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*Iranian Journal
of
Language Teaching Research*

ORIGINAL ARTICLE



Urmia University

Let the Games Begin!

Harnessing the Power of Gaming in Language Education

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ABSTRACT

This article both describes and explains the nature of system simulations—the generation of (non-)numeric models representing characteristics, behaviors, or functions of physical or abstract systems/processes under study. For ease of presentation, I first present some of the most pressing theoretical-practical considerations concerning implications for the gamification of education in general and foreign/second language education in particular. Structural, cognitive, and content affordances of gamified learning are reviewed next, and the relevant knowledge, skills, and dispositions related to the purposeful design and development of digital gaming and game-like activities for classroom or personal use are noted as needed, including the learning behaviors deemed critical in second language acquisition. Thereafter, I discuss how such behaviors are discerned and actualized in the entertainment/education software collectively named system simulations, the pedagogical benefits attained through their judicious use, and the key features of some notable reacting games, (real-time and turn-based) strategy games, simulation “sandbox-style” games, and, finally, single-player simulation computer/video games. I conclude the article with a brief summary of propositions deemed best to harness the power of gaming in foreign and second language education. Evolution, curiosity, and discovery are but three closing constructs I ask readers to heed in the months and in the years ahead.

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ARTICLE HISTORY

Received: 5 June 2021

Revised version received: 25 May 2022

Accepted: 26 May 2022

Available online: 1 July 2022

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10.30466/ijltr.2022.121180

Introduction

Altius ibunt qui as summa nituntur.

(They will rise highest who strive for the highest place.

Latin Proverb)

Over the last three decades, I have advanced cogent arguments in favor of developing games and game-like approaches in teaching foreign and second languages. From TELE-QUICK and TELEPEDIA to ZOOMANIA and IT'S ALL GREEK TO ME! (Liontas, 1992a, 2002, 2009), the original caveat has remained the same: the developmental framework of incorporating well-designed games or gamification approaches into curricular lessons must proceed without sacrificing basic pedagogical principles of either teaching or learning. To maximize language learning, said frameworks must (1) address learners' *Lernvergnügen* experience (Liontas, 1992a); (2) promote the judicious development of proficiency-based game approaches (Liontas, 1992b); (3) spearhead innovative play with a purpose and for a purpose (Liontas, 2001); (4) involve multisensory language modalities within accepted parameters of learning for both language and content-based instruction (Liontas, 2002, 2009); and, finally, (5) pursue gamified language learning in the classroom and beyond, from elementary school through adult education, as a pedagogical construct that does not stifle intellectual vitality or individual exploration (Liontas, 2020). Combined, these five considerations alone, as the literature to date has shown (e.g., Peters et al., 1998; Reinders, 2017; Reinders & Wattana, 2014; Tobias & Fletcher, 2007), epitomize learning through meaningful experiences, ensure prolonged student engagement, focused attention, and increased knowledge recall and motivation, and, more importantly, perhaps, revitalize the learning environment in significant ways. Even at the doctoral level, among adult learners who are pursuing careers in academia or business, game-based learning and gamification hold much promise still.

Against the backdrop of such information, this article addresses the application of a cognitive-constructivist approach to gaming. Said application, it is argued, helps students co-construct new spaces for reflective learning. System simulations are first used as explanatory material to frame the issue of digital gaming for instructional purposes irrespective of the variety of learning formats and modes of delivery (face-to-face, blended, hybrid, remote, synchronous, asynchronous, flipped learning). Thereafter, I discuss the pedagogical benefits attained through the judicious use of such simulations, in particular the key features of some notable reacting games, (real-time and turn-based) strategy games, simulation "sandbox-style" games, and, finally, single-player simulation computer/video games, in an effort to solidly anchor the arguments in favor of utilizing language and content-based games in the classroom and beyond. Where appropriate, details will be given or referenced before final remarks are made in favor of harnessing the power of gaming in foreign and second language education.

