

# **Kahoot! or Gimkit? Which game is preferred by students for online learning**

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**Running Title:** Kahoot! vs. Gimkit

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## ABSTRACT

**Introduction:** Fostering student engagement in asynchronous and hybrid courses is a challenge, for which game-based assignments can be a solution. Gimkit and Kahoot! are two platforms for creating quiz-based games, each offering unique features. **Description of case:** A descriptive study design was employed to examine the engagement and perceptions of Doctor of Dental Surgery (DDS) and Dental Hygiene (DH) students using two gamified homework platforms. Engagement data were analyzed for 78 students, and 14 students completed a survey adapted from the Instructional Materials Motivation Survey (IMMS). Most students engaged with both games almost equally. 57% of the survey respondents preferred Kahoot! over Gimkit for self-paced or online learning. **Discussion:** The exposure to practice questions and the opportunity to self-assess motivated students to engage with the game-based homework. **Conclusion:** Students identify their preferences and dislikes of Kahoot! and Gimkit while also valuing the game-based homework as a tool to improve learning experiences.

**Keywords:** education; educational technique; educational activities; learning; teaching; teaching method

**CDHA Research Agenda category:** capacity building of the dental hygiene profession

## PRACTICAL IMPLICATIONS OF THIS RESEARCH

- DH and DDS students value the opportunities to self-assess their learning through the practice questions in both Kahoot! and Gimkit platforms.
- Students from health professions education are likely to prefer Kahoot! over Gimkit, as Kahoot! is all about testing knowledge, whereas Gimkit often needs game skills to win the game.

## INTRODUCTION

There is a growing global trend toward the adoption of online and blended learning in health professional education.<sup>1,2</sup> Asynchronous and blended course formats, in particular, are valued for their flexibility and ability to support self-directed learning. However, fostering student engagement in these types of courses continues to be a challenge for educators.<sup>3</sup> In response, educational games have gained recognition in academia as a potential tool for enhancing student engagement and promoting active learning.<sup>4</sup> Games have shown potential in health professionals' education. In a gaming platform, students can compete or cooperate with players while practicing communication, collaboration, and critical-thinking skills.<sup>5</sup> Most reported implementations of educational games in health professions education have taken place in face-to-face classroom settings.<sup>5,6</sup> However, in the context of online learning, the integration of game-based elements, such as badges, leaderboards, rewards, and avatars, has been reported only occasionally.<sup>7</sup> Reports of full-fledged games being implemented in online higher education, particularly in health professions education, remain scarce.<sup>8,9</sup> Notable exceptions include the development and use of online escape rooms and quiz games for undergraduate nursing courses, which were associated with positive student perceptions.<sup>8</sup> Similarly, gamified homework assignments in an online oral biology course have been linked to improvements in academic performance, motivation, and student satisfaction.<sup>9</sup>

Gimkit<sup>10</sup> and Kahoot!<sup>11</sup> are two popular platforms for creating quiz-based games, suitable for in-person and online classes. Both platforms share several similar features while also offering some unique attributes. The key difference between Gimkit and Kahoot! lies in the gameplay.

Kahoot! is strictly a quiz game that tests students on their knowledge. The leaderboard of Kahoot! shows the student who answered the most questions correctly in the shortest time. In contrast, Gimkit transforms the quiz into a full-fledged game. Depending on the selected game mode, students must achieve specific goals, complete tasks, or collaborate with other players to win the game. Answering quiz questions is vital for progressing through the different game modes in Gimkit. The leaderboard in the live Gimkit thus represents players who have achieved a higher score in the game, which may be unrelated to the students who answered more questions correctly. Another difference between Kahoot! and Gimkit is that in Kahoot! The question sets are presented to students only once in a set order, whereas in Gimkit, the questions are randomly repeated throughout the game, allowing students to practice repeatedly while progressing through the game.<sup>10,11</sup>

