

# Simulation/gaming and the acquisition of communicative competence in another language

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*For more than three decades, researchers and practitioners in the field of English as a foreign language have faced the issue of communicative competence as a goal in language acquisition and how to reach this goal. In this article, the authors address the issue from the point of view of a theoretical and practical meshing of simulation and gaming methodology with theories of foreign language acquisition, including task-based learning, interaction, and comprehensible input, showing how simulation and gaming can be used in those phases of language acquisition in which formal instruction has proved less ineffectual. The objective of this article is to describe the close relationship between the acquisition of foreign language competence and its components and experiential learning through simulation and gaming, with specific reference to two experiments in this area.*

**KEYWORDS:** *communicative competence; foreign language acquisition; nativist and environmental theories; simulation and gaming; task.*

Research in the field of second or foreign language acquisition is relatively new and no one theory of at least 40 available, according to Larsen-Freeman and Long (1990), is universally accepted. The many theories of foreign language acquisition are spread on a continuum ranging from nativist theories, which explain language acquisition through an innate biological mechanism such as that proposed by Chomsky (1965) or Krashen (1985) and his Monitor Theory, to environmental theories, in which education and experience are more important for language development than natural or innate gifts, as found in Schumann (1978) and acculturation and pidginization. Numerous theories come between the extremes, such as Givon (1981) and the theory of functional types, which combines natural and environmental factors in interaction, or Hatch, Flashner, and Hunt (1986) and the model of experience.

All of these language learning theories have had their effect on language teaching to a lesser or greater degree, converging in the communicative approach to language

learning that is presently the moving force in the field. The recognition of the interdependence of language and communication gave rise to the identification of the grammatical-semantic notions and communicative functions to be mastered by the language learner. The programs and syllabi resulting from notional and functional concerns naturally took into account the situation or context in which the notions and functions were used, thus bringing into play sociolinguistic principles. The conjunction of linguistic, psycholinguistic, and sociolinguistic principles is the essence of the communicative approach to language acquisition.

Simulation and gaming theory relates clearly to communicative language acquisition, especially in the area of interaction and experience. This article describes the close relationship between foreign language competence, experiential learning, and communicative factors that intervene in language acquisition. It also presents current definitions of foreign language competence and describes how the components are enhanced through simulation and gaming. The use of simulation at two Spanish tertiary institutions exemplifies this enhancement.

### **Experiential education and simulation and gaming**

For the purpose of this article, we draw on Jones's (1995) definition of simulation, which considers a simulation to be

an event in which the participants have (functional) roles, duties and sufficient key information about the problem to carry out these duties without play acting or inventing key facts. (p. 18)

This definition implies that in a simulation a so-called reference system is represented that provides key information to carry out tasks. A simulation is an exercise in which participants are competing against nature. A simulation is different from role-play in that the participant in a role-play plays or acts a part, often before an audience. In a role-play, there is usually a minimum of background information and participants invent much of their scenario. Consequently, the reference system is not made explicit as in the case of simulation or game. In a game, individuals or teams are involved in overt competition. Both simulations and games operate under a set of guidelines or rules specific to the particular game. The duty of the players is to play to win according to set rules, so naturally there are winners and losers, which is the most noticeable difference between a simulation and a game. In addition, simulations and games can be rule-driven or free-form, generating different types of interactive learning environments. For the purpose of this article we consider gaming and simulation as one common approach to language acquisition (for a more elaborate discussion on the taxonomy of games and simulations, see Klabbers, 1999).

Simulation and gaming theory is based on the learning theories in which behavioral, attitudinal, and cognitive changes due to experience are foremost. The learning environment propounded in these theories involves students as active participants in

their own process of learning. Student participants apply their knowledge or skills to the current experience and perceive a real feeling of success or failure on seeing the results of their performance. For there to be a change in attitude, behavior, or knowledge, learning must be cyclical in which, for example, there is a phase of concrete experience followed by observation and reflection on that experience, then a phase of abstract conceptualization followed by new experimentation—and the cycle repeats itself (Kolb, 1984). In simulation and gaming, the cycle of experience is simulated and therefore can be manipulated by the teacher/facilitator for pedagogical purposes.