To Play or Not to Play? Some Theoretical and Practical Considerations

Not to repeat information covered elsewhere already, but it bears repeating that "not all games are created equal and not all games are trivial entertainments" (Liontas, 2020, p. 2). Indeed, "[s]ome games are best suited for entertainment purposes only, others as tools for cognitive development, and still others for social interactions and competition" (Liontas, 2020, p. 3). Concerning the implications for the gamification of education in general and foreign and second language education in particular, it is worth noting that, based on the available empirical evidence and research to date (see, for example, Liontas, 2020, 2021), there are certain structural, cognitive, and content affordances of gamified learning that necessitate a second look, including, but not limited

to, appropriateness (of content, context, or both), investment (of time and effort), autonomy (in self-directed achievement), accessibility (to diverse products and experiences), and discovery and exploration (of individual actions, real-world activities, and built-in reward systems). These five affordances alone make real-time gamification—the purposeful application of critical reflective thinking involving gamified features, qualities, and techniques to other non-game areas of cognitive activity in order to encourage active engagement with and participation in immersive content learning—a dynamic tool in the hands of those who, striving to attain exclusive learning milestones, rush to leverage their own constructs of learning, self-empowerment, and productivity improvement. (For a fuller discussion of these affordances, see Liantas, 2020, pp. 5-6 and Liantas, 2021.) They remain keen in charting their own learning progress via measured accomplishments that both incentivize and drive ever higher levels of interactive experiences and performance metrics attesting distinct gameplay design elements and user interface behaviors.

A game's appeal, usability, and clarity of instructions ultimately determine user attitudes and affect, chiefly when game-like elements are resolutely applied in non-gaming contexts. Consequently, students' perception of game-like elements directly impacts their level of enjoyability, interests, engagement, relevancy, and even confusion. Instructional/conceptual design and technical requirements, while of no less importance than user interface and graphic design, equally contribute to the appraisal of gamified conditions believed to be ideal for learning and language acquisition, respectively. Especially those conditions proven effective in enabling students to advance most efficiently from an isolated, artificial learning context to an authentic, real-world context demand unremitting consideration by all (Herrington et al., 2014). The many design elements commonly embedded into the design architecture of a digital game played online (e.g., points, badges, leaderboards, levels, stages, performance graphs, progression bars, progress charts, prizes, awards, online profiles) serve as primary catalysts toward greater levels of engagement, excitement, (virtual/augmented/mixed) immersion, emotion, competition, cooperation, collaboration, self-determination, social interaction, networking, sharing, risk tolerance, advancement, motivation, gratification, anxiety, stress, empathy, inhibition, fear, envy, pleasure, performance, achievement, success, competence, mastery, autonomy, exploration, discovery—and the list is far from complete still.

It is, therefore, logical to postulate that the application of even a cursory understanding of how knowledge, skills, and dispositions related to the purposeful design and development of games and game-like activities for classroom or personal use, regardless of type or configuration, is a far better alternative than asking students to invest time and effort in material that is predominantly instructor- or textbook-centered rather than learner-based and learner-centered. And because effective teachers enable all students to learn, it is of critical importance that teachers and students alike take time to have frank discussions about the place of games and simulations in the curriculum so as to curtail any possible misconceptions and/or misunderstandings of games as time-consuming vehicles that waste valuable instructional time when “other” more pressing things could be taught and learned instead (Bourgonjon et al., 2010; Rettberg, 2004).

Time constraints aside, developing an understanding of, and proficiency in, the variety of meanings inherent in (digital) games intended for classroom use and linking those meanings in a purposeful way to the language skills and to the (meta)cognitive and social/affective strategies needing prime attention during class time can potentially be highly satisfying to those who are asked to use them and interact with them, even to those appearing to be skeptical and reticent at first. As already noted, “some games can be played individually while others are best used with small groups of students, and still others can be modified for larger groups” (Liantas, 2020, p. 3). To be sure, helping learners to actively interact with and manipulate the content or skills they are learning while employing self-regulatory strategies to plan, monitor, and evaluate a learning task is as important as asking students to use affective control to assist and enhance learning while working with others to share information, obtain feedback, and complete a task (Chamot et al.,

1993; Chamot & O'Malley, 1994; Chamot et al., 2005; O'Malley & Chamot, 1990; a comprehensive list of 132 games and activities English teachers have found to benefit ESL/EFL students is easily accessible under <http://iteslj.org/games/>, a project of The Internet TESL Journal).