While both Gimkit and Kahoot! games can be posted in the Learning Management System (LMS) with set deadlines for students to play individually, the homework modes of Kahoot! and Gimkit differ from each other. In Gimkit homework, instructors set specific goals that students must achieve to complete the assignment. For example, in the "Fishing" mode, the objective may involve earning a certain amount of in-game currency. The Gimkit homework assignments are designed for individual play, without competition or a leaderboard, allowing students to focus solely on meeting the set criteria. In contrast, Kahoot! homework incorporates a leaderboard, displaying students' rankings relative to their classmates who have completed the same quiz. This element introduces a competitive dynamic, even though students complete the activity independently. Kahoot!, which has been used in education for several years, has been evaluated in both online and in-person learning contexts.<sup>12,13</sup> In contrast, Gimkit is relatively new and has

primarily been examined in pilot settings.<sup>9</sup> Moreover, comparative studies examining these two platforms remain scarce. Comparative studies between these two platforms also remain limited.

We incorporated Gimkit and Kahoot! as homework in a dental school. A study was conducted to explore students' engagement and perception of the two gamified homework platforms. Our research questions are:

1. How do the dentistry and dental hygiene students engage with Gimkit and Kahoot! homework assignments?
2. Which gamified homework platform is preferred by the students?

## **CASE DESCRIPTION**

This study used a descriptive design that systematically outlines a population, situation, or phenomenon without determining the underlying cause.<sup>14,15</sup> The University of Alberta Research Ethics Board (REB2) approved the study (Pro00149539). Thirty-two first-year students in the Doctor of Dental Surgery (DDS) program and forty-six first-year Dental Hygiene (DH) students participated in the study.

In the Winter 2025 semester, first-year DDS students in a hybrid course were assigned three Gimkit and three Kahoot! homework assignments via the LMS. Meanwhile, first-year DH students in an asynchronous online course received two sets of Gimkit and Kahoot! homework. To ensure equal access and offer a choice of learning tools, each Gimkit-Kahoot! pair was posted on the same date in a course, aligned with the same lecture content, but featured different questions (Figure-1).

Data on student engagement, such as the number of interactions with homework assignments, was collected and analyzed. Links to an anonymous voluntary survey were posted in the LMS for both DDS and DH students. The survey questionnaire (included as supplementary material S1) was adapted from the Instructional Materials Motivation Survey (IMMS) instrument.<sup>15</sup> Descriptive statistics were used to analyze the survey data in Microsoft Excel. Students' written comments from the open-ended questions were categorized using content analysis.

## **RESULTS**

### **Student engagement with Kahoot! vs Gimkit homework assignments**

Three supplementary Kahoot! homework assignments were explored by 66% (n=21), 63% (n=20), and 41% (n=13) of the DDS students, respectively. Similarly, 66% (n=21), 59% (n=19), and 47% (n=15) of the class participated in the three Gimkit homework assignments, respectively (Figure-2A). For the DH class, while 74% (n=34) and 54% (n=25) of the class participated in the Kahoot! assignments, 67% (n=31) and 52% (n=24) played the Gimkit homework game (Figure-2B).

The DDS course ran from January to March and included three non-cumulative exams. Student engagement data from the LMS indicated that students were nearly equally engaged with both the Kahoot! and Gimkit homework assignments throughout the course, showing higher interactions when the games were posted and also during the three examination periods (Figure-3A).

The DH course ran from January to April during the winter semester with two non-cumulative exams. The two Kahoot! and Gimkit assignments posted in LMS were focused on the content of

Exam-I only. DH students briefly explored both the Gimkit and Kahoot when posted. However, the interaction took a sharp rise during the exam period, where more interaction was observed with Kahoot! than Gimkit (Figure-3B).

### **Student perception of the two gamified homework platforms**

Fourteen students (12 DDS and 2 DH) responded to the voluntary survey posted in the LMS. A large number of survey respondents indicated that the games made learning fun, had a positive impact on their learning, and would like to have similar opportunities in other courses (Figure-4A).