Early pedagogues such as Piaget (1929), Dewey (1928), or Ausubel (1968) underlined the importance of real experience for learning. Later educators such as Henderson (1989), Pfeifer (1995), Joplin (1995), or Cowan (personal communication, 1996) added the aspects of emotional input, teacher feedback, focus, and debriefing as elements in the learning cycle. Foreign language teachers and educators incorporate these same ideas in recognition of the need for authentic communication in language acquisition and to account for the affective factors that can facilitate or impede acquisition. In recent years, the task-based approach to language acquisition is one of the ways experiential learning theory has been put into practice.

To define language tasks we can refer to Bachman and Palmer (1996, p. 44), who affirm that language tasks are activities that involve individuals in using language for the purpose of achieving a particular goal or objective in a particular situation. This definition includes the specific activity and the situation in which it takes place. Nunan's (1989) definition of a task is another important referent: "A piece of classroom work which involves learners in comprehending, manipulating, producing or interacting in the target language while their attention is principally focused on meaning rather than form" (p. 10). These tasks promote conversational adjustments or interactional modifications on the part of the learner, promoting comprehensible input, which in turn promotes acquisition.

The task-based approach allows the classroom rehearsal of tasks and skills needed for communicating outside the classroom. Students are given the opportunity for productive language use and the negotiation of meaning. The task-based concept entails a flexible approach in which "content and tasks are developed in tandem" (Nunan, 1989, p. 19). The task-based approach has been welcomed to language teaching for its usefulness in foreign language acquisition and has gained considerable emphasis as a result of widespread interest in the functional views of language and communicative language teaching.

The tasks used in simulation contrast with the artificial tasks of language learning that are imported into the traditional classroom. In simulation sessions, the classroom provides its own rationale for communicating about the materials and tools required to carry out an activity. A wide range of speech acts has to be performed in the classroom due to the striking amount of negotiation on the materials needed for a task and the different communicative needs that arise in simulations. The learner has the chance to initiate as well as to respond in communicative exchanges where he or she is able to interact by using a full range of grammatical-semantic notions and communicative functions.

The task-based approach used in simulation stresses the ability to perform a task instead of explicitly teaching grammatical structures. The learner is provided with opportunities that require that his or her own speech be comprehensible because it is only through such opportunities that learners are pushed to mobilize their grammatical competence; that is, the tasks required stimulate learners to mobilize all their linguistic resources and push their linguistic knowledge to the limit.

### **Inducing communicative language acquisition through simulation and gaming**

Hymes first proposed the term *communicative competence* in 1972 to describe a person's ability to communicate in an appropriate way. By adding aspects related to culture and context, Hymes broke with earlier theories such as Chomsky's, which had divided speech in two parts: (a) the competence or knowledge of rules and principles and (b) the performance or practical use of these rules.

Canale and Swain (1980) elaborated on Hymes's concept of competence to include four types of knowledge or abilities: grammar competence, sociolinguistic competence, discursive competence, and strategic competence. Competence in grammar includes knowing the linguistic code and vocabulary. Sociolinguistic competence takes into account the situation and purpose of communication following the norms and conventions of use. Competence in discourse is related to the different genres of written or spoken texts. Strategic competence has to do with getting the message across effectively.

Canale and Swain's (1980) definition of communicative competence, most influential in the 1980s, was followed by Bachman's in 1990, which has prevailed until now. Given that the term *communicative competence* had come to include notions of state and process (see Taylor, 1987), Bachman's utilization of the term *communicative language ability* was welcome. However, the new definition was only clarifying in part, due to the model's comprising different types of competence, as in Canale and Swain. The 1990 definition was revised by Bachman and Palmer in 1996, replacing the term *competence* with the term *knowledge*, except in a few labels. The Bachman and Palmer model of communicative language ability, therefore, encompasses multiple types of knowledge, as well as a metacognitive competence, which includes affect in the use of the language. Language knowledge includes two broad categories: organizational knowledge and pragmatic knowledge. Organizational knowledge can be divided into grammatical knowledge and textual knowledge, whereas pragmatic knowledge consists of functional and sociolinguistic knowledge.

