

A Systematic Review of Digital Storytelling Elements Influencing Affective Factors in EFL/ESL Contexts

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Abstract—Digital storytelling (DST) has emerged as a powerful pedagogical tool for enhancing learner engagement and emotional involvement in language education. This study aims to systematically examine how specific elements of DST contribute to the development of affective factors in English as a foreign language (EFL) or English as a second language (ESL) learning contexts. This systematic literature review investigates studies from 2015 to 2024 on the specific elements of DST influencing affective factors in EFL/ESL teaching contexts. Using the PRISMA framework, 43 studies from Scopus and Web of Science were systematically analyzed. DST research has grown significantly, particularly after 2019, with a notable peak in 2023, reflecting its rising pedagogical relevance in EFL/ESL education. The analysis revealed five clusters of DST elements: content and real-world integration, multimodal and technological enhancement, collaborative and social learning, story design, and performance and expressive communication. Most studies focused on university-level learners, followed by primary and junior high school students, and predominantly employed mixed-methods designs. Motivation, engagement, confidence, enjoyment, and anxiety are the most frequently studied affective factors in DST implementation, highlighting their influence on EFL/ESL learning outcomes. The findings highlight DST's potential to foster affective development in language learners. Future research is encouraged to explore its long-term emotional impact across educational levels and examine the role of emerging technology, such as artificial intelligence in optimizing DST practices.

Index Terms—affective factors, DST elements, EFL/ESL contexts, systematic literature review

I. INTRODUCTION

In English as a foreign language (EFL) and English as a second language (ESL) contexts, affective factors—such as anxiety, motivation, confidence, and emotional engagement—play a pivotal role in shaping language learning outcomes. These emotional and psychological variables are often interwoven with learners' cognitive processes, influencing not only their academic performance but also their willingness to communicate and participate in language tasks. Horwitz et al. (1986) introduced the Foreign Language Classroom Anxiety Scale, emphasizing the negative impact of anxiety on language acquisition. Likewise, MacIntyre and Gardner (1994) investigated the relationship between language anxiety and EFL/ESL learners' cognitive processes, emphasizing the important role that affective factors play in influencing language learning results. More recently, Dewaele and MacIntyre (2014) have highlighted the complex interplay between enjoyment and anxiety in foreign language classrooms, reinforcing the importance of affective factors in language pedagogy.

In response to the growing recognition of these factors, digital storytelling (DST) has emerged as an innovative instructional approach that combines multimodal elements—including text, audio, images, and video—to create immersive and learner-centered environments. DST has been widely acknowledged for its potential to foster learner engagement, reduce anxiety, and enhance communicative competence. Robin (2008) emphasized that DST not only facilitates language expression but also encourages creativity and critical thinking through personalized narratives. Empirical studies have shown that DST significantly enhances speaking and writing proficiency, promotes learner motivation, and contributes to identity development in language learners (Abd Rahman et al., 2022; Fu et al., 2022; Huang, 2023; Maravelaki & Panagiotidis, 2022; Nair & Yunus, 2021; Ze Xu & Hashim, 2023).

Although DST has been the subject of extensive research and numerous literature reviews, the existing body of work is not without its shortcomings. For example, some reviews (Nasir et al., 2024; Rahmayanti, 2023) highlight how DST can help EFL/ESL learners acquire languages more effectively, especially when it comes to speaking, listening, and

writing. While the reviews don't go into great detail about how DST impacts learners emotionally, especially with regard to WTC, motivation, and confidence. Additionally, they don't analyze how DST reduces anxiety, which is an important topic for improving communication skills in language learning, and how that affects language output. Even some other reviews (Khan & Ziden, 2022; Sarica, 2023) concentrate on affective aspects, they frequently restrict their analysis to particular affective reactions (such as motivation and anxiety) and do not offer a whole understanding of how DST concurrently affects several emotional dimensions (e.g., motivation, confidence and anxiety together). Despite growing interest in DST, there is still a lack of systematic understanding of which specific DST elements contribute to affective outcomes in EFL/ESL learning, how this field has evolved methodologically, and the key focus of affective factors of EFL/ESL learners in DST instructions.

Therefore, this study conducts a systematic literature review (SLR) of relevant studies published between 2015 and 2024, aiming to identify the core elements of digital storytelling that influence affective factors in EFL/ESL learning environments, and to examine the research patterns and methodological characteristics within this field. By analyzing existing research and emerging trends, this review aims to provide insights into future research directions and contribute to the effective implementation of digital storytelling in language education.

The current systematic review sets out to address the following questions:

1. Which elements of DST are mainly mentioned as influencing EFL/ESL learners' affective factors?
2. What are the patterns and methodological characteristics of research on affective factors in digital storytelling in EFL/ESL contexts?
3. What affective factors are the focus of research in DST teaching of EFL/ESL?

