

The acquisition of French vocabulary in an interactive digital gaming context

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Abstract. *Prêt à Négocier* (PàN) is an interactive digital information gap game designed to help French students improve their interaction skills. In this study, we examined the effects of its use on improving French learners' vocabulary. Following a pretest/posttest design, we compared the development of 20 French words between an experimental and a control group. Although both groups followed a similar trajectory in vocabulary learning, some participants benefited from the proposed game-based pedagogy more than others due to individual differences. Our findings highlight how interactive and meaningful games such as PàN can complement and enhance the learning of second/foreign language (L2) vocabulary.

Keywords: gaming, L2 learning, oral interaction.

1. Introduction

Oral interaction is an L2 competency that is required for the completion of everyday tasks such as talking on the phone or engaging in face-to-face conversations with peers or teachers. Because it requires the learner to exchange information with a partner by speaking and understanding what is being said efficiently in real time (i.e. fluently), oral interaction is not easy for L2 learners to master. An important aspect of developing interaction skills is the mastery of L2 vocabulary, particularly the words that are required for fluent communication (Nation, 2009). Traditionally, teachers have used paper-based information gap activities (Larsen-Freeman & Long, 1991) to promote interaction for the learning of a variety of L2 skills (e.g.

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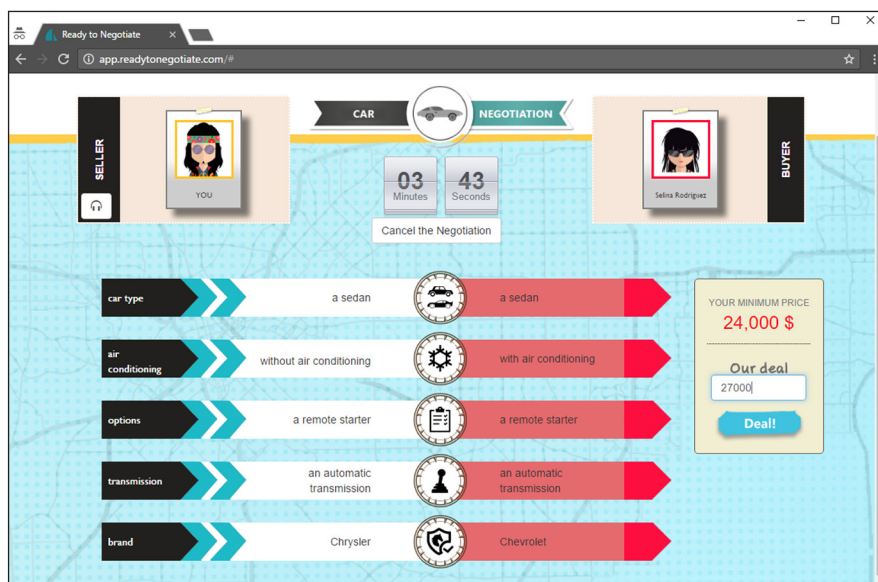
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de la Fuente, 2006). However, with the rise of ‘anytime, anywhere learning’, L2 students and instructors are willing and ready to invest in mobile-assisted learning (Stockwell, 2010), especially in an autonomous manner to enhance their experience (Lai, Yeung, & Hu, 2016). This study contributes to this area of research by examining the effects of a mobile digital game, PàN, as a tool to assist in the acquisition of vocabulary in L2 French.

PàN is a digital information gap game designed to help French students improve their oral interaction skills. The game can be played on computers, tablets, and smartphones in both the classroom as a face-to-face conversation and/or out of the classroom with a built-in audio chat feature. To play the game, students have three minutes to both exchange information about the product they are buying/selling as well as to agree on the item’s final price (see Rueb, Cardoso, & Grimshaw, 2016 for an introduction to the game). Figure 1 illustrates a seller’s user interface for the English version of the game, showing a car for sale and related negotiable features (e.g. air conditioning, automatic transmission).

Figure 1. PàN: interface



The goal of this study is to examine the effects of the pedagogical use of PàN on improving French learners’ vocabulary. We hypothesized that the game would positively impact French vocabulary acquisition in the context of L2 learning

based on [de la Fuente \(2006\)](#). As such, our research question was the following: Can PàN help French learners improve their French vocabulary more than paper-based, gamified information gap activities?

2. Method

2.1. Participants and experimental groups

To investigate the effects of PàN on vocabulary acquisition, we examined two groups of intermediate-level French as second language learners (total $N=29$) in a classroom setting over a period of four weeks. The participants were post-secondary (CEGEP, or General and Vocational College) students at an Anglophone college in Montreal, Quebec. They were stratified into two experimental (intact) groups: while the experimental group ($n=17$) played PàN, the control group ($n=12$) played paper-based, gamified information gap activities, which attempted to emulate the same types of oral interactions found in the digital game.