In so doing, students engage in learning behaviors purposefully imbedded in a transitional constructivist approach to education. To begin, students discard their traditional roles as passive learners to seek active/experiential learning via participatory reflection and/or proactive/planned action. This change of roles in learning—from passive, artificial learning to active, exploratory, and inquiry-based learning—requires them to construct their own funds of knowledge and partake in introspective experiences that promote transformation of learning environments within emerging zones of proximal development, that is, what a learner cannot do, even with help vs. what a learner can do independently (Clapper, 2015; Kinginger, 2002; Kristian, 2007; Vygotsky, 1978, 1986). Through dialogue, according to Vygotsky (1978, 1986), collective knowledge building is co-created between and among people in their collaborative attempts to construct meaning. Perhaps most striking, transformations of this sort result in learning behaviors that necessitate students not only remember, understand, and apply heretofore acquired knowledge, skills, and dispositions to such experiences, but that they equally analyze, evaluate, and create new spaces of immersive learning in rational multisensory forms promoting maximum manipulation, enhanced interactivity, and dynamic gaming constructs. (For a helpful classification of learning outcomes derived from computer games literature, see O'Neil et al., 2005; for AR, VR, MR, XR immersive experiences, see Liontas, 2021.)

Within these parameters then, students begin to exhibit a host of learning behaviors deemed critical in second language acquisition: invitational, heuristic, and informative learning becomes explanatory, implicative, and analytical in nature before it transforms into critical, interpretive, and argumentative (in the legal or rhetorical sense) and, ultimately, into reflective and exploratory. For optimal results, the application of a cognitive-constructivist approach to gaming—involving theories of gaming, information processing, and problem solving by analytic, introspective, or interactive learners—has to facilitate the development of linguistic and pragmatic skills and competencies the game or simulation is addressing while concurrently supporting the (meta)cognitive processes involved in these skills and competencies. (For a classic account of the architecture of cognition, see Anderson, 1983; see also Anderson et al., 2004).

It is important to underscore here that the nature of linguistic knowledge involves far more than only knowledge of grammatical forms—knowing what form it takes (Chomsky, 1957, 1965). It also involves how it functions; that is, how linguistic forms are functionally motivated, and the complex ways in which words as units of meaning interact with syntax. Far more importantly, because the essential nature of language is cognitive, language serves as a means of communication and social control internalized in the mind as abstract knowledge. As a social/cognitive and psychological phenomenon then, language must be experienced in the external world as actual behavior where language is fashioned as systems of signs to meet the elaborate cultural and communal needs of human societies. Save for direct interaction with others who are linguistically and culturally different from oneself, nowhere is this behavior more discernible and actualized than in the entertainment/education software collectively named SYSTEM SIMULATIONS. These simulations, and the pedagogical benefits attained through their judicious use as a promising arena for education in general and language learning in particular, are discussed next.

More Than Just Games: System Simulations

Using computers to model, imitate, or simulate the operations of real-world tasks or hypothetical situations or processes, system simulations generate both numeric and non-numeric models representing the key characteristics or behaviors/functions of the selected physical or abstract system or process under study for the purpose of describing or displaying complex interaction characteristics among multiple variables within the operation of the system over time. They are used to virtually study and test the fidelity and validity of the simulation outcomes and to show the consequent real effects of alternative conditions and courses of action based on relevant approximations, assumptions, and predictions within the simulation itself.

To date, the field of education has been the direct beneficiary of a great many system simulations. Platforms of integrated software and hardware components allow users to become “virtually” immersed in the microworld of the simulated system under investigation. Using body tracking, voice/sound recognition, and physical controllers, for example, to enter input and visual, aural, and/or haptic displays to receive output from the system, users are able to create viable constructions and varied modes of interaction focusing on specific tasks, processes, or abstract concepts within the simulated world or environment (see here Chen et al., 2011; Dawley & Dede, 2014; Hew & Cheung, 2010; Hsu et al., 2014; Oliver & Carr, 2009; Pfeil et al., 2009; Sockett & Toffoli, 2012).