II. METHODOLOGY

A systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines (Page et al., 2021), using a thematic analysis approach as outlined by Braun and Clarke (2006), to address the research questions. The PRISMA framework comprises three key phases—identification, screening, and inclusion—each of which plays a crucial role in ensuring transparency and rigor in the review protocol. The following sections provide a detailed account of the identification phase, screening phase, and subsequent analysis phase.

A. Identification Phase

This research employed a systematic search strategy utilizing three overlapping sets of keywords corresponding to the research questions: “digital storytelling”, “affective factors”, and “EFL” or “ESL learning”.

In the first step, synonyms or related keywords for each set were identified and included. The subsequent stage involved joining the overlapping sets using the Boolean operator “AND”, connecting relevant terms inside each group with “OR” to each result to create the final search string:

“digital storytelling” OR “digital stories” OR “digital narrative” OR “multimedia storytelling” OR “interactive storytelling”.

AND “affective factors” OR “emotion” OR “affective” OR “emotional impact” OR “motivation” OR “language anxiety” OR “self-confidence” OR “attitude” OR “engagement” OR “learner psychology”.

AND “EFL” OR “ESL” OR “English as a foreign language” OR “English as a second language” OR “language learning” OR “language acquisition” OR “language education”.

The specified keywords may be found within the title, keyword section, and/or abstract of an article. The literature search was conducted on the two databases: Scopus and Web of Science. Figure 1 illustrates the total number of 174 articles that were obtained after conducting a keyword search.

B. Screening Phase

In the screening phase, a total of 75 records were initially reviewed. This phase aims to filter out studies that do not meet the fundamental criteria. The authors reviewed titles, abstracts and the full text of the article when required and excluded a number of unrelated studies that did not satisfy the inclusion criteria. This review included peer-reviewed journal articles published between 2015 and 2024, written in English, conducted in EFL/ESL contexts, involving student participants, and explicitly using DST. Studies were excluded if they were non-peer-reviewed articles, written in other languages, conducted outside EFL/ESL settings, did not involve students, lacked DST, or were irrelevant to the research focus (see Table 1).

TABLE 1
INCLUSION AND EXCLUSION CRITERIA

| Inclusion criteria | Exclusion criteria |
|-------------------------------------|---|
| • Published from 2015 to 2024 | • Publication period is not during 2015 to 2024 |
| • Articles written in English | • Articles in languages other than English |
| • Peer-reviewed articles | • Not peer-reviewed articles (e.g. books, dissertations, conference proceedings, review articles and reports) |
| • Conducted in EFL/ESL environments | • Conducted in other contexts |
| • Used digital storytelling | • Not using digital storytelling |
| • Participants are students | • Participants are not students |

The process of selecting relevant articles is illustrated in an adapted PRISMA flow diagram, as shown in Figure 1. Consequently, 43 studies were identified as meeting the criteria and were included in the final review.

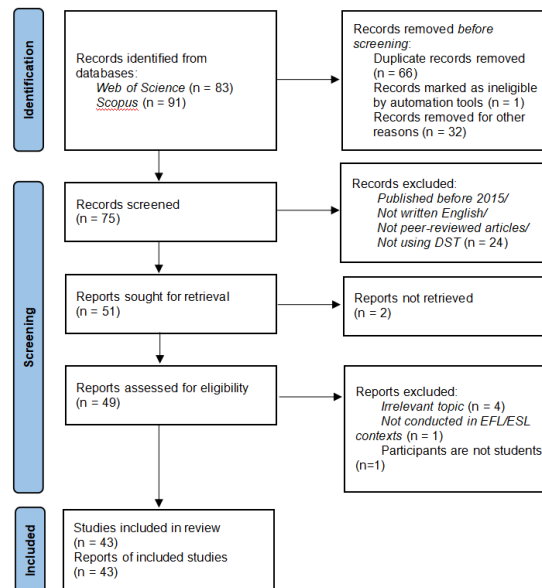


Figure 1. Adapted PRISMA 2020 Flow Diagram (Source: Page et al., 2021)

C. Analysis Phase

In the analysis phase, the researcher employed Braun and Clarke's (2006) thematic analysis framework to systematically identify, analyze, and report patterns within the data. After an initial immersion in the 43 selected studies, relevant content was extracted in alignment with the research questions. Key indicators and recurring features were coded, with codes subsequently organized into preliminary themes reflecting elements of DST influencing affective factors and methodological trends in EFL/ESL contexts. These themes were then reviewed, refined, and clearly defined to ensure coherence and analytical rigor. This process enabled the researcher to synthesize meaningful thematic insights into the role and representation of DST elements in EFL/ESL teaching.

