner capable of externalizing or extending human cognition in learning contexts (Cukurova, 2025). On the other hand, deeper understanding can emerge through the effortful process of confronting divergent viewpoints, critically examining opposing arguments, and integrating different perspectives into a new synthesis (Johnson & Johnson, 2009).

The metaskills comparative findings also support the argument that Creative Storytelling remains a fundamentally human process. AI-assisted stories contained higher normalized values for several adaptive and solution-oriented narrative indicators, particularly assisting in Storytelling structure and continuity. Non-AI stories contained more extensive representation of several socio-emotional and reflective indicators included in the coding framework, particularly in relation to emotional authenticity, vulnerability, symbolic depth, and reflective consciousness (Fullan et al., 2020; Luckin, 2018). The AI-assisted corpus appeared to focus on organization, adaptation, and problem-solving, while human narrative intelligence indicates emotional, ethical, and reflective dimensions. The non-AI stories frequently contained unexpected narrative turns, more idiosyncratic character voices, and stronger emotional vulnerability. The writing often felt more personal and less constrained by conventional narrative formulas. Nevertheless, such meaning remains fundamentally dependent on human intentionality and interpretation (Vaswani et al., 2017). Humans remain essential in all activities as they assign significance, meaning, and ethical interpretation to knowledge generated by AI systems, preserving human authorship, individuality, critical thinking, and the capacity for self-directed meaning-making (Bender et al., 2021).

The overall metaskill representation findings indicate different patterns of textual representation across the two writing conditions. Independently written sto-

ries recorded higher normalized values for emotional intelligence, empathy, creative thinking, ethical judgment, reflection and metacognition, and freedom of expression. AI-assisted stories recorded higher values for complex problem-solving, flexibility, communication, self-regulation, and uncertainty and crisis management. These categories describe how characters' actions, perspectives, decisions, and responses were represented in the narratives. They do not demonstrate corresponding differences in the student authors' competencies or changes in those competencies during the activity. The observed patterns should therefore be interpreted as characteristics of these two corpora, rather than as intrinsic distinctions between human and artificial intelligence.

AI without appropriate pedagogical safeguards can impair skills acquisition precisely because it substitutes for the cognitive effort essential to learning (Du et al., 2026), as learners tend to rely on rather than learn from AI assistance (Darvishi et al., 2024). As such, there is need for pedagogical safeguards and critical appraisal (Teng et al., 2026). Following the argument about the conditions under which AI augments instead of displacing human capabilities, AI absorbs the rough edges of conflicting viewpoints and outputs by providing a polished narrative that obscures underlying tensions (Borge et al., 2024). Borge et al. do not simply argue that AI removes productive conflict, but they also explore how appropriately designed human-GenAI interaction might support higher-order thinking. Knowledge telling is different from knowledge transformation and meaningful knowledge construction requires argumentative dialogue rather than merely receiving generated text (Cress & Kimmerle, 2023). The synthesis of human-AI delegation, metaknowledge, and the conditions are needed for productive collaboration (Fügener et al., 2022). The coherence of the AI output masks the diversity of the inputs it has absorbed, creating a smooth surface where productive friction once existed (Lebovitz et al., 2022).

Overall, following Lim et al. (2026), their findings highlight the necessity of a balanced approach to AI education as the teacher's role is no longer confined to technical adoption but demands a sophisticated capacity to orchestrate AI within complex pedagogical frameworks. According to the researchers, AI-integrated instruction has become a critical imperative for simultaneously advancing teacher professional agency and fostering students' future-ready competencies.

8. Conclusion

Universities worldwide are adapting to the rise of AI through redesigned assessments, revised policies, and created new pedagogical approaches towards meaningful, coherent personal and intellectual narratives, to counterbalance the emergence of AI and the state of cognitive abundance (Auh, 2026). Information and technical execution are no longer scarce or sufficient forms of differentiation; "having a story" is presented by Auh as the ability to connect experiences, actions, and future intentions into meaningful trajectories or in this research, hero's journeys. Szostak (2026), underscores the need for human-centric strategies that pre-

serve emotional engagement, cultural authenticity, intellectual integrity, and creative diversity in AI-supported environments.

This exploratory case study applied a combined framework for comparing the Hero's Journey narrative structure, represented emotional progression for the Hero's Emotional Journey towards catharsis, and metaskill-related textual indicators in independently written and AI-assisted stories. AI-assisted stories showed higher overall structural coverage, whereas independently written stories showed a more gradual progression in ECS ratings and greater representation of several socio-emotional and reflective indicators. These findings concern the content and organization of the narratives, and do not establish differences in students' metaskill development, the authenticity of their emotional expression, or the intrinsic capacities of human and artificial intelligence.

Human narratives remain significant, and universities may prioritize interpretation, judgement, ethical reasoning, and meaning making rather than only technical mastery. Consequently, valuing Human Narrative Intelligence (HNI) capabilities alongside structural knowledge and technical competence suggest the transition from an "economy of production" to an "economy of interpretation" (Bruner, 1991). This case study suggested an innovative methodological approach to investigate the ways the Hero's Journey twelve narrative units can be developed via Artificial Intelligence (AI) in Large Language Models (LLMs) and whether there are differences between HNI in Storytelling and AI-Assisted Creative Storytelling. The study served as a proof of concept and is limited by the small sample size, the exploratory nature of the coding process, the interpretive subjectivity inherent in narrative analysis, and the absence of longitudinal observation. The small sample and differences in previous creative-writing experience limit the interpretation of between-group patterns. Existing writing experience may have contributed to the observed differences in narrative structure, represented emotional progression, and metaskill-related textual indicators. Accordingly, these differences cannot be attributed solely to AI assistance.

