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**YOU SHOULD TRY THIS!**

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## *Save Our School*: an educational game made with Gimkit Creative

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### Implication Statement

The benefits of quiz-based games for education are well-recognized. Educators often struggle to find games that are suitably tailored to their students' needs and easy to use. Gimkit, a new platform, allows instructors to create quiz games and host them in class. Based on student feedback and the literature, we developed a game mode for dental students called *Save Our School* (SOS) which is publicly available on the Gimkit Creative platform. Educators in the health professions can use this game to foster student engagement and perform formative assessments in their classes.

## *Save Our School* : un jeu éducatif créé avec Gimkit Creative

### Énoncé des implications de la recherche

Les avantages des jeux-questionnaires dans l'enseignement sont bien reconnus. Toutefois, les enseignants peinent souvent à trouver des jeux à la fois adaptés aux besoins de leurs étudiants et faciles à utiliser. Gimkit, une nouvelle plateforme, permet aux formateurs de créer des jeux-questionnaires et de les animer en classe. À partir des commentaires des étudiants et de la littérature, nous avons conçu un mode de jeu pour les étudiants en médecine dentaire intitulé *Save Our School* (SOS), accessible publiquement sur la plateforme Gimkit Creative. Les éducateurs en sciences de la santé peuvent utiliser ce jeu pour stimuler l'engagement des étudiants et réaliser des évaluations formatives dans leurs cours.

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# Introduction


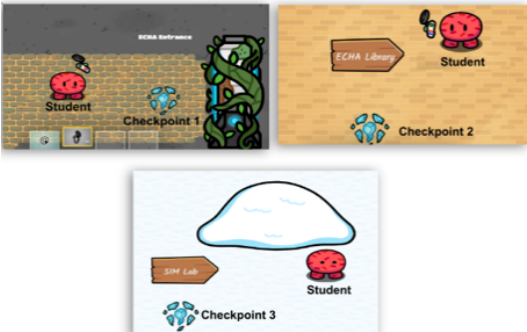

While quiz-based educational games enhance student engagement and learning, educators often find it challenging to identify games that are both engaging for students and aligned with curriculum goals. Studies have found that intrinsic motivators are crucial in educational games, enabling students to stay motivated and engaged.<sup>1-4</sup>

## Description of innovation

Gimkit<sup>5</sup> has several built-in game modes targeting various age groups and game skills. Informed by literature and based on student suggestions, we created a new educational game called *Save Our School (SOS)* using Gimkit Creative, a new section of Gimkit.<sup>5</sup>

Before designing *SOS*, students in the Dental Hygiene (DH) Program who played built-in game modes of Gimkit were invited to participate in a study approved by the University of Alberta Research Ethics Board (ID: Pro00124923). As part of the study, a survey was conducted asking students: “If you had to develop a game mode for Gimkit, what would you add or remove? Explain your ‘perfect’ Gimkit game mode.” Thirty-five percent (35%) of the in-person class ( $n = 15$ ) and 30% of the online class ( $n = 14$ ) responded to the survey. Key suggestions from students were: (i) the inclusion of more questions, (ii) multiple checkpoints to restart the game when defeated, and (iii) more opportunities to challenge other players (Appendix A). The premise of *SOS* is built to represent the School of Dentistry under an alien invasion; the players’ goal is to save the school (Figure 1A).

A.

Students' feedback taken into consideration	Feature of <i>SOS</i>	Screenshot from the game map: <i>SOS</i>
<p>More questions</p> <p>Variety of questions</p> <p>Create a world where each lecture has its section.</p>	<p><i>SOS</i> has three sections representing three areas of the school of Dentistry: the entry, library, and the simulation lab.</p> <p>Students can answer questions in three different rooms. They can also walk back to questions presented in the previous room if they would like.</p> <p>This will offer students a more extensive set and variety of questions distributed over the three rooms.</p>	
<p>Being able to start at a place where a player is defeated instead of restarting the whole journey.</p>	<p>Three checkpoints have been added to the game.</p>	
<p>More opportunities to challenge fellow players.</p>	<p>To introduce a similar effect and increase challenge in the game, built-in sentries are added.</p>	

Question	Correct Count	Incorrect Count	Accuracy
Q1	3	15	17%
Q2	2	9	18%
Q3	4	15	21%
Q4	4	13	24%
Q5	4	10	29%
Q6	4	9	31%
Q7	7	12	37%
Q8	6	7	46%
Q9	10	9	53%
Q10	10	8	56%
Q11	10	6	63%
Q12	11	4	73%
Q13	12	4	75%
Q14	14	4	78%
Q15	11	3	79%
Q16	13	3	81%