When asked about the source of motivation for them to play the games, a hundred percent of the survey respondents indicated that the practice questions embedded in the game were the biggest source of motivation for them to play the game. Thirty-six percent of the respondents, however, were also motivated by the intrinsic nature of the game, like challenge, competition, etc (Figure-4B). When students were asked to identify possible sources of stress while playing the game, a mixed result was obtained. Although sixty-four percent of the survey respondents did not identify any source of stress, a small number of respondents identified game skills, being tested by knowledge, and the leaderboard as a source of stress for them while playing the homework games (Figure-4C).

A slightly more than half of the survey respondents (57%, n=8) preferred Kahoot! over Gimkit for self-paced or online learning (Figure-4D). The categories generated from the students' comments provided insight into the reasons for students choosing one platform over the other (Table-1). Some of the best features of Kahoot! gaming, as identified by students, included being tested solely on the knowledge in an interactive way. Students may have preferred Kahoot! over

Gimkit because Kahoot! was all about testing the knowledge, whereas Gimkit involved gameplay along with practice questions. Some representative comments include:

*“Success in the activity is directly related to my knowledge of the subject.”*

Students, however, did not like the time constraints that are the key feature of Kahoot! gaming and identified it as stressful. Others did not like the fixed order of the questions presented to the players. Some related comments include:

*“I feel pressured to answer quickly, so I do not think questions through as thoroughly as I should”*

*“I don't like that you have to go through the whole quiz in order, I like how the questions are randomized in gimkit”*

The best features of Gimkit, as identified by students, included the ‘fun,’ engagement, repeated nature of the questions, and the self-paced nature of answering questions during the game. Some representative comments include:

*“Gimkit gives you all of the questions in an endless randomized stream, good for repetition of the content”*

*“Its very fun and keeps you engaged”*

However, for some students, spending more time playing the game compared to answering questions was a ‘not so good’ feature of Gimkit:

*“Lots of time is dedicated to the game mechanics rather than practice questions. Perhaps more emphasis on the practice questions could improve this.”*

## **DISCUSSION**

Our study provides a comparative overview of student engagement and perception of the two interactive gaming platforms, Gimkit and Kahoot!, as tools for self-paced learning. Both games, posted concurrently with matching lecture content, saw similar participation rates. Students who played one platform also engaged with the other, while non-participants avoided both. This pattern held for DDS and DH cohorts. Interaction peaked near exams, especially among DH students, suggesting students used the games primarily for review and self-assessment.

While students engaged with both Kahoot! and Gimkit nearly equally, 57% of the survey respondents preferred Kahoot! over Gimkit. Comments from students indicate that many favored Kahoot! because it focuses solely on testing knowledge; however, they were less enthusiastic about the time constraint and the fixed order of questions in the game. In contrast, many students valued Gimkit for its absence of time pressure and the random repetition of questions during gameplay, although some expressed that the ‘gameplay’ itself was not their favorite aspect. This student's opinion clearly shows that exposure to the practice questions serves as the primary source of motivation for most students, with the type of platform being secondary. This mindset is also reflected in the survey results, where only a handful of participants identified the nature of the gaming platform as a motivating factor driving them towards the games (Figure-4).

Gimkit is a great platform to create a playful experience in the classroom, but for many students studying in a synchronous course, the time spent reviewing questions is valued over the time spent

in ‘gameplay.’ However, as shown in student comments, some students adopted a strategy to avoid the gameplay in Gimkit and only answer the practice questions.

We acknowledge several limitations of our study that can be explored in future research. Demographic data (age, gender) were not collected. There is well-established evidence that males are specifically more engaged with computer games compared to females.<sup>16,17</sup> One major difference between Kahoot! and Gimkit is in the amount of ‘game play.’ Therefore, future studies should focus on exploring the influence of gender on the choice of educational games. A positive correlation is well-known between student engagement and academic achievements.<sup>18,19</sup> Analyzing the correlation between students’ interaction with the homework games and academic performance can shed light on the comparative impact of the two gaming platforms on students’ academic performance.

## **CONCLUSION**

Gimkit and Kahoot! are two quiz-based gaming platforms that make learning fun and engaging. Our study shows that while DDS and DH students identify the strengths and weaknesses of both platforms, they highly value the games and supplementary tools that self-assess their learning.