In spite of all the advances of the past three decades in defining the taxonomy of the components that make up communicative competence or ability in a foreign language, the puzzle as to how to induce its acquisition has not yet been solved. In the 1960s, foreign language instructors began to emphasize the importance of their students being able to speak the language itself rather than only talking about it. Krashen (1982)

proposed a difference between language acquisition and language learning, the former being a subconscious process that can only take place in informal settings (not the classroom) and the latter being a conscious knowledge of a second language in which the rules are known and can be discussed, but not internalized for natural production. The subsequent question was and is, Can students really learn to speak a language in the classroom?

The answer is not clear cut, but it does seem evident in any case that the introduction of a maximum of practice time and authentic registers in the classroom are beneficial. Unfortunately, no matter how hard the teacher may try to elicit conversational language in the classroom, teacher talk predominates because he or she is the one who decides who will talk, when they will talk, and about what they will talk. The register of informal talk or argumentation in a situation of equality is not frequent and thus does not foster communicative language ability and proficiency.

Simulation and gaming tends to correct the teacher-student asymmetry of the conventional classroom and allows the introduction of exactly the type of authentic communication referred to in the previous paragraph. There is a move away from the authority structure of the traditional classroom and students become more active and involved. As expressed by Sharrock and Watson (1987, p. 36), simulation and gaming is a way of “declassrooming the classroom,” thereby giving impulse to real-world communication.

Another element existing in simulation and gaming that optimizes the possibilities for language acquisition is the amount and quality of exposure to language. Foreign language learners who participate in a simulation receive a lot of comprehensible input, that is, language input that is a slight step beyond the learner’s present level. According to Krashen’s Comprehensible Input Hypothesis (1982), learners understand language using cues in the situation. The ability to generate language is said to emerge naturally and need not be taught directly. The theory also proposes that the best input for low-level learners might be from other learners, because their input will generally be at a comprehensible level.

The good qualities of simulation and gaming in second language acquisition are apparent in declassrooming the classroom and in the comprehensible input provided to the learner. Scarcella and Crookall (1990) affirm, “Simulation can compensate for the limitations of the traditional teacher-centered classroom by relocating the locus of conversational control and allowing other language models to be introduced and experienced” (p. 228).

These qualities are, however, only two of a stock of virtues that simulation and gaming has for language learning. Another quality concerns how simulation and gaming can facilitate lowering a language learner’s affective filter that influences acquisition. According to the hypothesis originally formulated by Dulay and Burt (1978) and later included in Krashen’s Monitor Theory, the affective variables, such as attitude, motivation, and personality factors including anxiety and self-confidence, act to facilitate or impede the psycholinguistic process by which linguistic data are stored in memory. Krashen asserts that the absence of motivation, low self-esteem, anxiety, and so forth

can combine to “activate the filter” or create a mental block that prevents comprehensible input from being used. When the filter is up, that is, when there is a negative affective disposition, acquisition will be less or lacking.

Schumann (1975, 1978) also drew attention to the importance of the learners’ wishes, feelings, and attitudes in the learning process. Gardner (1985) is well-known for his studies on motivation and the conviction that a process that requires some type and quantity of reidentification to maintain long-term motivation is necessary in second language learning. In this line, many simulations are designed with the potential to create low anxiety environments that foster positive affective learning atmospheres, permitting the participants to try new behavioral patterns with a minimum of stress.

In our opinion, a final element found in simulation and gaming that induces communicative language acquisition is perhaps the most interesting: interaction. Comprehensible input becomes comprehended input through interaction in which the speakers clarify, confirm, repeat, paraphrase, or ask for information. For example, when a listener does not understand, the speaker speaks more slowly, simplifies what he or she has said, changes vocabulary, chooses topics that are more easily understood, uses simpler structures, or checks to see that the listener understands. Hatch (1983) says that to acquire a foreign language the most useful form of interaction is a conversation that has no predetermined (by the teacher or others) outcome and where the results are negotiated among the participants. This is precisely what happens in simulation and gaming.