Consistent with the concepts being modeled, Social and Science Simulations often employ social, environmental, and political processes in ecology, biology, sociology, anthropology, political science, history, or economics to teach, for example, social science or science, physics, and math education concepts related to global warming and the future of energy (Belloni et al., 2007; Christian, 2006; Cuenca Lopez & Caceres, 2010; Kordaki, 2003; McCall, 2012; Papastergiou, 2009; Saye & Brush, 2002; Van Eck, 2006; White & Frederiksen, 1998; William & Havercroft, 2012). Moreover, in Civics Simulations, based on fictitious political systems or current or historical events, users can assume roles in a simulated society and engage in negotiations, alliance formation, trade, diplomacy, and the use of force in international relations simulations (Childress & Braswell, 2006; Peterson, 2010a, 2011; Rankin et al., 2006; Rankin et al., 2008; Stroessner et al., 2009; Wu & Richards, 2012; Zhao & Lai, 2009). In fact, the *Reacting to the Past* series of historical educational games is a prime example of reacting games, or role-playing, experiential education games set in the past focusing on student debates about great texts (e.g., Case Studies, Live Action Role-playing, Educational Debating, Model United Nations, Historical Simulation Games, Economics Simulation Games) addressing science, history, and math education. According to Stroessner et al. (2009), students participating in reacting games, in comparison to controls, gain an “elevated self-esteem and empathy, a more external locus of control, and greater endorsement of the belief that human characteristics are malleable” (p. 605). (For *Reacting to the Past: STEM Games*, visit <https://sites.google.com/site/reactingscience/>; to browse the Big List of Reacting Games, visit <https://reacting.barnard.edu/resourcehome/instructor>.)

The importance of reacting games notwithstanding, strategy games abound both as tabletop board games or video/computer games and are enjoying wide appeal by young and old alike (Anderson et al., 2008; Ang & Zaphiris, 2008; deHaan et al., 2010; Gee, 2007a, 2007b; Shaffer, 2006; Squire, 2003, 2006). Chess and checkers are strategy games, as are other board games like Risk. Produced by Parker Brothers (now a division of Hasbro), Risk, the game of global domination, is a strategy board game for 3-5 players played on a map of the Earth with a game board, 5 armies with 40 infantry, 12 cavalry and 8 artillery each, a deck of 43 cards, 5 dice, and two reference cards and rules. Simply stated, a strategy game or strategic game is any computer game where the outcome is determined solely by the choices of action a player makes about the entire game rather than professing to be a particular character. That is, unaware of the other players’ actions, each player, under specified rules and a player profile, makes quick, autonomous

decisions and selects an action from a finite set of actions. Akin to the tactical skills exercised during chess play, players use tactical skills and strategies to win the game: moving troops and resources around trying to outmaneuver the troops of the opposing player, engaging in military confrontations to enjoy battlefield domination by conquering new territories, formalizing intent-focused systems and procedures, and seeking to gain the ultimate competitive edge by applying intuition, creativity, strategic thinking/planning, and situational awareness respecting time and space, to name but the four most important skills and strategies.

While not all strategy games are war simulations, many are categorized as “war games” given the strategic nature of the game. Consequently, scheming, skillful thinking/planning and directing large military movements and operations, and strategic resource management become the cornerstone of success. Encompassing several types of games, strategy games are one of the most popular genres of video games and include real-time strategy (RTS) games (e.g., Starcraft, League of Legends, Age of Empires) and turn-based strategy (TBS) games (e.g., Total War, World of Warcraft, Civilization, and Heroes of Might and Magic). In RTS games, one or more characters move across a real or imaginary topographical/terrain map in real time utilizing and managing resources and winning specific locations of strategic importance on the map. In contrast, in TBS games, the player formulates his moves while the game is on pause before reacting to the action at hand. World of Warcraft, for example, has already received much attention as concerns the language and the nature of the social/collaborative play found in the game (see, for example, Bryant, 2006; Lindh, 2009; Nardi & Harris, 2006).

