The Impact of Students’ Temporal Perspectives on Time-On-Task and Learning Performance in Game Based Learning

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ABSTRACT

The use of games for educational purposes has been considered as a learning methodology that attracts the students’ attention and may allow focusing individuals on the learning activity through the SG game dynamic. Based on the hypothesis that students’ Temporal Perspective has an impact on learning performance and time-on-task, this paper aims to analyze the relation between these variables in the SG MetaVals. The authors expect students’ TP to relate to higher performance, both for individual and collaborative GBL. Moreover, they analyze the relation between the time-on-task and the students’ temporal perspectives. A case study was conducted in a Masters course in finance. Results showed no significant differences in game performances among individuals with different TP. However, present-oriented students showed a higher time-on-task, both for individual and collaborative phases of the game. These results could point to the fact that including SG in the curriculum could help leveraging students learning performance.

Keywords: Future Time Perspective, Game Based Learning, Learning Performance, Serious Games, Time-On-Task, Time Perspective

INTRODUCTION

Learning needs a certain level of students’ quantity and quality of time and attention. The use of serious games (SG) has been usually argued as a time-wasting activity competing against the students’ academic time and attention for other learning activities. The implementation of games in curriculum for educational purposes has led to the emergence of Game Based Learning (GBL) methodologies; especially in computer-based environments. The use of games for educational purposes has been an increasing focus of interest for instructional
designers, teachers and researchers; present trends in adult formal education are committed to active learning models including simulations and Serious Games (SG) in the curriculum. Especially, Game Based Learning (GBL) has long been used for management training courses, to safely practice skills and competences that play a central role in student’s workers improvement (Mawdesley, Long, Al-Jibouri & Scott, 2011). Furthermore, the time factor plays an important role in these new learning scenarios (Gros, Barberá & Kirschner, 2010) because students have to be aware of the existing time constraints in their life, and therefore learn to manage time in order to take a real profit of their learning process. Due to the implications of time in learning, this study aims to analyze a specific aspect of the students’ time factor: their Time Perspective (TP), and analyze its relation with both students’ time-on-task, defined as the measurable time spent in a learning activity (Romero, 2010), and the students’ learning performance, understood as the scoring in a GBL activity; in the use of a SG in the field of adult postgraduate education. In particular, this study focuses on a master course in ESADE School of Business and Law, in Barcelona (Spain). This study was developed within the context of the Network of Excellence FP7 Games and Learning Alliance (GaLA), and the Special Interest Groups of Pedagogy and Psychology.

The general aim of this study is to understand the impact of students’ TP on both students’ time-on-task and learning performance, in the particular scenario of a SG activity implemented in a master’s course. In order to analyze the relation between these two temporal approaches and the learning performances, Game Based Learning (GBL); in particular, we use the MetaVals game (Usart, Romero, & Almirall, 2011), a classification game that allows students to practice their knowledge basic financial concepts such as assets and liabilities, both in individual and collaborative learning contexts.

## TIME FACTOR ON GAME BASED LEARNING

Time is one of the most common words used in education without characterizing the scope and nature of time. From objective time to subjective perception of time at both the individual and collaborative level, the concept of time has been defined and perceived in many forms. In educational contexts, the time factor is an implicit transversal perspective that some approaches have tried to make explicit through defining different typologies of academic time (Gros, Barberá, & Kirschner, 2010). Learners’ time can therefore be considered from a students’ time use perspective aiming to identify their temporal resources and their time management competencies; in this temporal approach of the time-on-task focus on the students’ time as a limited temporal resource that could be allocated to the learning activity. In educational activities, the time factor could be also considered as the temporal regulation of the students’ academic time (Romero, 2010) considering the external regulation, the self-regulation, the co-regulation and the socially-shared regulation. In a more intra psychological perspective, the students’ time could be considered from the psychological perspective, such as the students’ orientation to multitask or polychronism (Kaufman-Scarborough & Lindquist, 1999) or their Temporal Perspectives (Zimbardo & Boyd, 1999), defined as the way individuals and cultures divide their experience into different temporal categories: past, present and future.

### Time-on-Task on Game Based Learning

The time factor in education includes the institutional time (scheduled time), the professors’ time (allocated time) and the students’ time. The student’s learning time is shaped by the scheduled time for teaching and learning activities by the teacher. In turn, the students’ time is partially constrained by the institutional
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