Stories function as cognitive tools for both emotional and cognitive transformation by integrating the Hero's Journey with the Emotional Hero's Journey based on the process of Aristotelian catharsis (1996). This dual framework is utilized to investigate how storytelling fosters metaskills and the difference between non-AI and AI-assisted students as learner and writers. Both groups successfully applied the twelve-stage Hero's Journey framework and showed narratives culminating in transformation and catharsis, but the AI-assisted group demonstrated greater overall structural completion of the Hero's Journey. AI assistance was also associated with greater production efficiency. The AI-assisted group completed its drafts in less time and appeared to have generated longer stories on average than the non-AI group. This combination suggests that AI may accelerate textual production and facilitate narrative expansion. Nevertheless, increased length, speed, and structural completeness should not automatically be interpreted as evidence of greater narrative quality or emotional depth. The non-AI stories demon-

strated stronger representation of the Hero's Journy twelve steps involving psychological resistance, inner struggle, crisis, and transformation. The analysis suggested that, although both groups reached similarly high catharsis levels at the final stage, their trajectories differed substantially. Within this corpus, independently written stories had higher mean segment-level catharsis contribution ratings than AI-assisted stories. AI thus appears to redistribute narrative labor: it can support structure and accelerate production, but the writer remains central to the emotional mediation that transforms a sequence of plot events into a psychologically coherent journey. The patterns suggest a pedagogical approach worth investigating; using AI to support structural review while asking students to explain and justify characters' emotional transitions and ethical decisions. Whether this approach develops students' metaskills requires separate assessment using appropriate competence measures and evidence of change over time. More personal, real and authentic stories can be identified in comparison to structurally perfect stories, but common structural and organizational elements are overused as story formula and not story form (Neilan, 2022).

These findings have important educational implications. AI may be most effective when employed as a reflective narrative scaffold rather than as an autonomous generator of story content (MIT Ad Hoc Committee, 2026). Students could use it to examine missing stages, test structural alternatives, or revise plot organization, while retaining responsibility for the protagonist's emotional logic, ethical choices, internal transformation, and final catharsis. Teaching should therefore emphasize both AI literacy and narrative literacy, helping students evaluate whether an AI-generated structural suggestion genuinely serves the emotional meaning of the story. Anselimus (2026) found that generative AI may offer challenges as well as important opportunities by enabling personalized and inclusive learning, enhancing autonomy and confidence, providing timely feedback that supported engagement and motivation and strengthening digital competence and career readiness for students with disabilities. According to French and Shim (2025), AI as augmentation rather than replacement, including cognitive enhancement and human-AI complementarity. Following the Report of MIT's Ad Hoc Committee on AI use in teaching, learning, and research training (August 2026), the most important goal must be to nurture and protect our shared humanity. AI can provide feedback, help students practice, make learning more accessible and personalised, promote critical thinking (Walter, 2024), and as such, educational policies need to be in place.

Furthermore, computational creativity authors (Boden, 2016; Colton & Wiggins, 2012) suggest that AI recombines existing narrative elements, whereas transformational creativity, defined by paradigm shifts and original insight, remains human-driven. Following Christensen and Görlich (2026) fostering creativity in contemporary education depends not only on curricular ambitions, but also on creating material, relational and temporal frameworks that allow room for experimentation and uncertainty.

As proof of concept of an innovative methodological research proposition this case study has limitations. The case study involved only twelve participants, and the two groups differed in gender composition and previous creative-writing experience. Moreover, the coded textual units represent narrative elaboration and thematic indicators within the stories; they do not, by themselves, demonstrate the development of students' emotional, cognitive, or metacognitive capacities. Finally, the Hawthorne effect (Adair, 1984) should also be considered as a potential limitation. Participants were aware that they were taking part in a research study. Larger studies, inferential analyses, pre- and post-intervention measures, and replication across different educational contexts are required.

The absence of retained AI interaction records limits the reproducibility of the AI-assisted condition and the interpretation of its outputs. Students may have differed in the purposes, frequency, and extent of their AI use, but these differences could not be systematically examined. The analysis could not distinguish student-originated content from model-generated suggestions or establish how extensively students selected, adapted, rejected, or incorporated those suggestions as students used their own accounts and computers to participate in the study. Accordingly, the observed narrative patterns characterize the final texts produced under the AI-assisted condition; they cannot be attributed to AI functions or a known level of AI contribution.

To conclude, the most balanced pedagogical approach for Creative Storytelling may involve combining AI-Assisted structural support with intentional cultivation of human emotional expression, catharsis, and originality. Future research is suggested to investigate the initial stages of creation such as imagination, creativity and idea generation to identify factors and correlations for Human Narrative Intelligence and Artificial Intelligence in AI-Assisted Storytelling.

Declaration of AI-Assisted Technologies in the Writing Process

While preparing this article, AI, specifically ChatGPT 5.5 Instant, was used solely for English-language editing. It was not used to generate or analyze research data, perform coding, calculate reliability coefficients, or make substantive research decisions. The authors reviewed and approved all edited text and accept full responsibility for the manuscript's accuracy, integrity, and originality.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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