Making History is yet another prime example of a turn-based strategy game. According to the posting on <http://www.rlslog.net/making-history-the-calm-and-the-storm-gold-edition-skidrow/>,

MAKING HISTORY is a series of counterfactual turn-based strategy games in which players apply their strategic skills to lead their chosen nation through real-world periods of conflict. The goal is not to replay history exactly as it happened, but rather to operate in an unpredictable, player-driven world. Virtually any country is playable across a variety of the game’s bundled scenarios, and players can use the MAKING HISTORY Game Editor to create new scenarios of their own, offering endless hours of gameplay.

Simulation games—including Flight Simulation and Driving Simulation games—represent or simulate an environment accurately; that is, they represent the interactions between the playable characters and the environment realistically. These kinds of games are usually more complex in terms of game play and the interaction between the environment and the playable characters is represented realistically and is fully immersed inside the multidimensional/ multilayered simulation itself. (For a discussion of how the use of games and simulations can benefit learning, see de Freitas, 2006; for a comprehensive meta-analysis of research concerning computer gaming and interactive simulations for teaching, see Peterson, 2010b and Vogel et al., 2006). Moreover, most “sandbox-style” games, for example, Viva Piñata, Zoo Tycoon, Rollercoaster Tycoon, Tiger Woods PGA Tour, Assassin’s Creed, and Minecraft, involve a strategy element. In these types of games, also known as open-world games or free-roaming games, players use their decision-making skills to make choices regarding how best to achieve the goals pursued or how best to manipulate the world within it for maximum effect. Not surprisingly, simulation games of this sort have become incredibly popular among players of all ages, with Minecraft being quite possibly the world’s biggest sandbox game on the market. (Created in 2009 by Markus “Notch” Persson, and beloved by millions of users, Minecraft and developer Mojang were bought by Microsoft for \$2.5 billion in November of 2014; see also

<http://www.engadget.com/2014/09/19/microsoft-buying-minecraft-explanation/>.)

SimCity is yet another popular real-time strategy game deserving mention here. Originally designed by developer Will Wright and first published by Maxis in 1989 (now a division of Electronic Arts) as a single-player game, SimCity is an open-ended city-building computer and console video game series spawning several different editions (i.e., SimCity 2000, SimCity 3000, SimCity 4, and SimCity 5) and many other spin-off “Sim” titles (SimEarth, SimAnt, SimLife, SimFarm, SimHealth, SimGolf, SimTown, SimTune, SimIsle, SimCopter, SimThemePark, and Streets of SimCity), including the best-selling computer-game, The Sims, a franchise in its own right with several add-on packages (The Sims 2 and The Sims Online) and sequels.

SimCity remains the iconic urban planning computer game and is one of the most notable video games to incorporate systems simulation in a synthetic environment. The game’s main goal is for players/users to design, manage, and maintain the city of their dreams by manipulating whole virtual systems—from a small rural community to a lively megalopolis. To this end, users are provided with a set of Rules and Tools that describe, create, and control a real or imaginary System simulating the multiple systems of a functioning city including, but not limited to, education, jobs, public safety, public transportation, streets and roads, population growth, water, sewage, electricity, crime, taxes, and social interactions among its residents. The Rules to learn are based on city planning and management, resources deployment, factors influencing land value, human factors, strategies for dealing with disasters, unemployment, crime, pollution, city traffic, and the quality of life in a city. Conversely, the Tools afford users the ability to plan, layout, and zone, bulldoze, and re-zone a city; build roads, airports, and seaports; set up and maintain a power grid; and even lay waste and ruin by unleashing natural disasters.