According to Ellis (1984, p. 14), it is by negotiating the exchange of meaning through conversation that the learner typically obtains information about the target language, which enables him or her to revise the existing interlanguage system. Simulation is an ideal medium for achieving this exchange because it reproduces a real situation that requires the understanding and use of the language that is being acquired, leading to the internalization of new linguistic knowledge.

### **Experiments in simulation and gaming in tertiary education**

The practice of simulation and gaming as a methodological approach guarantees an experiential foreign language acquisition process. In the process, there are certain stages in learning/acquisition that are based entirely on experience and reflection on that experience, focusing on training not only in linguistic abilities but also in social and communication skills considered part of communicative competence, because they provide experience in those aspects directly related to social and communication variables.

Exploring the use of simulation and gaming in foreign language learning on a practical level in Spain, two tertiary institutions, Universidad Pontificia Comillas in Madrid and the Universidad Politécnica de Valencia, were the only significant settings in which there was found to be a fully experiential process. Through the use of simulations and games in these institutions, students use the language they are studying in “real contexts” where notions and functions of the language of study occur together.

This notional-functional concurrence engages the stage of reflection on process found in the experiential learning cycle. Students become so immersed in the simulated events that the use of the language is a real communication tool.

These Spanish institutions used computer-assisted simulations (CAS), in which the computer is a mere instrument for obtaining and exchanging information. Crookall, Martin, Saunders, and Cooté (1986) described CAS as a means that “most effectively encourages experiential learning when the objectives are the human and social aspects of a field of study” (p. 360). They also said that “the greater the participants’ control over the content and form of simulation events and evolution, the less the computer has control; the more inter-participant interaction, the less participant-computer interaction there is” (p. 356). Engineering, law, and business students in English as a Foreign Language for Specific Purposes at the Universidad Pontificia Comillas in Madrid were shown by Rising (1999) to attain higher levels of communicative language ability.<sup>1</sup> Students in Telecommunications Engineering at the Universidad Politécnica de Valencia, which has 7 years of experience in using telematic simulations<sup>2</sup> for learning advanced English, were found by García-Carbonell (1998) to present even more positive results.<sup>3</sup>

Telematic simulation establishes contacts among participating teams through the Internet to create, at least in the case of those used in Valencia, an international forum for negotiation and debate. Like any simulation, telematic simulation has three essential phases. Phase I is the briefing, the preparatory phase in which the general objectives of the simulation are determined. Additionally, in the case of the Universidad Politécnica de Valencia, the different groups within the large group are organized, the individual and group roles are defined and assigned, the different topics of debate are researched and studied, and the papers regarding team policy and position on the issues of debate are drawn up. This phase usually lasts approximately 1 month. Phase II is the simulation proper, the main phase during which discussion and negotiation take place on a local and internal group level as well as openly on an international level using the information obtained in the previous phase via synchronous and asynchronous network communication. This phase can take up to 3, 4, or 5 weeks, depending on the simulation. Phase III is the phase for debriefing, reflection, and evaluation of the preceding phases. Additionally, each of the participants orally reports on his or her portfolio, which is a written, reflective description of the entire activity. The total debriefing phase takes about 3 weeks to allow for the in-class talk sessions, the oral presentations, and the actual writing of the portfolios.

At both universities, communicative language ability is encouraged by providing students with real linguistic situations in which communication produces native-like, imitable language patterns. There is immersion in a situation and immersion in the language, making students’ communication needs become real. Simulations at the Spanish institutions require studying background information, receiving precise oral or written instructions, and participating in oral interaction that are one step beyond the learner’s present level and are the input that is given to a person to comprehend, undertake, and carry out a task successfully.

Another factor that influences language acquisition is affect, which is a type of variable that, if analyzed and accounted for, makes communicative models become less rigid and therefore more effective. When students assume the roles of managers, government representatives, or executives, they use language as a real communication tool. In a simulation, they always have an audience ready and waiting for negotiation to receive their argumentation so that they can plan and take decisions. Interaction in simulation with groups of students from other disciplines in real time, as happens in the School of Telecommunications Engineering of the Universidad Politécnica de Valencia, increases certain affective filter variables such as motivation, self-confidence, and esteem, among others (García-Carbonell, 1998). In the psycholinguistic part of the learning process, negative affective filter variables such as anxiety and stress decrease.