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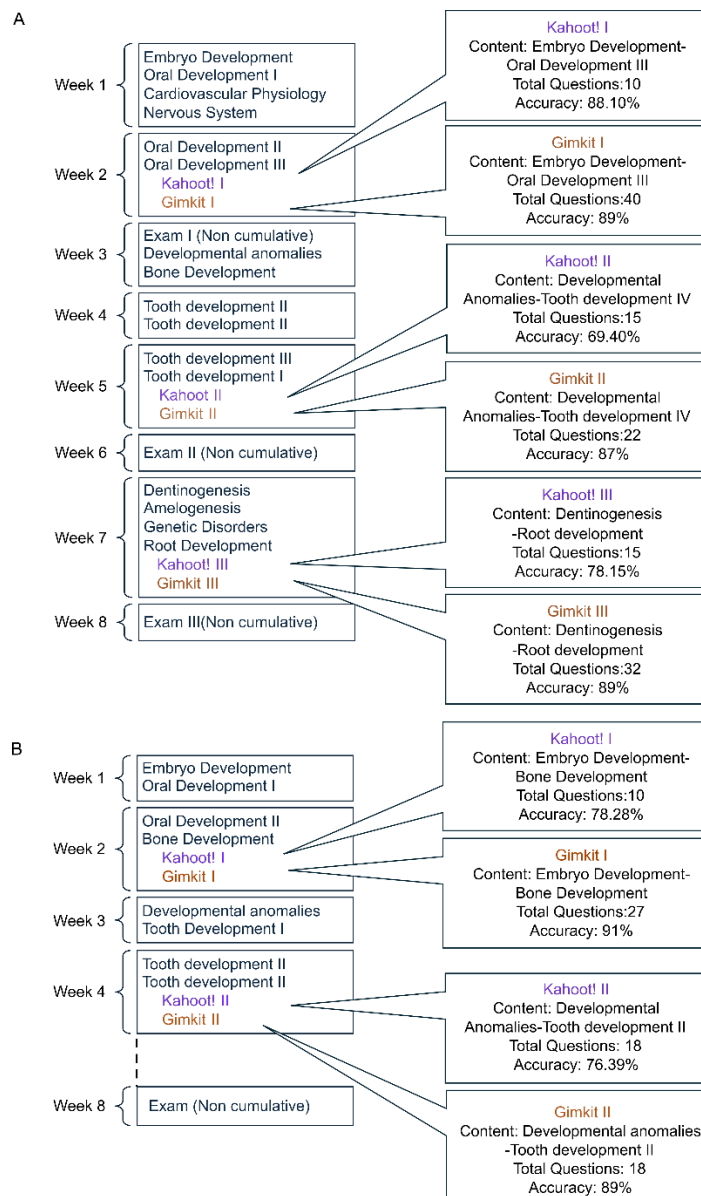
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