Acting as Mayor and City Planner with complete authority, players/users must work out how the system works and take control of it within the framework and limits provided by the Rules and allowed by the Tools. Within the Simulator itself users can test their plans and ideas as they watch their city grow into a bustling metropolis or shrink through the immigration and emigration of industrious Sims—Simulated Citizens—who will move in and build homes, hospitals, churches, stores, and factories, or move out in search of more competitive jobs or a better life elsewhere. The success or failure of a city depends on the user’s design and management skills to see the city grow and flourish or deteriorate and wane. The freedom to use the Tools to create and control an unlimited number of Systems is easily apparent in the original Foreword of the 78-page 1989 Manual and emphasized again in the 2014 Manual:

From <http://users.ox.ac.uk/~uzdm0006/scans/sim/manual.html> (1989 Manual of SimCity)

Enter SimCity and take control. Be the undisputed ruler of a sophisticated real-time City Simulation. Create your own dream city (or dream slum) from the ground up. Whether you take over an existing city or build a new one, you are the Mayor and City Planner with complete authority. Your city is populated by Sims - Simulated Citizens. Like their human counterparts, they build houses, condos, churches, stores and factories. And, also like humans, they complain about things like taxes, mayors, taxes, city planners and taxes. If they get too unhappy, they move out; you collect less taxes, the city deteriorates.

From http://futurecity.org/sites/default/files/simcity_manual_0.pdf (2014 Manual of SimCity)

Welcome to the City — In SimCity, you are the mayor of your very own city. You’re the one who draws roads and zones and manages everything from health and safety, to education, industry and beyond. The more your city grows, the more you need to manage. It’s an exciting challenge, and we’re here to help guide you through everything you need to know to get started!

But SimCity is not alone in its ability to combine system simulations, regardless of type, with higher-order thinking/strategic skills, excitement, and learning to deliver masterfully conceived microworlds promising endless hours of gameplay, fun, and enjoyment. Fantastic opportunities, incredible challenges, unpredictable player-driven worlds, and a host of diverse features and scenarios abound in many interactive simulation games awaiting discovery and personal engagement.

And yet, nothing of this sort is impossible in the game simulations here discussed. For example, in *Real Lives*, a 2001 educational video game developed by Educational Simulations and now taken over by Neeti Solutions, Pune, India, marketed as the largest gamified simulation engine of human experience on the planet, users can randomly select the persona of any person on earth in any of over 190 different countries. (Several other series releases followed in 2004, 2007, and 2010.) From the moment of birth until they die, users of this unique, interactive first-person life simulation game can “experience life as a peasant farmer in Bangladesh, factory worker in Brazil, policeman in Nigeria, lawyer in the United States, computer operator in Poland, or any of thousands more...” (<http://www.educationalsimulations.com/products.html>). Below I offer an even more detailed description from the release of the *Real Lives* 2010 version, which is now aligned with national content standards:

From <http://www.educationalsimulations.com/products.html>

reallives 2010 is a truly unique, content rich and empathy-building real world, real life simulation that challenges your life skills (not your hand-eye coordination) as you make difficult, high-stakes choices that lead to your success, or failure.

“The best way to learn about life in other countries short of going there!”

You might be born anyone, anywhere on Earth. You might die as an infant, you might make it to old age. You might be able to marry the person of your dreams, and have a rewarding job, or you could be stuck in poverty. Be born, live an exciting life, and die. Then do it again. And again. Learn about the world as you live your *Real Lives* around the world, one life-altering decision at a time. Both a fantastic opportunity and an incredible challenge, reallives 2010 makes the world come alive on a personal and global level, one life at a time, right on your desktop!

By taking advantage of the system’s many exciting features and interactive tools—“a totally redesigned and modernized user interface, 3D animated graphics of all faces in the simulation, family trees, graphs of personal and country statistics, integrated Google Maps and Flickr photos, and more”—users are able to live these persons’ lives, hopes, and dreams; assume their occupations and living conditions; and partake in their social and family activities through available statistical data and life-changing real-world events. Not only can students/players live one of billions of lives in any country in the world or emigrate from one country to another, far more importantly, students can exercise full control over and manipulate the simulated learning experience itself to develop equally global empathy and intercultural appreciation. As claimed on the game’s website, the world comes alive before their very own eyes “on a personal and global level, one life at a time”:

From <http://www.reachandteach.com/content/article.php/20070812144013999>

Through statistically accurate events, *Real Lives* brings to life different cultures, political systems, economic opportunities, personal decisions, health issues, family issues, schooling, jobs, religions, geography, war, peace, and more. As your students make decisions for their characters and

experience the consequences of those decisions they will learn about the world and gain an increased appreciation of their own culture and the cultures of other peoples.

