

# ***Program with Ixquic***

How to Learn Object-Oriented Programming with a game.

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**Abstract—** In this paper we want to describe advances reached in the game design and implementation related to *Serious Game: Program with Ixquic*. We present a work in progress about this videogame.

*Program with Ixquic*, has two main purposes: developing programming skills for every user that interacts with this videogame, where virtual scenes created in 2D dimensions presents *Object-Oriented Programming* concepts through the development of examples and exercises in *Java Programming Language*.

**Keywords**—*Educational Games, Serious Games, Game Design, Learning Object-Oriented Programming, Games, Virtual Reality*.

## I. INTRODUCTION

The name of this videogame *Program with Ixquic* comes from Quiché Mayan Folktale of the Sun and the Moon, a prehispanic tale where is related how in the beginning of the time was the creation of the Earth, Sun and Moon also *Ixquic* is the name of a Mayan princess.

The game aims to improve a user's programming ability when interacting with it. The objective is that while the user plays at the same time improves cognitive skills and learns programming techniques understanding OOP concepts [1],[3]. With this game we wanted to address several questions:

1. Is it possible enhance and improve user skills in certain subjects and programming concepts through a Serious Game?
2. What is the relationship between Serious Games and learning?

3. How can players be motivated to be apprentices, and how to find an optimal balance between entertainment and learning?

### Serious Games:

“Serious Games are a mental contest, played with a computer in accordance with specific rules, that uses entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives. [1]”

### Virtual Reality:

“Virtual”: the virtual word comes from medieval latin *virtualis*, which in turn derives from *virtus*: strength, power. The virtual is not opposed to reality, could be part of the reality. [4]”

## II. PROGRAM WITH IXQUIC

However, we know that there are millions of games that just entertain but there are other directions like create educational experiences with games. We are taking this direction focus on developing an educational game that permits to improve and create specific programming skills in the field of Object Oriented Programming using Java Programming Language.

In *Program with Ixquic*, it is possible to resolve simple puzzles, questions and create blocks of simple control structures with touch screen interaction in a Galaxy Note tablet with Android system or in iPad tablet with iOS system.

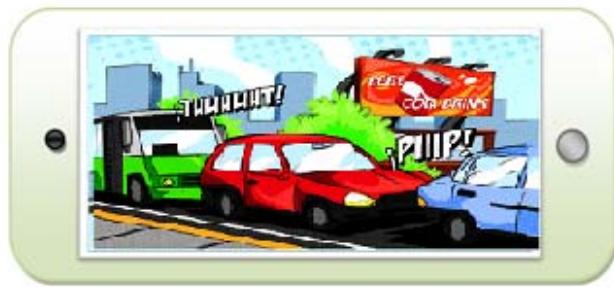


Figure1. Intro Program with Ixquic

This game consist of two levels, where every user can have an interactive experience with each level, where learns basic concepts about O.O.P, control structures and have fun with *Ixquic* [5].



Figure2. Control structures Program with Ixquic

The game is at this moment a work in progress. The Figure3 is the main interface about *Program with Ixquic*.

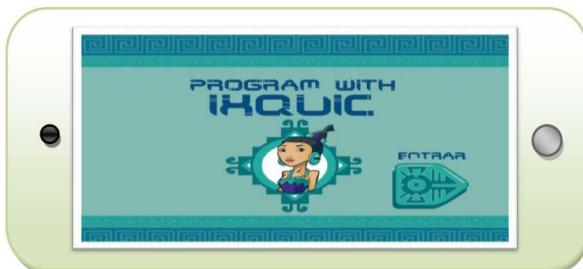


Figure3. Program with Ixquic

### III. SERIOUS GAMES TOPICS

In this section we describe the various aspects that are related to serious games:

**Educational Games:** with the multimedia explosion in 1990, those games were created with educational proposes but soon decreased because the poor quality of the games or because of a growing interest in the Internet (Michael & Chen, 2006), [1].

**Healthcare Games:** those games are applications about health and healthcare. Which ones influence direct or indirectly in the physiology and psychology of individuals.

**Military Games:** are used for training, these games have simple rules and allow the users to be better planners for battles in an individual form or in group training [1].

**Government Games:** training and simulation that concern a number of different tasks and situations, like dealing with terrorist attacks, biohazards, city planning, traffic control, firefighting, ethics training, defensive driving, etc.

**Corporate Games:** corporate training is a great industry that sometimes requires the creation of Serious Games which permits computer assisted training that allows corporations to cut cost for training staff, special equipment, places, etc. This kind of games started on 1990's with multimedia PC, CD-ROM's and Internet (Michael & Chen, 2006), [1].

Our objective with this game *Program with Ixquic*, is to create an educational game that permits to learn OOP concepts and basic control structures in Java Programming Language.

### ACKNOWLEDGMENTS

We thank all the team and friends at the *National Autonomous University of Mexico, UNAM, specially the Department of Visualization and Virtual Reality, Ixtli, UNAM*. Where the development of this *Serious Game: Program with Ixquic*, is in progress. All the *Game Design* was made at my studio called *Madagascar Computer Games and Systems S.A. de C.V.*

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