III. FINDINGS AND DISCUSSION

To provide a comprehensive understanding of how DST supports affective development in EFL/ESL contexts, the analysis is structured in three parts, corresponding to the three research questions guiding this study.

A. Key DST Elements Influencing EFL/ESL Learners' Affective Factors

To fully understand how DST facilitates affective development in EFL/ESL learners, it is essential to examine its core pedagogical elements. Rather than being a single instructional method, DST involves multiple interconnected elements across cognitive, emotional, social, and technological domains. Based on a thematic analysis of the literature, five key themes were identified: content and real-world integration, multimodal and technological enhancement, collaborative and social learning, story design, and performance and expressive communication (see Table 2). Each theme reflects specific teaching practices and learner behaviors that influence affective outcomes. The following section outlines the key DST elements under each theme, supported by relevant studies.

TABLE 2
THEMATIC CATEGORIZATION OF DST ELEMENTS IN EFL/ESL EDUCATION

| Theme | Key DST Elements | Literature Support |
|--|--|---|
| content and real-world integration | curriculum-integrated language competence, theme-based storytelling, background of storytelling, cultural and real-world integration | Roy (2024a, 2024b), Karimova et al. (2023), Nikolaevna and Anatolievna (2023), Le (2020), Lee and Park (2020), Meletiadou (2022), Kristiawan et al. (2022), Bashirmezhad and Yousefi (2017) |
| multimodal and technological enhancement | multimedia integration, multimodal storytelling | Luan et al. (2024), Hava (2021), Makarova and Pirozhkova (2021), Nami and Asadnia (2024), Roy (2024a), Karimova et al. (2023), Hwang et al. (2016), Liu et al. (2019), Huang et al. (2017); Fonseca et al. (2024), Lin et al. (2024), Karimova et al. (2023), Guzmán Gámez and Moreno Cuellar (2019), Lee and Park (2020), Kristiawan et al. (2022), Peña-Acuña and Navarro-Martínez (2023), Chen (2024), Liang and Hwang (2023), Chen Hsieh (2022) |
| collaborative and social learning | collaborative learning, role-playing and games | González Mesa (2020), Liu et al. (2018), Huang et al. (2017), Morgado and Vesala-Varttala (2023), Lin et al. (2024), Luan et al. (2024), Afzali and Astaraki (2021), Guzmán Gámez and Moreno Cuellar (2019), Alemi et al. (2022), Lee and Park (2020), Le (2020), Tahriri et al. (2015), Raffone (2022) |
| story design | story creation, revision of stories, creative process, computational thinking integration | Hwang et al. (2016), Roy (2024b), Al Ghaithi et al. (2023), Parsazadeh et al. (2021), Karimova et al. (2023), Alemi et al. (2022), Le (2020), Guzmán Gámez and Moreno Cuellar (2019), Liu et al. (2018), Parsazadeh et al. (2021), Parsazadeh et al. (2021), Lin et al. (2024), Lee and Park (2020), Liu et al. (2019), Shen et al. (2022) |
| performance and expressive communication | oral presentation, in-class presentation and performance, personalized presentations | Azis and Husnawadi (2020), Fonseca et al. (2024), Chen Hsieh (2022), Nikolaevna and Anatolievna (2023), Tahriri et al. (2015), Bashirmezhad and Yousefi (2017) |

(a). *Content and Real-World Integration*

The theme emphasizes that DST is not just a technology or presentation tool, but a way of teaching and learning that closely integrates language learning with real-world content and cultural context. It helps to improve students' learning motivation, intercultural understanding, and language application skills, especially in EFL/ESL learning environments.

The key elements under this theme emphasize a pedagogical approach that connects language learning with meaningful, authentic, and culturally grounded content. The first element, curriculum-integrated language competence, is the integration of storytelling activities into the language objectives and syllabus. This enables students to learn target vocabulary and grammar structures while creating stories about relevant subjects (Roy, 2024a, 2024b; Karimova et al., 2023). The second element is theme-based storytelling, which encourages both intentional language use and richness of content by helping students create stories centered around specific subjects like cultural festivals, trip memories, or ideal careers (Le, 2020; Karimova et al., 2023). Background of storytelling highlights the significance of giving students character dynamics, narrative structure, and cultural background prior to the story-creation process. To enhance their students' comprehension and storytelling depth, educators could, for instance, incorporate folktales or historical allusions (Nikolaevna & Anatolievna, 2023; Lee & Park, 2020). Lastly, cultural and real-world integration enables students to use storytelling to investigate social, cultural, and global issues like family traditions, international conventions, and climate change. In addition to improving their language skills, this encourages cultural sensitivity and the manifestation of individual identity and values (Bashirmezhad & Yousefi, 2017; Meletiadou, 2022; Kristiawan et al., 2022). When taken as a whole, these elements facilitate the use of DST as a link between classroom instruction and practical communication.