Question	Correct Count	Incorrect Count	Accuracy
Q17	12	2	86%
Q18	12	2	86%
Q19	15	2	88%
Q20	16	2	89%
Q21	10	1	91%
Q22	12	1	92%
Q23	14	1	93%
Q24	14	1	93%
Q25	17	1	94%
Q26	20	1	95%
Q27	14	0	100%
Q28	15	0	100%
Q29	15	0	100%

Player Name	Accuracy
Student A	79%
Student B	70%
Student C	81%
Student D	73%
Student E	71%
Student F	81%
Student G	67%
Student H	83%
Student I	71%
Student J	50%
Student K	59%
Student L	68%
Student M	50%
Student N	58%
Student O	43%
Student P	44%
Student Q	86%
Student R	73%
Student S	50%
Student T	55%
Student U	60%
Student V	70%

Figure 1. (A) Key features of SOS with accompanying screenshots of the live game. The system-generated report on SOS summarized overall student performance on each question (B) and the performance of each student on the question set (C). The actual question and student names are replaced with numbers and letters to maintain confidentiality.

## Outcome

SOS is freely available on Gimkit Creative.<sup>5</sup> Instructors worldwide with a Gimkit account can search and play the game with their own question set (Appendix B). Students can join the game using the code provided by the instructor. To progress through the game, the players must defeat the alien enemy at the entrance, the library, the simulation lab, and the classroom by answering questions about the course content. If a question is answered incorrectly, the correct answer is displayed to the students, facilitating their learning (Appendix C). Unlike regular Gimkit mode, SOS has three places to answer questions and three checkpoints to restart the game when defeated. SOS includes sentries as alien enemies to create in-game challenges.

SOS was introduced to third-year DH students with 29 questions on nutrition. Twenty-two students joined the SOS game. At the end of the game, the system-generated report summarized the overall student performance on each question (Figure 1B) and the performance of each student on the question set (Figure 1C).

Educators across health professions can use SOS as a fun way to review concepts. The end-game reports can help instructors identify gaps in students' knowledge and guide making instructional decisions.

## Suggestions for next steps

In the future, additional game sequels can be developed to foster longitudinal gamification in online classes. The impact of SOS on students' academic achievement should also be evaluated.

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#### Conflict of Interest:

The authors of this study declared no conflict of interest.

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## References

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## Appendices.

### Appendix A. Student feedback from the anonymous survey

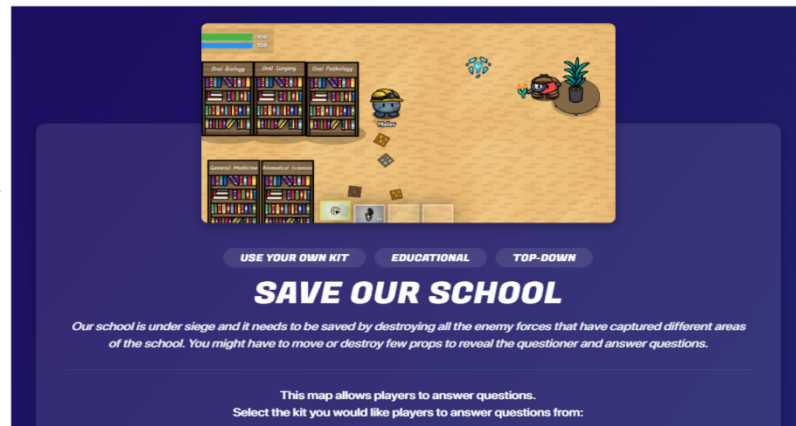
35% of the in-person class ( $n = 15$ ) and 30% of the online class ( $n = 14$ ) responded to the survey.

