

Criteria for evaluating a game-based CALL platform

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Abstract. Game-based Computer-Assisted Language Learning (CALL) is an area that currently warrants attention, as task-based, interactive, multimodal games increasingly show promise for language learning. This area is inherently multidisciplinary – theories from second language acquisition, games, and psychology must be explored and relevant concepts from each drawn together. Based on extensive research in these three areas and on subsequent evaluation in the context of a newly developed immersive language learning game (*Digichaint*), this paper proposes nine criteria that should be taken into account both at the design and evaluation stages of game-based CALL platforms.

Keywords: games, CALL, design, evaluation.

1. Introduction

Formal evaluation systems have received relatively little attention in CALL literature, with some notable exceptions (McMurry et al., 2016). Reliable measures of learning outcomes are scarce in relation to all types of CALL platforms (Burston, 2015). Computer gaming as a CALL activity has increased in importance over the past decade and is a promising area of study for future years. Initial studies suggested that simulations and games are indeed beneficial for language acquisition (Peterson, 2010).

The present paper examines the factors which make good CALL games and suggests criteria for the evaluation of such games.

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2. Games as a CALL activity

Gee (2005) saw the potential for computer games to enhance learning since they could potentially mimic *interaction* in real-life situations and create virtual worlds. CALL games are essentially task-based activities where the participant is given a specific achievable goal together with clear directions on how this goal may be achieved. While this concept is very closely aligned with the pedagogical concept of task-based language learning (Prabhu, 1987), nevertheless, gaming as a language teaching methodology has not achieved a huge popularity in CALL literature. Steel and Levy (2013) note that language students are yet to be convinced of the value of such technology.

In the evaluation of CALL games, theory from a number of distinct disciplines, including Second Language Acquisition (SLA), psychology, and games must be taken into account. These theories form the basis for the nine criteria set out below which have been used to evaluate the *Digichaint* game (see Ní Chiaráin & Ní Chasaide, 2016). While each of the criteria are somewhat cross-disciplinary, they draw primarily from one or other discipline but are contextualised specifically for CALL games. The criteria are not set in any form of priority. Due to the limitations of the present paper each has but a short comment, although each one may be considered a serious study in of itself.

3. Game-based CALL evaluation criteria

- **The game should be task-based with a focus on meaning and on the use of the target language**

This criterion is based on the work of SLA theorists who subscribe to communicative language teaching and to task-based language learning in particular.

- **Learners should have the opportunity to develop metalinguistic awareness through having the language difficulty set at an appropriate level**

This criterion is based on Chapelle's (2001) claims on language difficulty level or language fit so that the learner can focus on the meaning being conveyed. This will depend on the learner's tolerance of failure such that a balance can be achieved between the metalinguistic development of the learner and the demands of the successful negotiation of the game (Franciosi, 2011).

- **The game should be enjoyable and have a playful spirit**

Learners with gaming experience expect that enjoyment should be associated with the concept of a game, whether this has a purely entertainment value or some educational value. Purushotma, Thorne, and Wheatley (2009) emphasise that all elements of a game should have a playful spirit. Sweetser and Wyeth (2005) distinguish between playfulness and enjoyment, and suggest enjoyment can be an intrinsic part of all elements of a game, including concentration, skills, and challenges, etc.

- **The game should have a clear plot with helpful aids such as a hypertext dictionary**

Effective general computer games share the characteristics of establishing clear goals for the game, rules for playing the game, task feasibility, self-governance, and immediate feedback (Peirce & Wade, 2010). The use of a hypertext dictionary may be helpful (see Chapelle, 2001, ‘meaning focus’).

- **The game should have a logical structure with appropriate cues for maneuvering through it successfully**

Cues give feedback to the learner on the usefulness or otherwise of particular moves. The player should be aware of his/her level of success in achieving his/her target. Instant feedback can encourage active learning and provide the necessary motivation for the player to continue (Mitchell & Savill-Smith, 2004).

- **The game should promote an appropriate intensity of engagement**

The concept of “flow”, introduced by psychologist Csikszentmihályi (1988), refers to the degree to which players are physically and mentally immersed in the world of the game. Errors in game design or the need for irrational solutions to problems take from the flow of the game.

- **The game should be visually attractive and have appropriate aural material**

There is an aesthetic need for good graphics, visual effects, and appropriate music and sound effects (Greitzer, Kuchar, & Huston, 2007). The ideal game combines entertainment and learning in such a way that the player does not experience the learning part as something external to the game (Breuer & Bente, 2010).

- **The game narrative should have a cultural legitimacy**

A successful game needs to have a credible narrative, be purposeful, have concrete goals, and have a quantifiable scoring system (Mitgutsch & Alvarado, 2012; Peirce & Wade, 2010). Platforms need to be personalised to the needs and characteristics of the target groups of learners (Ní Chiaráin, 2014).

- **There should be clarity in screen layout with no unnecessary distracting features**

This criterion is based on psychology and cognitive load theory in particular, which assumes that human working memory is very limited and that overload occurs when too many distractors are present. This causes significant delays in problem solving, failure to apply correct rules, and ultimately a breakdown of participation in the task (VanLehn, 1999).

4. Discussion and conclusion

CALL games are very diverse in nature and format, ranging from games played by individuals in isolation to games played as a collaborative activity. The design and evaluation of CALL games is a cross disciplinary exercise drawing from fields of SLA, game theory, as well as emerging general CALL theories. The criteria outlined above are drawn from a literature review of these areas and applied to the *Digichaint* game (Ní Chiaráin & Ní Chasaide, 2016). Initial analyses of the results add support to the importance of each of the criteria.

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