(b). *Multimodal and Technological Enhancement*

The key elements under the theme "multimodal and technological enhancement" in DST highlight the use of many media forms and digital tools to increase students' expressive capacity and engagement. The first element, multimedia integration, describes how student-made stories might include text, voiceovers, animations, background music, video clips, and photos. It facilitates deeper engagement with the material, helps learners visualize concepts, and allows them to express ideas beyond the limitations of written language (Luan et al., 2024; Hava, 2021; Karimova et al., 2023; Liu et al., 2019; Huang et al., 2017; Hwang et al., 2016). The second element, multimodal storytelling, emphasizes the coordination of verbal and non-verbal semiotic resources to construct stories, enabling learners to express emotions, perspectives, and meanings through an integrated sensory experience (Peña-Acuña & Navarro-Martínez, 2023; Chen, 2024; Liang & Hwang, 2023; Chen Hsieh, 2022). Overall, this theme underscores the transformative potential of technology-infused DST to foster deeper learning, sustained engagement, and multimodal communication skills essential for 21st-century language learners.

(c). *Collaborative and Social Learning*

The theme stresses how interpersonal interaction and group-based meaning-making contribute to language acquisition. Collaborative learning, the first element, emphasizes the value of group work in the DST process, as students jointly construct stories, negotiate meaning, offer feedback to one another, and work together to solve problems. Along with improving learner motivation and social presence, these activities develop communication competence,

critical thinking, and collaborative abilities (González Mesa, 2020; Liu et al., 2018; Huang et al., 2017; Morgado & Vesala-Varttala, 2023; Lin et al., 2024; Luan et al., 2024; Huang et al., 2017; Afzali & Astaraki, 2021). The second element, role-playing and games, entails incorporating character-based narrative, dramatization, and game-like situations into DST assignments. According to Le (2020) and Tahriri et al. (2015), these techniques assist students in assuming narrative roles, simulating real-life communication, and interacting more deeply with the language through imaginative participation. Research indicates that collaborative DST contributes to improved language production, alongside the development of empathy, socio-emotional engagement, and peer bonding (Lee & Park, 2020; Raffone, 2022). DST helps students create shared meanings and cultivate interpersonal communication skills—both of which are critical for language acquisition in authentic settings.

(d). Story Design

The design of stories constitutes a cognitive, creative, and iterative process aimed at constructing meaningful stories. The first element, story creation, involves generating original ideas of stories and shaping them into structured plots with well-developed characters and clear thematic direction. This process encourages students to use their creativity and language skills to construct engaging and logically organized stories (Al Ghaithi et al., 2023; Parsazadeh et al., 2021; Lin et al., 2024; Lee & Park, 2020; Liu et al., 2018). Revision of stories underscores the value of engaging in multiple rounds of drafting, where students repeatedly review and refine their narratives to enhance linguistic precision, strengthen narrative coherence, and increase their stories' appeal to the intended audience (Morgado & Vesala-Varttala, 2023; Shen et al., 2022). As students shape their digital stories, the creative process involves engaging in imaginative and exploratory thinking, characterized by experimentation with voice, tonal variation, pacing, and the integration of visual and textual components to enhance the overall impact of their storytelling (Roy, 2024b; Shen et al., 2022). Computational thinking integration refers to embedding logical sequencing, abstraction, and problem-solving into story production—particularly when using digital tools that require algorithmic planning and editing workflows (Parsazadeh et al., 2021). Taken together, these elements illustrate the role of DST in promoting advanced thinking, creative exploration, and ongoing narrative refinement, thereby positioning story design as a key component of DST education.

(e). Performance and Expressive Communication

The theme centers on the significance of oral delivery and personalized expression as key contributors to fostering learners' affective factors and communicative competence. Oral presentation entails students delivering their digital stories vocally, providing opportunities to develop pronunciation, intonation, fluency, and sensitivity to audience engagement. This activity enhances their oral proficiency while simultaneously boosting their confidence in public speaking contexts (Azis & Husnawadi, 2020; Bashirnezhad & Yousefi, 2017; Fonseca et al., 2024; Chen Hsieh, 2022). In-class presentation and performance involve students engaging in live storytelling or dramatic performances before their peers, fostering authentic communication environments and enhancing emotional involvement in the language learning process (Tahriri et al., 2015). Personalized presentations, encourages students to integrate their own experiences, identities, and creative viewpoints in their performances, thereby fostering a stronger sense of ownership and enhancing expressive use of language (Nikolaevna & Anatolievna, 2023). When taken as a whole, these elements demonstrate how performance-based storytelling can enhance expressive language, encourage audience participation, and make students more communicative in both academic and real-world settings.

