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Enhancing high school students' music content knowledge and self-efficacy through game-based learning

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Research background

For the encouragement of a specific behaviour in educational milieu, engagement and motivation are usually considered prerequisites. In helping learners attain better outcomes, behavioural scientists have design interventions that get students engaged in activities such that their likelihood of completion is increased.

This paper aims to explore how school teachers find the balance between achieving their objectives and catering to evolving student needs by employing board games. The topics discussed in this paper include the aspects: young learners' attitudes toward music games, playing time and integration with curricular objectives, enhancing cognitive processes, effects on game players, transfer from board games to external tasks, and, finally, the use of games for outcome evaluation.

Research structure

Participants are 129 Year 4 students from primary schools located in four cities in Taiwan. They take part in the two-hour music learning program which employs the game designed by the – Music Muse Project, a card board game dedicated to music education (hereafter the MMP). The topics discussed in this paper are attitudes toward games, playing time and integration with curricular objectives, enhancing cognitive processes, effects on game players, transfer from board games to external tasks, and, finally, the use of games for evaluation.

Research design

The researcher illustrates an approach by looking at the design of an ongoing program. Its overall pedagogical goal is to spur the learners' curiosity and enhance their cognition of music elements by engaging them to a knowledge-based learning situation in which they can easily practice music knowledge through the process of card board games.

Triad Chords aims to learn three types of chords: major chord, minor chord and diminished chord. Each chord is designed with different points: major chord—5 points, minor chord—3 points, diminished chord—1 point. By recognizing the chord and contributing to form it, the player wins points. As a consequence, the player becomes familiar with the three types of chords at the end of the game.

The other game Music Slapjack contains three note-naming conventions, the Latin alphabet, Solfège, and Numbers for simplified notation. Music Slapjack helps learners to master the three naming conventions. The game can be played in either basic level or advanced level. The former uses only one naming convention so that the players can easily recognize the name of notes. The latter is complex by mixing two or three naming conventions. Teachers can decide which way to play regarding challenge and fun. During the six-week lectures, the process of gaming in classes were documented with both video and paper checklists together with an analysis of the feedback obtained from the students' surveys.

Findings

The participants were hooked by the idea of the game, pulled forward by attempting to win, and ended up enjoying the learning experience, actively engaging in the classroom activity and opening themselves up to the possibility of music learning. The results show that engagement in the MMP has a positive effect on the learning of music basic theories. In the first two rounds, student-players took 8.5 minutes in average for each round. The time consumption gradually reduced to 5.3 minutes in the last shoot.

In addition, students positively reflected that they became much more familiar with the rules which were consonant with the formal music knowledge. All student-participants also shew positive views on the gamified music games and maintained optimistic self-portrait regarding their game performance.

Conclusions

The topics discussed in this paper are attitudes toward games, playing time and integration with curricular objectives, enhancing cognitive processes, effects on game players, transfer from board games to external tasks, and, finally, the use of games for outcome evaluation. The paper concludes with a call for development of tools and technology which integrates the motivating aspects of games with good instructional design for musically gifted and talented students.

Keywords: Improving classroom teaching; Teaching/learning strategies; Game-based learning; Gamification; Music education

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