Question	Representative quotes
<p>If you had to develop a game mode for Gimkit, what would you add or remove?            Explain your 'perfect' Gimkit game mode.</p>	<p>.. it would be nice to have you start again at the place you fell at, rather than going all the way at the bottom and restarting the whole journey.            More questions/variety of questions            Bigger question bank and taking away bait for questions that are wrong. repeating questions we got wrong more often            More practice questions            The ability to create a world where each lecture is its own section, so I can play on one game but have every lecture in different areas            Maybe more questions            I would add the ability to go back to questions, I think that would be helpful especially if you got them wrong. Sometimes the question involved a histological section or an image but if I got it wrong, it would only show the correct answer and I wouldn't be able to see the image again until I kept going through the questions and hit the same one again            More opportunity to sabotage fellow player when playing in a group.</p>

## Appendix B. Hosting the game *Save Our School* as an instructor

### Step 1

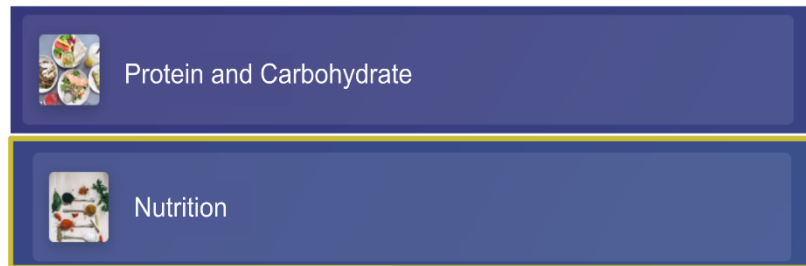
Access the SOS game through Gimkit Creative platform.



### Step 2

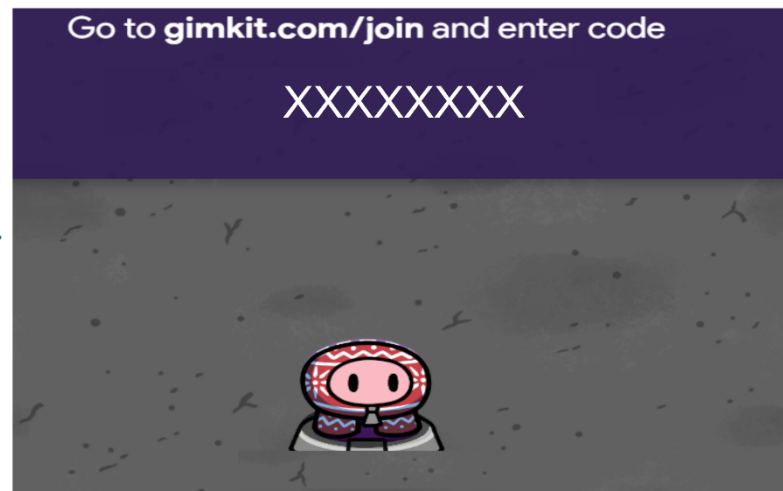
Select a question set previously made by the instructor.

Nutrition question set is selected here



### Step 3

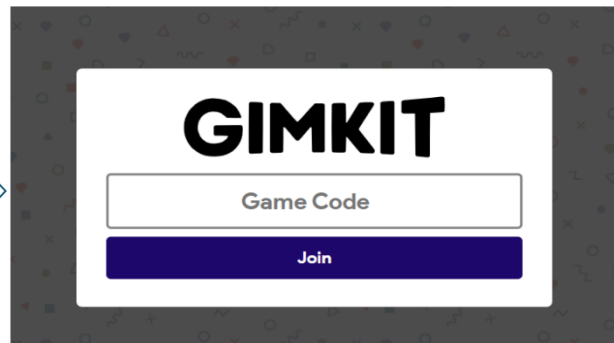
Host the game. A code will be generated instantly. Players can join the game by entering the game code.



## Appendix C. Hosting the game *Save Our School* as a student.

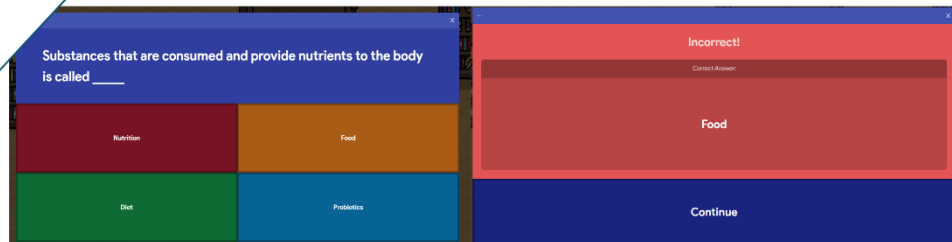
### Step 1

Go to <https://www.gimkit.com/join>. Access the SOS game using the code provided by the instructor.



### Step 2

Play the game. Answer questions and defeat aliens to progress through the game. If a question is answered incorrectly, the correct answer is displayed.



### Step 3

Save your school by completing the game successfully.