Building on Robin (2011), DST can be viewed as a multifaceted instructional strategy that integrates emotional engagement with cognitive and technological dimensions. Rather than functioning in isolation, each theme contributes uniquely to learners' emotional involvement. Prior studies suggest that the integration of multimodal elements in DST fosters learner confidence, enhances intrinsic motivation, and promotes communicative presence through expressive and collaborative practices (Gregori-Signes, 2014; Tsou et al., 2006). The impact of DST on affective factors not just from technology, but from its narrative power—letting learners express identity, engage deeply with content, and foster classroom belonging (Benmayor, 2008; Lui et al., 2018). This underscores the need for DST activities that prioritize emotional authenticity and learner-centered expression over mere technical implementation (Robin, 2016; Sarica, 2023; Staley & Freeman, 2017).

B. Research Patterns and Methodological Features of DST Studies on Affective Factors in EFL/ESL

The findings showed that the popularity of DST in EFL/ESL language teaching context is increasing. The majority of the publications are from 2023 and 2024, indicating a recent focus on the relevant topics. Several recent publications, including those by Luan, Roy, and Nami, were published in 2024, indicating that research in this field remains active and current. There are consistent contributions from 2020 to 2024, with notable peaks in 2023, including multiple papers from various authors like Peng et al. (2023), Huang (2023), and Nikolaevna and Anatolievna (2023), etc.

Figure 2 illustrates the trend in the number of publications from 2015 to 2024, showing a clear upward trajectory, particularly after 2020. From 2015 to 2019, the number of publications remained relatively stable without significant growth. Beginning in 2020, there is a sharp increase in the number of publications, especially reaching its peak in 2023.

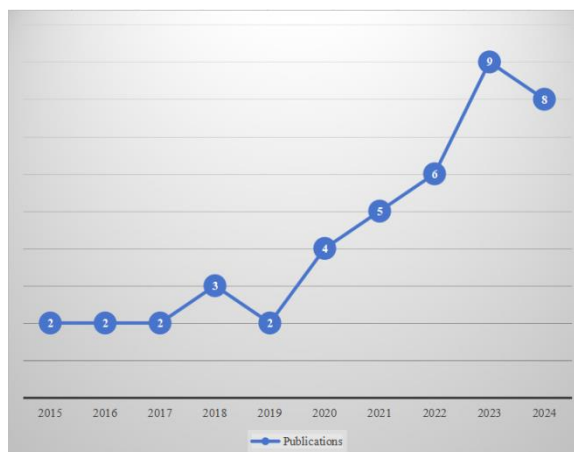


Figure 2. Yearly Publications

The 43 analyzed studies cover five educational levels: elementary, middle school, high school, university, and others (see Figure 3). Most participants are university students (41.86%), indicating a research focus on higher education. Elementary and middle school groups each represent 20.93%, showing notable attention to younger learners. High school students are less represented (6.98%), suggesting limited research in this group. The “others” category (6.98%) includes learners from language institutes selected by proficiency rather than grade level, with age ranges spanning various school stages (Alemi et al., 2022; Afzali & Astaraki, 2021; Tahriri et al., 2015).

