

Applying Interest Loop to Develop Game-based Model for Chinese Character Learning

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Abstract: Interest is a critical element for student learning and should be cultivated. To this end, different interest development models have been investigated. This study focuses on interest loop, which comprises three components, including triggering, immersing, and extending interest. Based on the interest loop, this study proposes a game-based model for Chinese character learning. In addition, a learning system, named CharacterMonster, is also implemented to realize this conceptual model for examining its feasibility. The detailed functions of the system are described in this paper.

Keywords: Game-based learning, Interest loop, Chinese character learning

1. Significance of interest

Interest, which involves how students pay their attention and make their efforts, has been regarded as a significant and foundational element of learning (Wong, et. al., 2015). Previous studies have demonstrated that interest would influence student learning in terms of various aspects, such as performance (Schraw, Flowerday, & Lehman, 2001), self-efficacy (Hidi, Berndorff, & Ainley, 2002), and self-regulation (Sansone, Thoman, & Smith, 2000). In addition, some studies further assert that interest could be cultivated through some models, such as four-phase model (Hidi & Renninger, 2006) and interest loop model (Wong, et. al., 2015).

For four-phase model, interest is viewed as malleable forms of interests, including triggered situational interest, maintained situational interest, emerging individual interest, and well-developed individual interest (Hidi & Renninger, 2006). The former two (i.e., triggered and maintained situational interest) could be triggered by environmental stimuli, whereas the latter two (i.e., emerging and well-developed interest) could emerge after triggering and maintaining situational interest.

For interest loop model, interest comprises three components, including triggering interest, immersing interest, and extending interest. The three components link to each other and form as a loop. In addition, the three components are respectively characterized by three general design strategies: curiosity, flow, and meaningfulness. For triggering interest, curiosity could invoke students to seek out personal interests (Deci, 1975) through information gap (Loewenstein, 1994). When interest is triggered, students might involve themselves fully in a learning activity, leading to flow experience (Csíkszentmihályi, 1991). Besides, knowledge and interest could reinforce each other (Silvia, 2006) to enrich prior knowledge and meaningful learning, which in turn extends interest.

2. Game-based model and system for Chinese characters

Figure 1 illustrates the conceptual model of the game-based model for Chinese character learning. The game-based model is underpinned by the interest loop. Specifically, the game-based model consists of three game components, and each game component is developed based on the three components of interest loop, respectively (i.e., triggering, immersing, and extending interest). According to the conceptual model, a game-based system for Chinese character learning is implemented. The learning

system, named CharacterMonster, is characterized as a type of nurturing games, whose goal is to gather a number of fantasy monsters and nurture them. The details of the three game components of CharacterMonster system are described as follows:

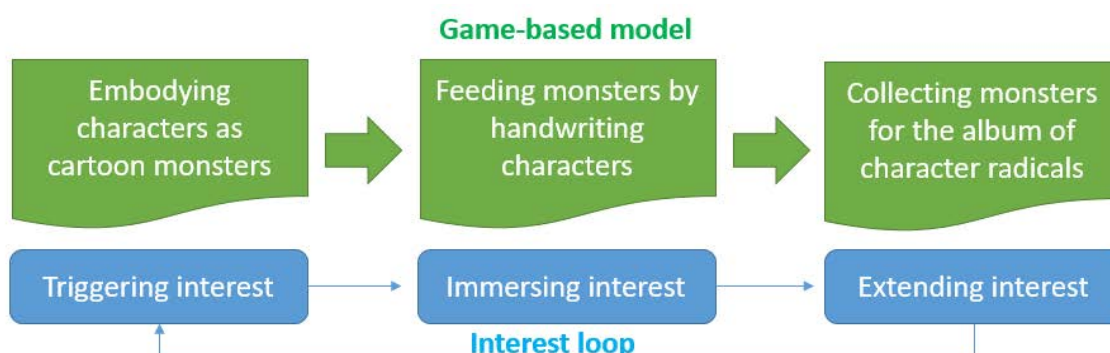


Figure 1. Interest loop and game-based model

Triggering component: to arouse curiosity as the design strategy for triggering interest, radical components of Chinese characters are represented as cartoon monsters. For instance the radical component of “木” is represented as a “deer” monster that eats Chinese characters with the “木” radical, as illustrated in Figure 2. Similarly, the radical component of “日” is portrayed as a “phoenix” monster that eats Chinese characters with the “日” radical. In other words, these radical components are not only shown by symbols, but also embodied as cartoon figures. Such representations might arouse students’ curiosity about their appearances (e.g., what kind of monsters they are), history (e.g., how they are evolved), and food (e.g., which Chinese characters they want to eat). Such design might form as “knowledge gap” (Loewenstein, 1994) to inspire students to learn Chinese characters.



Figure 2. Triggering component of CharacterMonster system

Immersing component: to engaging students in mastering Chinese character writing, the strategy of “learning by feeding” (Chen, 2012) is used. Students play the role of keeper to nurture these character monsters by feeding correct Chinese characters. Specifically, the students have to write Chinese character correctly, and then feed monsters. For instance, to satisfy the “deer” character monster, the students are required to learn how to write Chinese characters with the “木” radical component, and use these Chinese characters (e.g., 林, 森, 株, 枯, 校, 樹, 橘) to feed the monster, as

shown in Figure 3. Similarly, the students need to learn how to write Chinese characters with the “日” radical component, and use them (e.g., 早, 是, 晃, 明, 昭, 晒, 晶) as food to nurture the monster. By doing so, the students could understand the relationship between Chinese characters and their radical component in a more interest way, which might, in turn, offer student more opportunities to create optimal experience in learning.



Figure 3. Immersing component of CharacterMonster system

Extending component: to extend student’s interest for Chinese character, an album system is designed to collect all of these character monsters (see Figure 4). While students collect these character monsters, it implies that students have more opportunities to relate and integrate the old knowledge with new knowledge through the album. In addition, collecting is also meaningful for students to enrich what they have already learned, where students’ ownership and achievement might extend their interest both in breadth and in depth. In other words, the album system maintains a structure not only for re-organizing old knowledge, but for exploring and discovering new knowledge.



Figure 4. Extending component of CharacterMonster system

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References

- Chen, Z. H. (2012). We care about you: Incorporating pet characteristics with educational agents through reciprocal caring approach. *Computers and Education*, 59(4), 1081-1088.
- Csikszentmihályi, M. (1991). *Flow: The psychology of optimal experience*. New York: Harper Perennial.
- Deci, E. L. (1975). *Intrinsic motivation*. New York: Plenum.
- Hidi, S., Berndorff, D., & Ainley, M. (2002). Children's argument writing, interest and self-efficacy: an intervention study. *Learning and Instruction*, 12(4), 429-446.
- Hidi, S. & Renninger, K. A. (2006). The four-phase model of interest development. *Educational psychologist*, 41(2), 111-127.
- Loewenstein, G. (1994). The psychology of curiosity: A review and reinterpretation. *Psychological Bulletin*, 116(1), 75-98.
- Sansone, C., Thoman, D. B., & Smith, J. L. (2000). Interest and self-regulation. Intrinsic and extrinsic motivation: The search for optimal motivation and performance. In R. H. Hoyle (Ed.), *Handbook of Personality and Self-Regulation* (pp. 343-374): Wiley-Blackwell.
- Schraw, G., Flowerday, T., & Lehman, S. (2001). Increasing situational interest in the classroom. *Educational Psychology Review*, 13(3), 211-224.
- Silvia, P. J. (2006). *Exploring the psychology of interest*, Oxford University Press.
- Wong, L. H., Chan, T. W., Chen, Z. H., King, R. B., & Wong, S. L. (2015). The IDC theory: Interest and the Interest Loop. In T. Kojiri, T. Supnithi, Y. Wang, Y.-T. Wu, H. Ogata, W. Chen, S. C. Kong, & F. Qiu (Eds.), *Workshop Proceedings of the 23rd International Conference on Computers in Education*. Hangzhou, China: Asia-Pacific Society for Computers in Education.