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Types and Characteristics of Students' Imagined Identities in AI-assisted English learning

Lixia Qi
School of Literature and Historical Culture, Longdong University, Qingyang 745000, Gansu, China

Abstract: With the rapid integration of artificial intelligence (AI) into primary education, AI tools are currently transitioning from serving as "auxiliary devices" to becoming "interactive partners" in students' English language learning. Based on Norton's identity theory, this study explored three main types of imagined identities: the Co-learner, the Playmate, and the Tutee. These identities were characterized by three core attributes: situational dependency, a positive emotional orientation, and dynamic constructiveness. The research has contributed to the theoretical discourse on student identity in AI-assisted language learning and provides practical implications for designing AI-supported English learning environments that foster adaptive and positive imagined identities among elementary school students.

Keywords: AI-assisted English learning; Elementary education; Imagined identity

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1. Introduction

In elementary English learning, AI tools, such as voice-activated conversational robots, gamified language apps, and adaptive feedback systems, have evolved from passive "teaching tools" into active "interactional agents". These systems engage students in dialogues, role-plays, and collaborative tasks, going beyond traditional instructional support [1]. Unlike teacher-led or peer-based settings, AI offers a unique interactive experience: it is non-judgmental, responsive, and capable of tailoring linguistic input to individual proficiency levels [2]. Related studies have documented the positive impact of AI on various language domains, including vocabulary acquisition, grammar accuracy, and reading comprehension [3–5]. However, the majority of such research remains focused on quantifiable learning outcomes, paying limited attention to the internal and socio-affective processes that accompany students' interactions with AI [6]. In particular, little is known about how young learners perceive their roles and construct their identities when engaging with AI as learning partners. Therefore, the present study draws on the concept of imagined identities to investigate the types and characteristics of elementary students' identity construction within AI-assisted English learning environments [7].

2. Imagined identity

The concept of imagined identities, originating from the field of second language acquisition (SLA), describes how

learners envision their future linguistic selves, who they hope or fear becoming within "imagined communities" [7]. These self-projections function not merely as aspirations but as powerful motivators that shape learners' agency, guide their investment in learning, and contribute to a coherent self-concept across diverse social contexts. By extending this framework to student-AI interaction, this study aims to uncover the situated and dynamic self-understandings that influence students' engagement with AI. This extension establishes an analytical basis for examining the identity-related dynamics that underlie their language learning behaviors [8].

3. Types of students' imagined identities

Three distinct imagined identities emerge in elementary students' AI-assisted interaction contexts, each characterized by unique formation contexts as well as distinct influences on students' learning agency and investment.

3.1. Co-learner

The co-learner identity emerges when elementary students interact with AI tools designed to exhibit peer-like learning traits, where the AI functions as a "fellow learner" that shares uncertainties, proposes collaborative solutions, and aligns with the student's cognitive level and learning pace. This identity is most likely to form in scenarios such as collaborative vocabulary exploration, where, when encountering difficult words like "butterfly" or "restaurant," the AI may express confusion: "I always mix up the spelling of "butterfly", do you want to try figuring out a way to remember it together? Maybe it can be split it into "butter" and "fly" ? Such shared uncertainty breaks the stereotype of AI as infallible, leading students to perceive it as a partner in knowledge exploration rather than a one-way instructor. Similarly, in dialogue practice, for example, when practicing daily English conversations about weekend activities. The AI might deliberately use simple language and admit limitations: "I'm still learning how to talk about weekend activities, can you tell me what you did on weekends, and I'll try to follow your example to make a sentence? " This approach avoids pressuring students to "speak correctly" and instead frames the interaction as a mutual learning process, encouraging them to take on the role of "co-explorer" in conversational content.

In these processes, the Co-learner identity can activate students' agency by shifting their role from passive completers to active collaborative learners. Students proactively initiate discussions about learning directions, contribute ideas to shared goals, and participate in regulating the pace of interaction, rather than merely following AI's guidance. Meanwhile, the Co-learner identity creates a low-anxiety environment. They are more willing to dedicate extra effort to refining joint learning outcomes, retrying challenging tasks, and persisting through difficulties, the behaviors that reflect stronger investment in English learning.

3.2. Playmate

The Playmate identity emerges when AI serves as a recreational learning partner, incorporating game-like mechanics, and emotional responsiveness to align with students' intrinsic desire for fun and social interaction. This identity tends to arise in the following learning scenarios: First, in gamified language task sequences. AI integrates English learning into progressive challenges supported by immediate feedback mechanisms: it may award virtual badges for vocabulary mastery or use engaging sound effects to reinforce correct answers. For example, verb-tense practice can be designed as a treasure hunt where students decipher English clues to advance, which turns repetitive drills into an adventurous quest and casting the AI in the role of a playful companion rather than an evaluative authority. Second, in immersive role-play interactions. AI adopts child-friendly personas, such as a fluffy animal guide or an animated character, and participates in simulated scenarios like "ordering food in a restaurant" or "caring for a pet". Through expressive language and conversational reciprocity reminiscent of peer play, the AI may initiate imaginative prompts such as, "Let's pretend we're at the zoo. What's the English name of that animal? I'll guess what sound it makes!" Such narrative framing blurs the boundary between learning and play, encouraging students to assume the role of a co-playing collaborator.