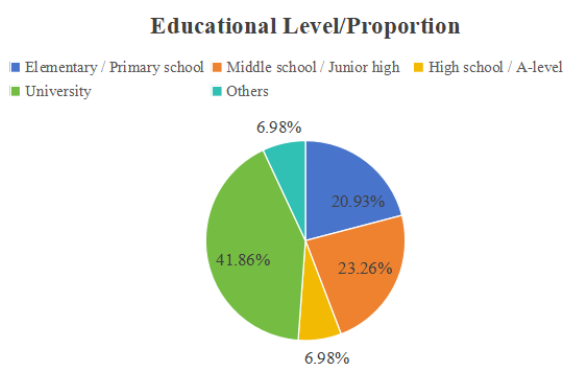


Figure 3. Educational Level/Proportion

In the majority of studies, a mixed-method approach is used (34 instances), while quantitative research is applied in 6 studies, and qualitative research is used in 3 studies. The predominance of mixed-method research in the studies can be explained by the strengths and flexibility of this approach, especially in educational and social science research. In the context of EFL/ESL learning and digital storytelling, mixed-method is ideal for quantitatively measuring language acquisition outcomes (e.g., test scores), qualitatively understanding learner behaviors, motivations, and experiences (e.g., through interviews or observations), and exploring how DST affects both performance and engagement in language learning. Common data collection methods include questionnaires, pre- and post-tests, interviews (both structured and semi-structured), reflective journals, and digital storytelling products. Additionally, specific tools, such as scales for motivation (e.g., Hava, 2021; Liu et al., 2018), willingness to communicate (e.g., Huang, 2023), as well as assessments of language skills (e.g., Guzmán Gámez & Moreno Cuellar, 2019; Liu et al., 2016) and group dynamics (e.g., Chen, 2024; Morgado & Vesala-Varttala, 2023), are frequently utilized to measure DST outcomes. The works of Roy (2024a, 2024b), Karimova et al. (2023), and Tahriri et al. (2015) reflect the varied methodological approaches used to explore how DST impacts teaching and learning.

The observed increase in DST-related research on affective factors within EFL/ESL contexts can be attributed to several interrelated factors. First, the global shift toward digital and hybrid learning since the COVID-19 pandemic has prompted educators to adopt more engaging and emotionally responsive pedagogies, with DST emerging as a promising approach because it effectively combines storytelling with technological tools to enhance learning (Thomas & Wheeler, 2022). Second, affective factors such as motivation, self-confidence, and emotional engagement have been increasingly recognized as central to successful second language acquisition (Mora & Arnold, 2000; Ushioda, 2011). In this context, DST emerges as a particularly relevant pedagogical approach, as it promotes learner autonomy, emotional involvement, and ownership over learning through the creation of personally meaningful stories (Kim, 2014). Third, the increasing adoption of mixed-methods approaches reflects a broader trend in educational technology research valuing not only quantifiable learning outcomes but also in-depth insights into learners’ experiences and perceptions (Creswell & Clark, 2017). Finally, the predominance of university-level participants in DST research can be explained by their ready

accessibility to teacher-researchers in higher education settings, their relatively high level of digital literacy, and the curricular flexibility afforded by university programs (Kajder, 2004; Robin, 2008).

C. Key Affective Factors in DST-Based EFL/ESL Instruction

Based on Braun and Clarke's (2006) thematic analysis, the researcher studied and comprehended every piece of reviewed article regarding EFL/ESL affective factors that are connected to DST teaching. This involved going over the texts several times to become acquainted with the main ideas of affective factors and possible themes of affect. The researcher started working on the initial coding of the data after getting to know it. Here, "coding" refers to taking important affective factors and giving them a brief label.

The researcher looked for patterns and distinctions between the codes as they organized and summarized all the coded data after the first round of coding. They made an effort to classify related codes into broader themes. To create initial themes, several similar codes are integrated. For instance, a number of codes concerning "extrinsic and intrinsic motivation" can be combined under the more general heading of "motivation".

In the context of DST teaching, Table 3 displays the themes of common affective factors along with the relevant coding nodes. The affective factors that students in EFL/ESL instruction may impact are represented by each theme in the table, and the nodes provide a detailed list of the codes that are specifically associated with each of them.

TABLE 3
THEMES AND CORRESPONDING NODES IN AFFECTIVE FACTORS FOR DST TEACHING OF EFL/ESL

| Number | Theme | Node |
|--------|-------------------------------|--|
| 1 | Motivation | motivation; self-directed learning; interest; intrinsic and extrinsic motivation; grit |
| 2 | Confidence | confidence; self-confidence; speaking confidence |
| 3 | Engagement | engagement; flow perceptions; peer interaction; cognitive-affective involvement; involvement |
| 4 | Anxiety & Negative Emotions | anxiety; communication apprehension; fear and anxiety; foreign language classroom anxiety |
| 5 | Enjoyment & Positive Emotions | enjoyment; positive emotions; satisfaction |
| 6 | Collaboration & Social Skills | collaboration; group cohesion; teamwork; social skills |
| 7 | Attitudes | attitude, attitudes towards instructional technologies; attitude towards writing |
| 8 | Self-Efficacy | self-efficacy; self-esteem; self-regulation |
| 9 | Intercultural Awareness | cultural identity representation; intercultural awareness |
| 10 | Willingness to Communicate | L2 willingness to communicate (WTC); multimodal communicative competence; communication skills; willingness to communicate in English (WTCE); willingness to participate (WTP) |

Under the theme of motivation, intrinsic and extrinsic motivation (Liu et al., 2016; Parsazadeh et al., 2021) reflect the learner's interest (Peng et al., 2023; Tahriri et al., 2015; Huang et al., 2017) and external rewards, while self-directed learning (Al Ghaithi et al., 2023) shows their autonomous ability driven by motivation. Grit (Chen Hsieh & Lee, 2023; Chen Hsieh, 2022) represents perseverance in overcoming challenges, illustrating that motivation not only initiates learning but sustains consistent effort. Together, these nodes form a complete path from sparking interest to maintaining enduring effort. Interest is the basis of intrinsic motivation, self-directed learning is the externalization of motivation into action, and grit is the key to the sustainability of such action.

