



GAMING THE SYSTEM: UN JUEGO DE GASOMETRIA

Project Purpose

The purpose of this project was to challenge the expertise of an uncommon disciplinary team to create a digital game prototype for Accelerated BSN nursing students as a practice tool for mastering concepts of arterial blood gases (ABGs) in English or Spanish. Using a fun and engaging platform, the team aimed to create a game where the qualities of playing the game, as opposed to the specific content, were developed by millennials for millennials. For this project, the definition of serious game was adopted from (De Freitas, 2006) who defined a serious game as “a pedagogical tool with a purpose, moving beyond entertainment, to deliver engaging interactive media to support learning in its broadest sense.”

Background

Concepts of homeostasis are foundational building blocks for applying basic principles of safe care to patients of all ages. The analysis and interpretation of arterial blood gases poses a challenge for most nursing students and can be difficult content for practicing nurses (Barnette, 2013; Schneiderman, 2009). There is limited research on the outcomes of using serious games with nursing students, yet a game-based approach for the delivery of academic content has the potential to secure key learning principles (Gee, 2007). A well-crafted game inspires intrinsic motivation for mastery and success while permitting learners to take risks in a virtual world where failure is not penalized and real-world risks are minimal.

Mastery of foundational concepts in nursing, such as ABGs, relieves the mind of the cognitive load (Hattie, 2014) required to think about each concept when engaged in a more complex problem such as one that integrates pathophysiology, disease and the delivery of care. In fast-paced accelerated nursing programs, mini serious games (Prensky, 2008) that are designed to target mastery of one concept may provide an effective means with which to support learning.

Objectives

1. To create a digital game prototype for use as an innovative game-based learning method for ABSN student retention.

2. To create a digital game prototype for use as a teaching tool to teach concepts of ABGs, to accelerated nursing students.
3. To create a dual language digital game prototype to support both underrepresented Spanish-speaking learners and non-native speakers.
4. To engage in intercollegiate and interdisciplinary collaboration for the purpose of integrating innovative use of digital technology in the classroom.
5. To create a mini serious game prototype where the qualities of playing the game, as opposed to the specific content, are developed by millennials for millennials.



Results

This project resulted in a fully functional, unbalanced game prototype. The game was deemed an effective tool for teaching ABG content by its play testers. Play testers played competitively with each other, an important component of well-constructed games. Of significance, and an outcome of student surveys and focus group discussions, was the addition of feedback at several points during the game. Adding these steps effectively tied signs and symptoms to ABG values in a way that no other tool the students reported using in the past had achieved. Students indicated that feedback for correct responses and rationale for incorrect responses was essential for generating feelings of self-efficacy. Spanish-speaking students reported enjoying game play in Spanish and improved performance during play.

Conclusions

Mini serious games that focus on securing a singular concept may have the potential to provide essential remedial support for more complex games popularized as virtual simulation experiences for nursing students. The experience of creating a game is a powerful tool for learning concepts. During the making of *Gaming the System: Un Juego de Gasometria*, game design and development students mastered the basic elements of ABGs nearly as well as nursing students. Interdisciplinary teams that represent a broad range of perspectives and skill sets face great challenges but retain greater potential for creating meaningful outcomes and advancing nursing education.

The Project Team: It Took a Village

Twenty-four members constituted the project team including nursing faculty from two universities, game design and development faculty, foreign language faculty, game design and development students, and Accelerated Bachelor of Science in Nursing students.

Project Concept

Cory Ann Boyd, Jonah Warren, Mary Ann Glendon, Jennifer Rafferty, Ron Burgess (Game Design & Development Student)

Project Management

Jonah Warren, Cory Ann Boyd, Mary Ann Glendon

Programming

Ron Burgess (Lead), Ryan Schwarz (Game Design & Development Student)

Art

Colin Winders (Game Design & Development Student), Jonah Warren

UI

Ron Burgess, Jonah Warren

Content Experts

Barbara Glynn, Cory Ann Boyd

Spanish Translation

Jennifer Rafferty, Sarahi Almonte (Quinnipiac University *New Careers in Nursing* Alumni Scholar)

Playtesting completed by Accelerated BSN Students

Kayla Cromidas, Quinnipiac University NCIN Scholar
Fredrick Etroo, Southern Connecticut State University NCIN Scholar
Jonathan Gaddis, Quinnipiac University NCIN Scholar
John LeBlanc, Southern Connecticut State University NCIN Scholar
Christine Moise, Quinnipiac University NCIN Scholar
Ravshandzhon Nazhmiddinov, Quinnipiac University NCIN Scholar
Maria Pacheco, Southern Connecticut State University NCIN Scholar
Karina Perez, Southern Connecticut State University NCIN Scholar
Darren Pipitone, Quinnipiac University NCIN Scholar
Alison Shea, Southern Connecticut State University NCIN Scholar

Chloe Donaldson, Quinnipiac University Accelerated BSN Student
Michelle Inahuazo, Southern Connecticut State University Accelerated BSN Student
Mario Johnson, Quinnipiac University Accelerated BSN Student
Xuanthao Nguyen, Quinnipiac University Accelerated BSN Student
Martin Rajcok, Quinnipiac University Accelerated BSN Student
Marlene Siegel, Quinnipiac University Accelerated BSN Student

Acknowledgments

This project was supported by the *Robert Wood Johnson Foundation New Careers in Nursing* Innovation Award, Quinnipiac University School of Nursing and the Department of Game Design & Development, Visual & Performing Arts and Southern Connecticut State University Department of Nursing.

Many thanks to Gregory Garvey, department chair, Game Design & Development, Visual & Performing Arts, for bringing the project team together and to Janet Headley, director of Corporate and Foundation Relations, Quinnipiac University, who encouraged us to play games!

Our sincere & heartfelt thanks to our students whose spirit and wisdom is at the very heart of this project.

Correspondence concerning this project should be addressed to:

Cory Ann Boyd, Quinnipiac University School of Nursing: cory.boyd@quinnipiac.edu

Mary Ann Glendon, Southern Connecticut State University Department of Nursing:
glendonm1@southernct.edu

Jonah Warren, Quinnipiac University Department of Game Design & Development, Visual & Performing Arts: Jonah.warren@quinnipiac.edu

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