

# Chapter 13

## Time Factor in the Curriculum Integration of Game-Based Learning

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### ABSTRACT

*From primary and secondary educational levels to higher education and lifelong learning, the use of games for educational purposes has become a focus of increasing interest for instructional designers, teachers, and researchers. To ensure the achievement of learning objectives and competency in the use of games for educational purposes, the use of Game-Based Learning (GBL) in the curriculum should be considered in terms of its learner-centred characteristics, game dynamics, and interactional requirements. A dimension that involves all these characteristics is the time factor. Time is considered in this chapter from three different points of view: learner's psychological time; temporal gameplay; and the "interaction tempo" required for successfully including games in the curriculum. This chapter describes four typologies of the time factor: time-on-task; temporal perspectives of learners; temporal gameplay; and interaction tempo. Finally, the chapter proposes practical ideas for game designers and teachers when using GBL in face-to-face and online contexts.*

### THE TIME FACTOR IN EDUCATION

Time is one of the most polysemic words in every language. From objective time to the subjective perception of time at individual and collaborative levels, the concept of time may be 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 by defining different typologies of academic time. The time factor and time quality are important aspects in the understanding of learning activities (Gros, Barberà & Kirschner, 2010; Romero, 2010). This is especially true in active learning

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methodologies such as Game Based Learning (GBL), where students have a central role – and time represents an important factor when including games in the curriculum.

In this chapter, we aim to characterise the time factor from a variety of perspectives: the learner’s perspective; the game based learning task as proposed to the learner; the tempo of the interaction of the learner with other learners; and the learner with the game. Figure 1 shows an overview of the typologies of time that will be addressed in this chapter and the relationships between these different concepts of time.

## THE TIME FACTOR IN GAME BASED LEARNING

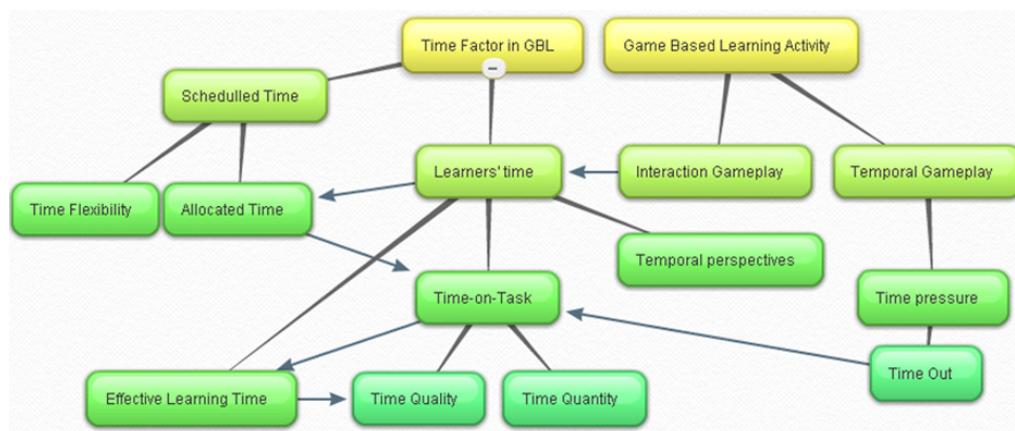
### Learner Time in Game-Based Learning

Learner time can be considered from a time use perspective to identify temporal resources and time management competencies; as time (self, co-, and socially shared) regulation of academic time; and also from the psychological perspective—such as a student’s temporal perspectives and orientation to multitasking.

### The Time-on-Task Approach

In this approach, time is considered as a learner resource that can be allocated to GBL or other concurrent activities. The learner time-on-task allocation and regulation in the context of GBL is an important factor in understanding the learner’s level of achievement and temporal pressure during the game (Usart & Romero, 2012). To characterise the time-on-task in GBL, we analyse student time according to the ALT model. The ALT model has been designed to characterise the different typologies of time: including *scheduled time* (e.g., the academic semester in which the course using the game is scheduled); a teacher’s *allocated time* for starting and finishing the game (i.e., the game duration); *engaged time* or *time-on-task* (i.e., the time in which the learner is playing the game); and *effective learning time* (i.e., the specific moments when the student is learning through playing). The ALT model was designed for assessing new or beginning teachers. The model distinguishes different types of time in the process of teaching and learning and the relationships between them, including both hierarchical and interactional relationships. Firstly, *effective learning time* is considered, including the time in which the student is ‘effectively’ learning. *Effective learning time* is found within the time devoted to the task

*Figure 1. The time factor in game based learning*



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