Confidence reflects the learner's overall assurance in language use, with self-confidence focusing on belief in learning ability, and speaking confidence on communication. Many scholars (Shen et al., 2022; Hava, 2021; Azis & Husnawadi, 2020; González Mesa, 2020; Kristiawan et al., 2022; Makarova & Pirozhkova, 2021; Raffone, 2022; Fonseca et al., 2024; etc.) have discovered that DST positively affects students' self-confidence in their ability to learn English, and some researchers (Sancar-Tokmak & Yanpar-Yelken, 2015) have even employed specialized scales to measure the change of self-confidence. Huang (2023) demonstrated how DST instruction boosts students' confidence especially in speaking.

Engagement refers to the level of engagement of the learner in the learning process. Flow perceptions are the "flow" is the state of change that the learner experiences when they are deeply engaged in the learning activity, i.e., the feeling of being fully immersed in the task. Peer interaction represents the interaction between learners and peers, which promotes cognitive-affective involvement, that is, the learner's cognitive and emotional participation. Finally, involvement not only refers to how engaged a learner is, but also how active they are in the activity. Researchers (Azis & Husnawadi, 2020; González Mesa, 2020; Kristiawan et al., 2022; Makarova & Pirozhkova, 2021; Peña-Acuña & Navarro-Martínez, 2023, etc.) found that the DST learning design could promote the participants' engagement in English learning. Liang and Hwang's (2023) research demonstrated that through their investigation of the robot-based DST approach, student engagement could be significantly enhanced.

Anxiety, which is sometimes perceived as classroom anxiety, is a typical feeling in language acquisition. Language-related anxieties are the main focus of communication anxiety and fear. Emotions that are negative restrict language development, reduce engagement, impact students' performance in different situations. Research by Afzali and Astaraki (2021), Chen Hsieh (2021, 2022), Le (2020), Liang and Hwang (2023), and Liu et al. (2018) suggests that DST in English language teaching can reduce learners' negative emotions such as anxiety, stress, apprehension, and fear, while also promoting English learning.

Enjoyment and positive emotions represent learners' positive emotional experiences during the learning process, and these emotions help to enhance their interest and motivation to learn. Studies by Chen (2024), Chen Hsieh (2022), Hava (2021), Le (2020), Lee and Park (2020), Liu et al. (2018), Peng et al. (2023), Roy (2024b), and Shen et al. (2022) have discovered that the use of DST in English language instruction increases students' enjoyment or positive feelings, which improves EFL/ESL learning.

Collaboration involves working together in a language learning setting, where team cohesion enhances teamwork and helps students develop essential social skills for peer interaction and communication. Research conducted by Alemi et al. (2022), Fonseca et al. (2024), Huang (2023), Hwang et al. (2016), Liu et al. (2019), Morgado and Vesala-Varttala (2023), and Zarei and Navidinia (2024) investigated how students' collaboration skills developed in DST tasks, demonstrating that these tasks aid in the improvement of both social and collaborative learning.

Attitudes shape how students engage in language learning. Several studies suggest that DST has a positive impact on student attitudes in English teaching. Alemi et al. (2022) found that DST tasks influenced students' attitudes toward English writing, while Akay (2018) showed that DST changed learners' attitudes towards instructional technologies in English teaching. Attitudes toward instructional technologies influence their adoption of new tools, while attitudes toward writing affect their motivation and effort to improve writing skills.

Self-efficacy, reflecting a student's confidence in language learning success, is linked to self-esteem and the ability to self-regulate the learning process. Studies by Al Ghaithi et al. (2023), Liu et al. (2016), Hava (2021), Lin et al. (2024), and Peña-Acuña and Navarro-Martínez (2023) reported positive changes in students' English learning self-efficacy after DST instruction.

Intercultural awareness involves understanding and valuing different cultures, supported by cultural identity representation in language learning. Kristiawan et al. (2022) and Meletiadou (2022) found that by connecting their cultural experiences with those of others, participants were able to enhance their global communication skills.

Willingness to communicate is a key factor in determining how effectively learners engage in language learning. Multimodal communicative competence and communication skills are critical in enabling learners to express themselves across different platforms and settings. Afzali and Astaraki (2021), Huang (2023), Luan et al. (2024), and Shen et al. (2022) conducted studies that emphasized how DST improves students' WTC in English. However, Huang (2023) found that DST had a positive, though not statistically significant, impact on participants' WTC in English.