Cross-cultural adaptations and intercultural sensitivity across cultural boundaries interconnect with basic civics and social compromise to facilitate and inspire learning and creativity, the latter of which must be experienced first-hand if students are to engage in truly thought-provoking civic citizenship and social responsibility (Adam, 2008; Thorne, 2008; Thorne et al., 2009). “Think Globally, Act Locally” is a well-accepted slogan within social sciences curricula, especially at the secondary level—I have been using it myself ever since 1989 when I began my academic career in second/foreign language education—that can easily be put to the test in *School Tycoon*, a final strategic game deserving attention here.

Developed by Cat Daddy Games in 2004 and published by Global Star Software, *School Tycoon* is a single-player simulation computer/video game that challenges students with a series of school-themed scenarios to make some difficult decisions in building the school they most desire. Armed with 24 school-themed scenarios and tools for controlling the progression of level difficulty through variable speed controls and settings, students/players can accelerate the pace of events to manage, through controlled experimentation, the variables affecting building layouts and placements, construction costs, finances, personnel hiring, student enrollments, school subjects, classroom sizes, academic buildings, entertainment buildings, sports facilities, and other structures. (Rollercoaster Tycoon, and others in the series, teach similar concepts in a business setting.) As the game developer self-proclaims, players can run their school any way they wish:

From <http://www.amazon.com/School-Tycoon-PC/dp/B0001D7NYC>

Run your school any way you want to in *School Tycoon*. Build your school, complete with dormitories, classrooms, library, administration offices and athletic facilities. Populate the school with teachers, and attract students to your new institution of higher learning. Upgrade the cafeteria, improve the landscaping, and add entertainment options to increase your popularity with the students. Check up on your students and make sure they are learning or it's off to the detention center.

Collectively, the immersive experiences heretofore discussed redefine the genre of gaming in important new ways no matter the theoretical or instructional premise. (For a discussion on the design of virtual worlds, see Bartle, 2003; Liontas, 2009; Squire et al., 2003). Perhaps more importantly, they add real-world education value and captivating simulation for any age to traditional teaching methods upholding abstract language learning and content knowledge long believed commonplace and abstruse. Not surprisingly, students of all ages (and even adults) enjoy playing these games for hours on end. In short, simulations may indeed be our best collective opportunity to co-construct new spaces for reflective learning that are as alluring as the sparkle in a child's eye yet only as limited as one's own imagination across time and space.

Conclusion

Altius ibunt qui as summa nituntur (They will rise highest who strive for the highest place) — a simple, short Latin proverb, indeed, but equally an essential saying whose truth and practical precept of the experience of humanity is not lost in the pages of this article on games and the power of gaming in language education. Herein, I put forth the argument that to enhance foreign and second language learning and development, teachers must first transform the learning environments in which they work and teach, especially the ways through which students are asked to demonstrate growth in language proficiency. But doing so requires a move away from tried-

but-failed traditional strategies of teaching and learning over to new dynamic constructs allowing for the seamless integration of multisensory gaming activities and simulations meriting serious consideration by teachers and students alike.

By making the gaming experience the centerpiece of discussion and discovery, I argued for a move away from teacher-centered instruction to student-centered learning, from single sense stimulation to multisensory stimulation, from single path progression to multipath progression, and from single media to multimedia. Such transformation of learning environments directly impacts the climate of learning and the gaming products students ultimately employ: isolated work becomes collaborative work; language and content knowledge become communication and information delivery acts; and passive, artificial learning becomes active, exploratory, and inquiry-based learning.