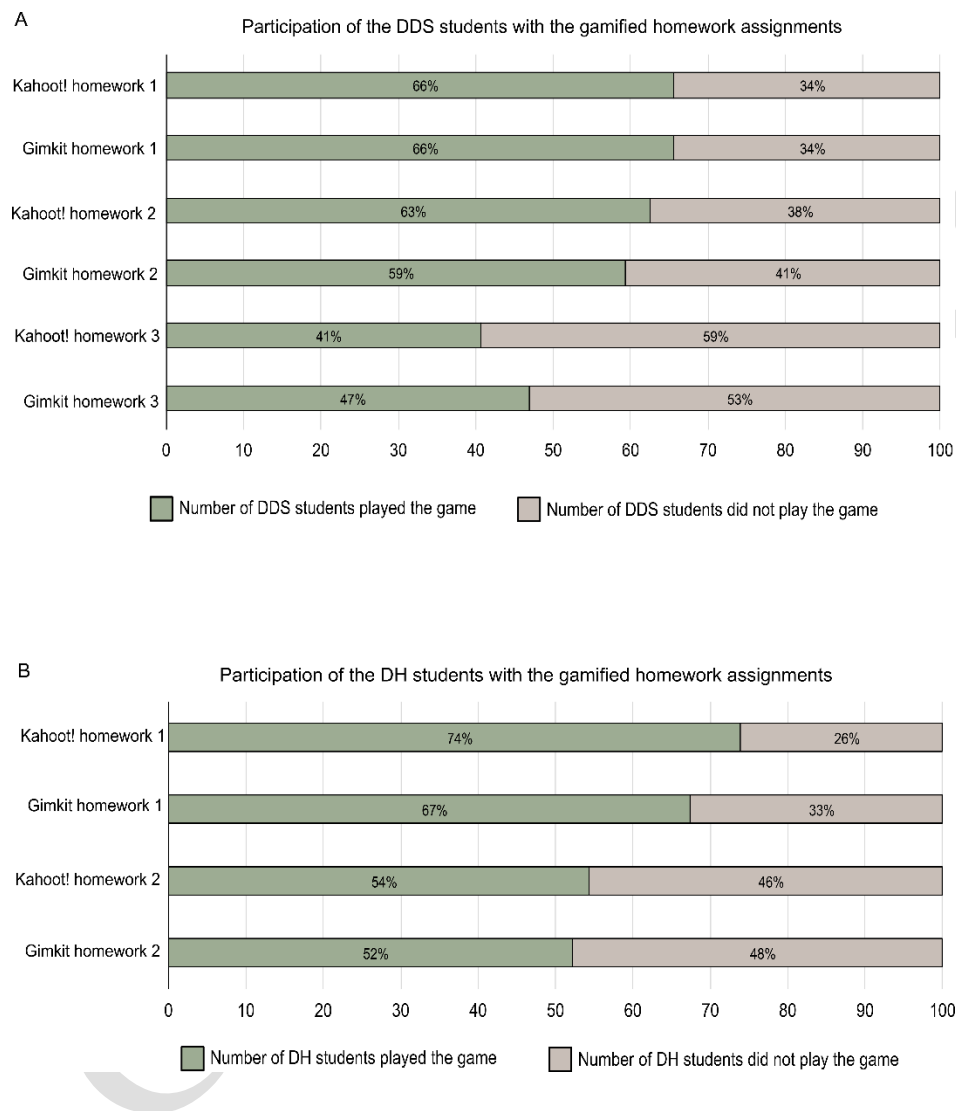
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## FIGURES AND TABLES