The frequency of important themes found in DST studies on language learning is shown in Figure 4. With 38 instances, motivation is the most talked-about concept, followed by engagement with 28 mentions, underscoring their crucial importance in DST in EFL/ESL context. The benefits of DST for language acquisition in terms of emotions and self-assurance are also evident in the main features of enjoyment & positive emotions (10 occurrences) and confidence (18 occurrences). Six instances of anxiety & negative emotions demonstrate how DST deals with emotional difficulties. Moderate emphasis is paid to collaboration & social skills (5 occurrences) and willingness to communicate (4 occurrences). The fact that self-efficacy and attitudes are addressed less frequently—both three instances—indicates that these topics were not given much attention in the investigations. Lastly, intercultural awareness emerges as the least represented theme, cited only twice across the literature, suggesting that while important, it has not been a primary focus in most existing research on DST-related emotional outcomes.

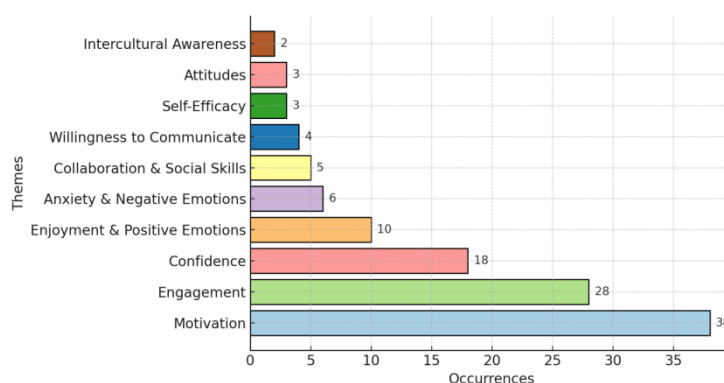


Figure 4. Occurrences of Affective Themes in DST Teaching of EFL/ESL

With the rapid advancement of educational technologies, research has increasingly focused on how digital tools support specific language skills. While some studies have examined the impact of technology on individual affective factors such as motivation, anxiety or confidence, less attention has been paid to learners' broader emotional dynamics during technology-mediated language learning. In particular, how algorithm-driven tools shape learners' evolving emotional experiences remains underexplored.

This gap is noteworthy, affective engagement is a dynamic system closely linked to learners' perceptions of agency, challenge, and feedback (Dornyei & Ryan, 2015; MacIntyre & Gregersen, 2012). Without attention to these emotional processes, the full pedagogical value of DST and similar tools may be overlooked.

IV. CONCLUSION

The present study analyzed the literature through the use of an SLR in accordance with the PRISMA guidelines (Page et al., 2021), leading to the inclusion of 43 articles. Braun and Clarke's (2006) thematic analysis method was applied to address particular research questions.

As an instructional intervention, DST encompasses a variety of pedagogical elements, such as multimedia integration, collaborative learning, multimodal storytelling, voice narration and role-playing, etc. These elements can be synthesized into five themes: content and real-world integration, multimodal and technological enhancement, collaborative and social learning, story design, and performance and expressive communication. These elements have been shown to significantly support students' affective development in the English language learning process. The majority of studies—particularly those published after 2019—indicated that DST positively impacted learners' emotions, engagement, and motivation. The included research was primarily conducted in higher education contexts. Most studies adopted mixed-method approaches and used instruments such as pre- and post-tests, questionnaires, and interviews to assess affective outcomes. Motivation, engagement, confidence, enjoyment, and anxiety are the five most frequently examined affective factors in the past decade, highlighting their key role in supporting EFL/ESL learning outcomes. These findings highlight the growing recognition of DST as a powerful tool for promoting affective engagement in learning, especially within non-native English-speaking contexts. This review contributes to the field by mapping key pedagogical elements, methodological approaches, and participant trends in DST research. Despite these positive developments, important gaps remain in the reviewed studies. Young learners, particularly those in primary and secondary education, are significantly underrepresented, limiting the generalizability of findings across age groups. Moreover, many studies lack a strong theoretical foundation, which constrains deeper understanding of the affective mechanisms involved in DST-based learning. Addressing these gaps could lead to more comprehensive applications of DST in diverse educational settings. Future research would benefit from more robust theoretical frameworks, longitudinal designs, and more diverse learner groups. Additionally, it is possible to improve emotional engagement by incorporating artificial intelligence (AI) into DST since AI tools can facilitate immediate feedback and personalized storytelling.

However, the present study is not without flaws. One key limitation is its restricted scope, as it included only 43 articles sourced from Scopus and Web of Science. This may have excluded relevant studies published elsewhere. Additionally, by focusing primarily on research from 2015 onward, earlier influential work on DST and affective factors might have been overlooked.

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