A series of theoretical and practical considerations involving curricular and pragmatic parameters followed. Notable samples of system simulations—from reaction games to strategic games to simulation games—were offered to highlight the need for teachers to help their students make better decisions regarding learning through age-appropriate games befitting their intellectual development, thereby transforming their thinking on the value of gaming during class time. Throughout, it was argued that a move away from factual/literal thinking to critical thinking and informed decision-making and from reactive response to proactive/planned action can lead to the design and development of effective language and content-driven games and gamification activities able to withstand the test of time. The games cited in this article—from Civics Simulations to School Tycoon—provide ample evidence of this. And while new mobile, PC, and console gaming, esports included, the majority of the world's leading games, media, hardware, and entertainment companies release almost daily to an estimated 2.6 billion mobile gamers in 2020 alone hoping to surpass \$200 billion in sales by 2023 (visit <https://newzoo.com/insights/articles/newzoo-games-market-numbers-revenues-and-audience-2020-2023/>), it is wise to heed the warning expressed in the oft-quoted phrase, Don't throw the baby out of with the bathwater. Games that have withstood the test of time should not be "thrown out" on the account that they are "old" or not as popular or shiny as the latest videogame Minecraft or mobile game Pokémon Go, for example. After all, "All that glisters is not gold—Often have you heard that told.," as William Shakespeare wrote in the 16th-century play *The Merchant of Venice* (Act II, Scene VII, Prince of Morocco)—an aphorism deserving much attention here.

These two warnings aside, it bears repeating here that learners learn best when the games they are asked to employ reflect their needs and interests and when they are given the freedom to express themselves in their own individual ways. By putting the learner first, teachers can take a closer look at the quality of the learning experience itself; that is, how effective the teaching, training, and learning of specific language skills and/or content knowledge is and how well learners achieve and, by extension, make objective adjustments in content and learner behavior where needed most. The end result is a targeted learner-centered experience based on informed choice that is flexible and responsive enough to meet students' different learning styles and preferences, thereby enabling a lifelong learning habit worthy of true sportsmanship. A tall order indeed, but possible I would argue, so long as teachers and students remain cognizant of both the constraints and affordances of gaming systems and the integral role these systems can play in the classroom and beyond in challenging long-held assumptions and normative expectations about how things should be done. The efficacy of such games in improving learning outcomes not only promotes the development of knowledge transfer and skill acquisition, it decidedly emboldens teachers to leverage the participatory simulations and experiences for authentic learning purposes. The challenge for all involved is to use the tools and resources at their disposal at a time when it is appropriate and most effective to use them.

Built for ongoing change, games and simulations, when played with a purpose and for a purpose, become the embodiment of the perfect symbiotic relationship of the dynamic process of inception, conception, design, development, and implementation at the basal and more advanced levels of language instruction. Above all, it is worth noting, the design, development, and integration of games and simulations across the curriculum cannot proceed in isolation from the greater process of learning and acquiring language in authentic contexts, including virtual, immersive gaming contexts. Nor can it proceed unchecked even by well-meaning teachers who for too long have wished to make teaching and learning fun and reflective in nature.

I could go on and offer additional thoughts on games and gamified learning but the point remains: games, in all their variety and complexity, fulfill a most vital function both inside and outside the language classroom irrespective of learning formats or modes of delivery. Not taking full advantage of their potential for learning, all types of learning that is, deprives students of the opportunity to critically consume and produce language and content knowledge while having loads of fun. In the end, the halls of learning—from elementary schools to universities and beyond—are filled with laughter, excitement, and energy not easily realized in or experienced with less flexible, conventional formats of instruction. Teachers and students alike can only ponder the possibilities awaiting them, measure their collective resolve, and redefine the conditions of learning for all involved that no doubt will galvanize and hasten the transformation of their K-16 curricula into lush green oases of online/offline learning worth pursuing in the years ahead.

To such rewarding pursuits, and to all those language professionals wishing to harness the power of gaming in foreign or second language education, I humbly offer this closing but laconic advice: Let the games begin! Let learning evolve! And let curiosity illuminate the path of discovery always!

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