2.2. Procedures

In game-playing, the participants negotiated orally and synchronously with a partner for the purchasing or renting of items like cars, houses, and even trips to the moon (see [Rueb et al., 2016](#) for details). As it is a competitive game, pairs of L2 learners were required to use their oral interaction skills and appropriate vocabulary in a comprehensible and persuasive manner to win the negotiation (e.g. to convince the other to obtain the best final price on a product). In addition, vocabulary was used meaningfully (i.e. it was clearly connected to personal experiences), helping to reinforce acquisition ([Meara, 1996](#)). Game playing sessions were held twice a week, 25 minutes each, and had a different theme each week (i.e. apartment rentals, cars, apartments, and pirate ships).

2.3. Instruments

The study followed a pre/post/delayed posttest design that measured learners' vocabulary development using [Meara and Buxton's \(1987\)](#) 60-item yes/no test.

The 60 items were broken into three word groups: (1) 20 game words selected randomly from the four negotiation themes in the aforementioned Procedure section (the target words used in our study); (2) 20 non-game words (used as

distractors); and (3) 20 imaginary, pseudo English words (used as a means to control for guesses and ‘slips of the mind’). On the test sheet, participants indicated if they knew a word (e.g. by underlining or circling the corresponding option) and were attributed a point for every game word identified correctly. Students who identified more than 4 imaginary words from the list were eliminated from the study. The pretests were administered immediately before the first treatment, the posttest immediate after the final one, and the delayed posttests two weeks after the treatment.

3. Results

A preliminary independent-samples *t*-test was conducted to compare the two groups at the pretest, which revealed that the experimental ($M=6.47$, $SD=2.70$) and control groups ($M=4.08$, $SD=1.50$) were not comparable at the outset; $t(28)=2.87$, $p=.008$. However, the nonsignificant *p* value observed on the Box’s Test of Equality of Covariance Matrices ($p=.28$) reassured us that multivariate tests could be performed.

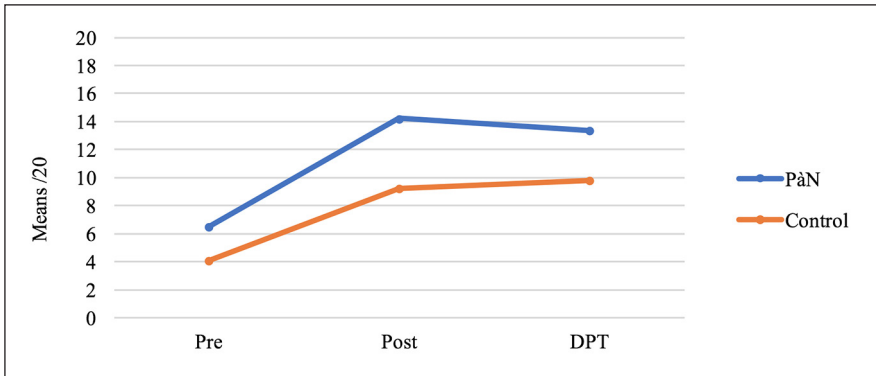
Consequently, we conducted follow-up Within-Subjects ANOVAs, which showed a significant effect for time (Wilks’ Lambda=0.18, $F(2,27)$, 59.19, $p=.000$), but no time versus group interaction (Wilks’ Lambda=0.82, $F(2,27)$, 2.95, $p=.069$). This means that while both groups significantly improved over time, the difference observed cannot be attributed to the treatment received by the participants, as both groups behaved in a relatively similar manner. Table 1 provides the means and standard deviations of the vocabulary gains involving the target words for each group at each test.

Table 1. Vocabulary gains for game words (N=20)

Group	Pretest		Posttest		Delayed posttest	
	M /20	SD	M /20	SD	M /20	SD
Experiment	6.47	2.70	14.24	4.42	13.35	5.82
Control	4.08	1.50	9.23	2.98	9.77	4.25

Although noticeable gains were observed on the posttest (P&N: $M=14.24$ vs. Control: $M=9.23$), this difference was not deemed significant, possibly due to the high standard deviations found in the experimental group (see forthcoming discussion). Figure 2 illustrates the development paths observed among the two groups over time.

Figure 2. Vocabulary learning: groups over time



4. Discussion

Can PàN help French learners improve their French vocabulary? Based on an exclusively statistical analysis of our results, digital game-playing had limited pedagogical value for vocabulary acquisition in comparison with traditional (but gamified), paper-based information gap activities. We highlight the term *limited pedagogical value* because we found evidence that PàN-based learning was beneficial for *some* users. For example, while one game-playing participant went from two known items on the pretest to 17 on the two posttests (an 850% increase), another improved by a mere 100%, going from four on the pretest to eight and seven on the respective posttests. These discrepancies might explain the higher standard deviations observed within the experimental group and no time versus group interaction among the groups.

5. Conclusion

Our findings highlight how interactive games such as PàN can enhance the learning of L2 vocabulary for *some* participants, possibly due to: (1) individual differences observed in L2 vocabulary development (e.g. [Dóczy & Kormos, 2016](#)) and, as we hypothesize, (2) some of the game's affordances – e.g. its ability to promote autonomous learning ([Lai et al., 2016](#)), in a fun and competitive (and consequently motivating) environment ([Rueb et al., 2016](#)). Because interactive games such as PàN can also help increase student interest and engagement in the learning process, we believe they are another viable option for teachers' pedagogical toolboxes.

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