**Figure 1.** Course timeline and the game-based homework assignments. The diagram shows the timelines for the hybrid Doctor of Dental Surgery (DDS) course (A) and the asynchronous online Dental Hygiene (DH) course, in which the Kahoot! and Gimkit games were assigned as homework. The course content, number of questions, and students' performance in the games are shown.

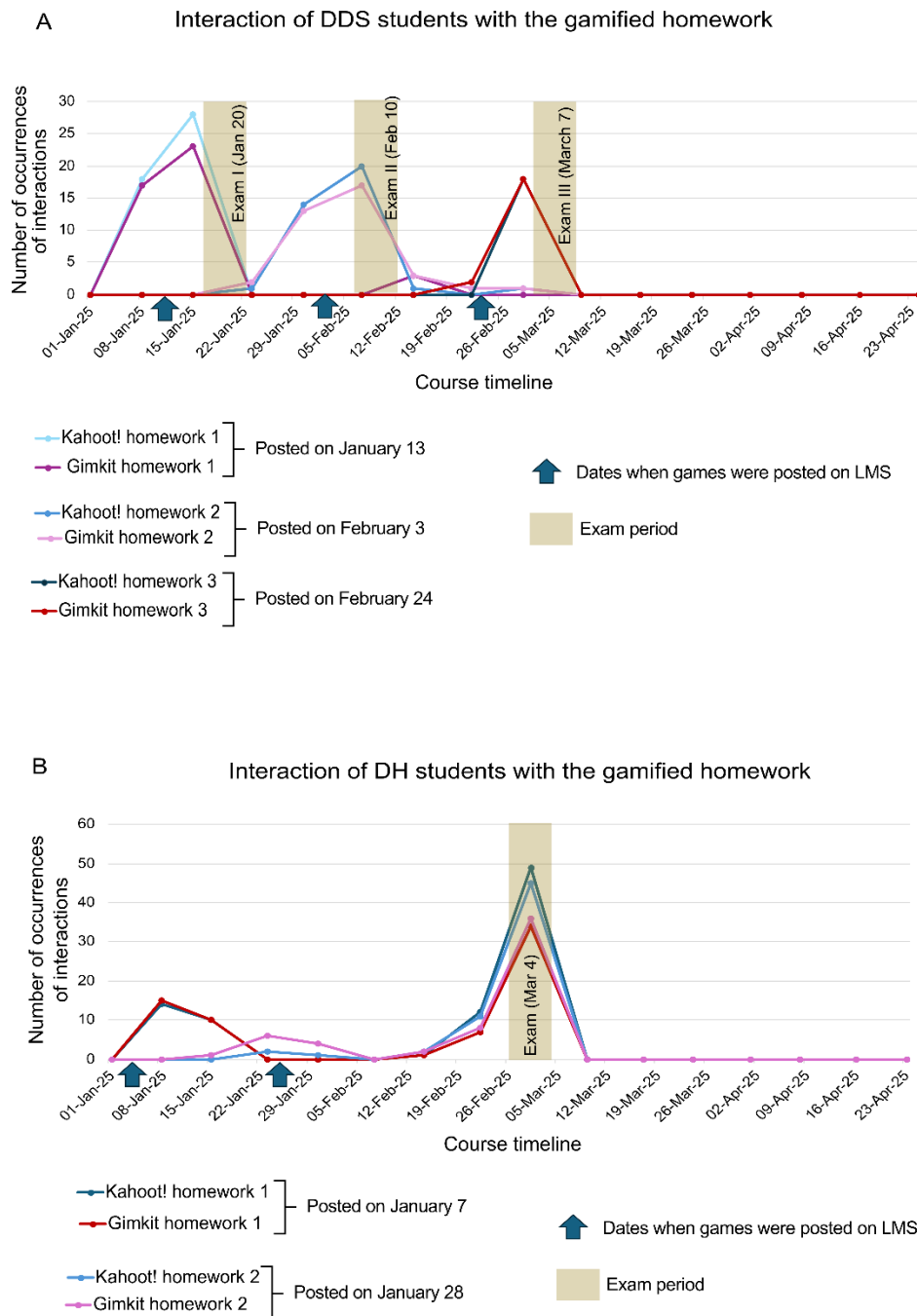


**Figure 2.** Participation of the Doctor of Dental Surgery (DDS) and Dental Hygiene (DH) students in the gamified homework assignment. The homework assignments were posted in the Learning Management System (LMS). Data on student participation was collected from LMS and analyzed using Microsoft Excel.