In such contexts, the playmate identity strengthens student agency by shifting the focus from task compliance to voluntary participation. Children actively select activities that match their interests, all guided by personal enjoyment rather than external requirements. Simultaneously, this identity enhances learning investment: the emotional rapport built with the AI character, coupled with the intrinsic reward of playful achievement, promotes consistent engagement. As highlighted by Barab's (2008) theory of transformational play, this blend of play and education transforms passive knowledge acquisition into an active, meaning-rich experience, thereby fostering deeper engagement and improved retention [9].

3.3. Tutee

The tutee identity emerges when AI serves as a personalized tutor, offering targeted support, adaptive explanations, and step-by-step guidance that align with students' need for assistance in mastering language skills [3]. This identity typically develops in the following learning scenarios. For example, in targeted grammar difficulty remediation. When elementary students encounter challenging structures, such as third-person singular verb agreement or the use of prepositions indicating time, the AI does not simply correct errors but provides layered scaffolding. It begins by diagnosing mistakes, then offers simplified examples, and finally designs low-stakes practice tasks accompanied by real-time feedback. This "diagnose-guide-practice" cycle frames the AI as a reliable instructional partner, encouraging students to recognize their own knowledge gaps and adopt the role of a learner actively seeking help [4].

Similarly, in scaffolded listening comprehension tasks. While engaging with English audio materials, the AI adapts to the student's comprehension level. If a question is answered incorrectly, it may slow the speech rate, chunk the audio into shorter segments, and clarify key vocabulary before proceeding. Such adaptive support mitigates the anxiety of misunderstanding and positions the AI as a patient tutor, prompting students to voluntarily seek further explanation, a core behavioral marker of the Tutee identity [5].

As students shift from passively receiving feedback to actively seeking AI support, they develop a greater sense of ownership over their learning process. This proactive stance, in turn, is reinforced by the AI's responsive and non-judgmental scaffolding, which reduces learning anxiety and increases willingness to persevere through challenges. As Chen et al. (2021) note, this supportive dynamic lowers the affective filter, enabling students to invest more confidently and continuously in addressing their weaknesses, thereby intertwining agency and investment into a mutually reinforcing process [3].

4. Characteristics of imagined identities

Across the three types of imagined identities, some core characteristics emerge, reflecting the unique nature of AI-assisted learning and elementary students' developmental needs.

4.1. Situational dependence

Imagined identities are not fixed; rather, they are activated and shaped by specific interactive scenarios designed by the AI-mediated interactions. For example, collaborative tasks may trigger a "co-learner" identity, while gamified challenges often evoke a "playmate" identity. This indicates that identity formation is highly dependent on the immediate interactive context created by the AI-mediated interactions, and different task designs prompt learners to adopt different self-positionings.

4.2. Positive emotional orientation

The supportive and non-judgmental nature of AI-mediated interactions provides an emotionally positive foundation for identity construction. Unlike traditional classroom recitations that may induce anxiety, AI's patient feedback and ongoing encouragement effectively fulfill learners' needs for psychological safety and a sense of belonging. In such low-anxiety settings, students become more willing to take risks and experiment with language use. As a result, they tend to associate the learning process, and the identities they enact often associated with positive affective experiences such as curiosity,

enjoyment, and a sense of competence.

4.3. Dynamic co-construction

Imagined identities are continuously negotiated and co-constructed through adaptive interactions between the student and the AI. The AI may adjust its dialogue strategies or task difficulty based on the student's responses, while the student, in turn, recalibrates their self-perception and behavior based on AI's feedback. For instance, when the AI poses questions seeking help, the student may shift from a "tutee" role to that of a "Co-learners". This two-way adaptation keeps identities fluid and evolving, highlighting their inherently dynamic nature.

5. Conclusion

By analyzing students' imagined identities and their core characteristics in AI-assisted contexts, this study provides valuable implications for instructional designers and educators. To foster positive and adaptive imagined identities, AI learning environments should be intentionally designed. This includes creating scenarios that promote collaborative problem-solving to facilitate the co-learner identity, integrating gamified and narrative elements to evoke the playmate identity, and implementing adaptive, scaffolded feedback mechanisms to support the tutee identity. Through such identity-aware design, educators and designers can develop more engaging, effective English learning experiences that align with the cognitive and emotional developmental needs of students.

A limitation of this study is its specific focus on elementary-level English learning; future research could explore whether similar identity types emerge among older learners or in the learning of other subjects. Furthermore, longitudinal studies are needed to examine how these imagined identities evolve over time and how they ultimately influence long-term language learning outcomes.

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