All simulations or games imply performance, and all performance implies interaction. In language simulations, there is, on one hand, full interaction with the language teacher facilitating the activity; and on the other hand, interaction between and among participants or groups of participants. Interaction also occurs because content and task are developed in tandem (Nunan, 1989) and because the abilities to perform tasks are fostered rather than teaching grammar explicitly, thereby focusing more on meaning than on form.

### Conclusion

In the previous sections we have attempted to link simulation and gaming with certain factors that intervene in communicative language acquisition. There are many questions to answer, which constitute the items on our agenda for future research. For example, how does simulation help to improve oral proficiency in a foreign language and how can it be reliably measured? Having experimented with advanced students, does telematic simulation work for lower level students? Does retention of language content vary over time with computer-assisted simulation?

In this article we first reviewed experiential learning and its connection to task-based language learning. After then reviewing the state of affairs in communicative language ability and how to induce its acquisition, we explored initiatives in simulation and gaming used in language programs at the tertiary level in Spain to support the concepts presented. It is clear to us that current thinking in the field of language acquisition ties in very well with simulation and gaming. However, practice of the methodology has yet to become a widespread reality.

### Notes

1. See Rising (1999). This research assessed the effectiveness of computer-assisted simulation in the teaching of vocabulary to students of engineering, law, and business studies. The study sets out to test two basic hypotheses. The first hypothesis is that vocabulary acquisition in English as a foreign language is significantly higher by using simulation than by means of traditional teaching. The second hypothesis is that



computer-assisted simulations show a significantly higher degree of success in terms of learning effectiveness than computer-based simulations. Computer-assisted simulations are examples of free-form exercises, whereas computer-based simulations are more rule-driven learning environments; the computer setting conditions the performing of tasks. The simulations approached the specific vocabulary of each area of knowledge by making the student become an expert in each field of studies, performing as a professional of these fields with decision-taking activities in an enterprise, factory, or court. The simulations created a real situation in which communication and negotiation among students in each working group reflected real life and took place in an atmosphere that allowed errors without additional costs or prejudices to the participants. To confirm initial hypotheses, the study carried out different statistical analyses on empirical data about the effectiveness of simulations. Pre- and posttreatment results of 722 university students in 26 experimental groups and 11 control groups were compared by using four different simulations: three computer-assisted simulations and one computer-based simulation. The experimental groups showed significantly higher levels of vocabulary acquisition at the end of the simulation when compared with conventional groups. The study also proved the greater effectiveness of computer-assisted simulations over computer-based simulations. From this we can infer that computer-assisted simulations may be effective, positive, and motivating for language learning, providing the learners with plenty of opportunities to engage in meaningful discourse. The interaction and communication created by simulations are the kind of exercises proposed by current foreign language acquisition theories to create communicative competence.

2. Project International Dimensions in Education via Active Learning and Simulation (IDEALS), Project International Communication and Negotiation Simulations (ICONS), and Project Intercultural Dimensions in European Education through On-line Simulation (IDEELS). All three projects consist of large-scale, computer-assisted telematic simulations (see Starkey & Blake, 2001 [this issue]).

3. See García-Carbonell (1998). This PhD research had the testing of the effectiveness of telematic simulation in learning English as a foreign language in a technical setting as its main objective. The principal hypothesis was that telematic simulation is an efficient method to improve reading comprehension, listening comprehension, grammar, and writing skills. The first part of this study presents the fundamental assumptions directly related to the theory/methodology of simulation and gaming and the connection to language acquisition. The second part of the study presents an experimental design based on the telematic simulation ICONS. In this simulation, teams from all around the world are involved in bilateral and multilateral negotiations that take place synchronously and asynchronously. The main objective of the experiment was to quantify and compare the results obtained by the experimental groups and the control groups. Statistical results show that experimental groups improved 31% more than the control groups in listening comprehension. In grammar, experimental groups improved 44% more than the control groups. In reading comprehension, experimental groups showed an improvement of 96.8% over control groups and, in writing, the experimental groups improved 395% more than the control groups. These results confirm that telematic simulation is a most suitable tool for foreign language acquisition in the specific setting of the study.

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