

Development and evaluation of a type 2 diabetes board game

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Introduction

Type 2 diabetes is a growing disorder affecting more and more Canadians each year. A variety of negative lifestyle choices can contribute to the increased prevalence of the disorder. These include poor nutrition, lack of physical activity, and stress. To begin to reduce the incidence of type 2 diabetes we must use a variety of approaches to educate Canadians on the disease and its management. This project focuses specifically on the use of an online interactive board game to supplement the education of undergraduate students studying human health. Gamification is a new trend in higher education that promotes interactive learning by giving players low-stakes, opportunities to fail, and to learn from their mistakes to be successful. The development of game components was guided by such sources as the Canadian Diabetes Association and allows students to assume the role of a person living with type 2 diabetes. It exposes them to certain situations faced daily by diabetics, rewards players for positive choices and penalizes them for negative ones. The ultimate purpose of this game is to use role-play and game-related challenges to improve student understanding of the daily challenges faced by a type 2 diabetic as he/she endeavors to maintain healthy blood glucose levels. Preliminary data collected from focus groups showed that the board game prototype did indeed engage students and provided opportunities for them to experience daily challenges associated with diabetes.

Methods

The goal of this project was to develop and test the effectiveness of an educational module on diabetes. The type 2 game board was developed by taking the type 1 prototype and identifying all game spaces that pertained solely to type 1 diabetics. These spaces were then filled with subjects relating only to type 2 diabetics. To test its effectiveness students were given a pre gameplay quiz containing 11 basic questions on diabetes. After an hour of gameplay students were given a similar 11 question quiz. The averages of these quizzes were then taken and through a paired T test it was determined whether or not the overall average increased. Finally students were given a survey asking for any additional feedback that may be used to improve the game overall.



Results

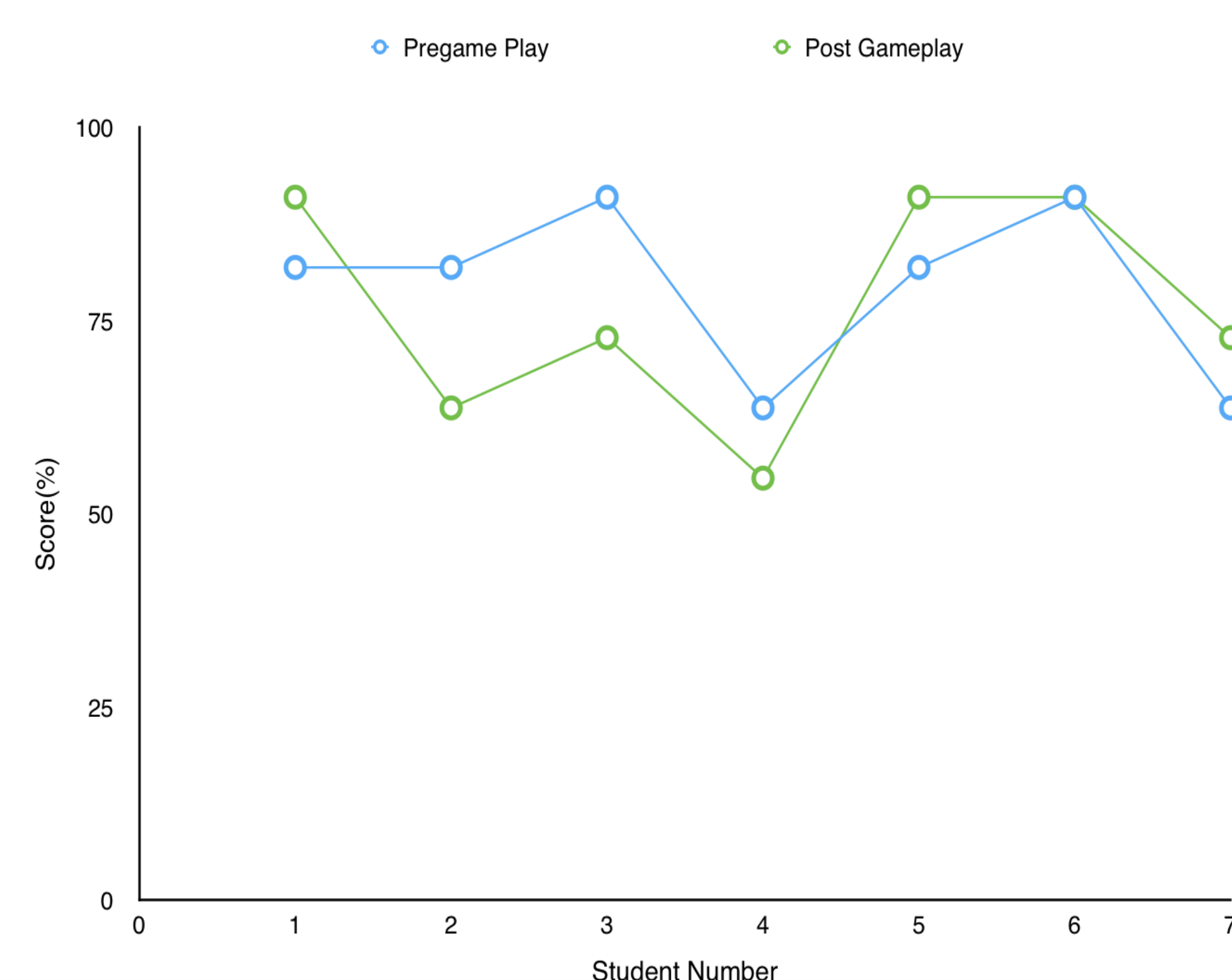


Figure #1. Pregameplay and Postgameplay quiz scores. Data obtained by testing students before they played the game and an hour after they played the game. Each quiz had 11 basic questions on diabetes and its management.

Student's feedback from the survey was as followed: an increased amount of food cards, a simplification of food card information, and a food pairing system.

Discussion

The first phase of this project involved the development of the type 2 board game. I was successful in developing a game board prototype that focuses on the management of the disease. Type 2 diabetes is largely treated with lifestyle management so a large portion of the game focused on this, by introducing a new game card called the life style card. Lastly the effectiveness of the game was assessed by testing students before and after playing the game for an hour. Through a paired t-test analysis it was seen that the data showed no significant change in the average score before or after gameplay. This is likely due to a small sample size, as well students who participated in the focus groups all had a base knowledge of diabetes and it would therefore be difficult for them to obtain a large enough amount of new information to show an increase in score.

Conclusions

Students enjoyed playing the game and provided valuable feedback when testing the prototype that will improve game design and game flow. These suggestions will be incorporated in the second stage of game development. Following further testing, the ultimate goal is to convert the physical board game into an interactive, challenging and feedback-oriented online board game tailored to health sciences education.



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