Animated Pedagogical Agents from Students’ Perspectives

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Abstract

The goal of this study was to investigate the 5th grade students’ attitudes toward animated pedagogical agents (APA) in language learning environment. 187 5th grade students from two different regions of Turkey participated in the study. Data were collected through a four-point Likert type attitude scale developed by the researcher. The results indicated that the participants interpreted the APA as a helpful partner having human-like behaviors. Furthermore, APA supported and facilitated their learning.

Theoretical Framework

As technology advances, the demand for applying technological tools in the education for various purposes increases. One of the latest technological evolutions is animated pedagogical agents (APA) which are likable computerized characters with embodied life-like behaviors such as gesture, gaze, locomotion, speech emotions, etc. (Moreno, Mayer, Spires & Lester., 2001). Because these non-verbal and verbal behaviors also occur in human-human interaction, APAs having these behaviors add powerful capability to multimedia learning environments (Atkinson, Mayer & Merill, 2005). These behaviors also let the people perceive the environment as a social context (Moreno, et al., 2001; Dunsworth & Atkinson, 2007). Thus, the naturalness of the human computer interaction can be maximized by the use of APAs in the multimedia learning environments.

The pedagogical agents’ effectiveness in the human computer interaction is supported by social agency theory. According to this theory, using verbal and visual cues in the computer-based environments encourage the learners to interpret the computer as a partnership. They consider their interaction with the computer as social one, because the social cues are similar what they would expect form a human-to-human conversation (Atkinson, et al., 2005).
Recent research studies in the multimedia learning environments and human computer interaction has begun to focus on the educational benefits of animated pedagogical agents. The effectiveness of APA in educational setting has been studied in different fields, such as science, mathematics and humanities (Atkinson, 2002; Baylor & Ryu, 2003; Moreno, et al., 2001). However, limited research has investigated the use of pedagogical agents in second/foreign language learning. Even though various external and internal properties of the APA various can be beneficial in language learning, the application of APA in multimedia learning environment for second language learning has limitedly investigated. In addition, the recent research studies generally cover the undergraduate or adult learner. This study examined the 5th grade students’ attitudes toward animated pedagogical agents in second language acquisition.

Method

The participants of this study were 187 fifth grade students (99 females, 88 males) from two different regions of Turkey. Participants were between ages of 10 and 11, (M=10.91, SD=.51). Multimedia learning tool was developed by the researcher by considering the needs of the course teacher, the content of the lesson and levels of the students. This multimedia learning environment aims to teach and practice the model verb “can” to the 5th grade students in their English as a second language courses. The “Peedy”, Microsoft animated agent was used in these learning environments. After studying the multimedia learning tool, data were collected through four-point Likert type attitudes toward animated pedagogical agents scale developed by the researcher. Some items were written according to the social agency theory and some items were adopted from existing instruments used for assessing the learners’ attitudes toward animated pedagogical agents (Ryu & Baylor, 2005; Adcock & Van Eck, 2005). Reliability coefficients for four factors (supporting to learn, facilitating learning, human-like and being a partner) of this instrument are .77, .82, .68 and .70 respectively.

Results and Discussion

Supporting to learn

Participants’ attitudes toward the Peedy in term of supporting to learn was high with a mean of 3.32 and standard deviation of .62 on a four-point likert scale. This indicated that APA is a beneficial technological tool to support the young students’ second language learning. He supported the students’ learning by giving feedback and clues and taking their attention to important points.
Facilitating to learn

Participants perceived the Peedy helpful in term of facilitating their learning with a mean of 3.41 and standard deviation of .58. They found the hand movements of the Peedy helpful for concentrating on the important concepts. Peedy made the content enjoyable, entertaining and interesting. Furthermore, Peedy guided the participants in the use of multimedia tool and presents the content effectively.

Human-like

Participants perceived that Peedy has life-like behaviors and characteristics \((M = 3.08, SD = .68)\). They thought that Peedy’s hand movements, gestures, gaze, locomotion and speech emotions were similar to the people.

Being a partner

Participants interpreted the Peedy as a social partner in multimedia learning environment characteristics \((M = 3.32, SD = .59)\). They thought that they were a good team together and get along with well like friends.

Conclusion and Discussion

APA, which provides instruction through verbal and nonverbal modes of communication, yields a social interaction between the computer and learner. Recent research studies investigated the different roles and aspects of pedagogical agents on the retention, transfer, interest and persona affect. Some of the pedagogical agents are Herman the Bug (Moreno et. al, 2001; Lester, Converse, Kahler, Barlow, Stone & Bhogal, 1997), and Steve (Johnson, Rickel & Lester, 2000). These agents have a role of tutor, motivator, expert, mentor and learning companion. These studies concluded that animated pedagogical agents enhance the students learning, motivation and their interest to the learning environment. Parallel to these studies, the results of this study indicated that 5th grade students perceived the APA as a social partner who shows human-like characteristics. APA is also a beneficial to support and facilitate learning especially in second language acquisition.

Ohmaye (1998) stressed the importance of interaction in language acquisition. He mentioned that “language learning depends heavily on interactions with native speakers, and native speakers are hard to come by” (p.2) He continued explaining the limitations of the classroom instruction in the interaction with the native speakers, access target culture and individual attention and feedback. However, Turkish students do not have enough opportunity to interact with native speakers because of limited resources, social norms and personality traits. However, multimedia learning environments with APA offer students opportunities to interact with native speakers and provide a social context (Ohmaye, 1998). Therefore, this study
exemplifies the use of APA in second language learning and provides the attitudes of the young learners toward APA.

References