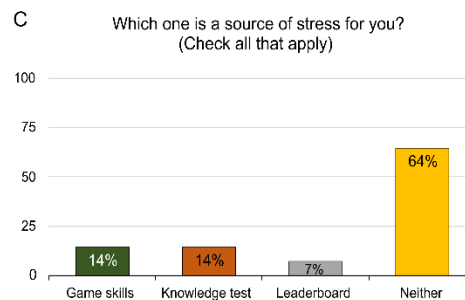
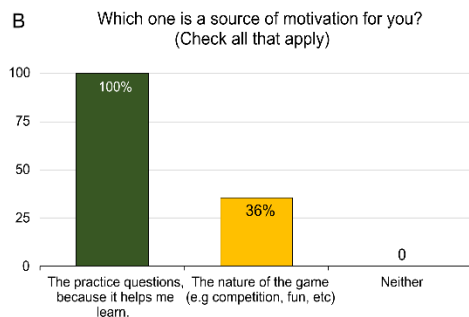
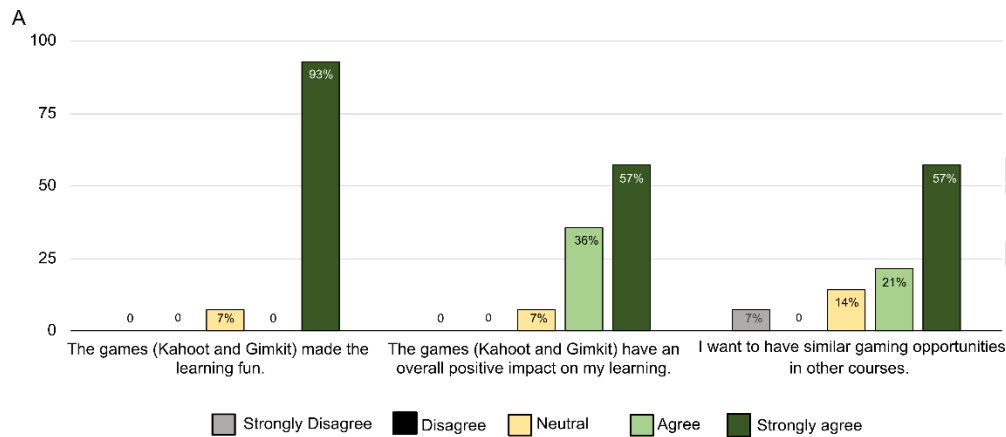
**Figure 3.** Students' patterns of interaction with the game-based homework assignments. The number of interactions with homework assignments is plotted over the course timeline for the Doctor of Dental Surgery (DDS) (A) and Dental Hygiene (DH) (B) courses. Interaction data were

collected from the LMS and analyzed using Microsoft Excel. The arrows indicate the date when the games were posted on the LMS. The shaded areas in the graphs show exam periods.

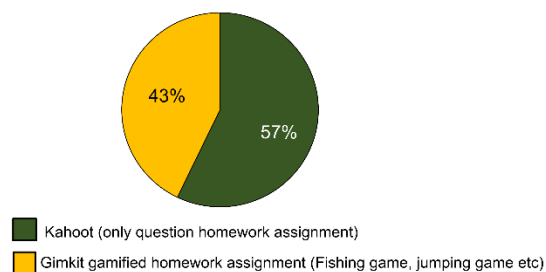


**Figure 4.** Student perception of the two gaming platforms, Kahoot! and Gimkit. The survey questionnaire was adapted from the Instructional Materials Motivation Survey (IMMS)

instrument<sup>15</sup> and is also provided as supplementary material S1. Links to an anonymous voluntary survey were posted in the LMS, inviting DDS and DH students to participate in the study. Fourteen students (12 DDS and 2 DH) responded to the survey. Descriptive statistics were used to analyze the survey data in Microsoft Excel.



D For self-paced learning (or online learning), which one would you like the most?



**Table 1:** Categories to represent and compare students' perception of Kahoot! and Gimkit.

### WHAT IS THE BEST PART OF KAHOOT GAMING?

| <i><b>CATEGORIES</b></i> | <i><b>Description of the category</b></i>                                                                          | <i><b>Representative quotes</b></i>                                                                                                                                                     | <i><b>Frequency</b></i> |
|--------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| ALL ABOUT LEARNING       | Students appreciated that in Kahoot! they are tested on their knowledge only, rather than other gameplaying skills | <p><i>"Success in the activity is directly related to my knowledge of the subject. Helps provide practice question extra practice"</i></p> <p><i>"Being tested on the material"</i></p> | 6                       |
| EXPOSURE TO QUESTIONS    | Students highly valued the exposure to exam-like practice questions through Kahoot!                                | <i>"I enjoy the practicality of the questions - they are multiple choice like our exam questions, and very similar to the types of questions we can expect on the exam"</i>             | 2                       |

### WHAT IS 'NOT SO GOOD' ABOUT KAHOOT GAMING?

| <i><b>CATEGORIES</b></i> | <i><b>Description of the category</b></i>                                                | <i><b>Representative quotes</b></i>                                                                                                                            | <i><b>Frequency</b></i> |
|--------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| STRESS AND PRESSURE      | The time constraint set by Kahoot! stressed several students.                            | <p><i>"The stress of answering fast"</i></p> <p><i>"I feel pressured to answer quickly, so I do not think questions through as thoroughly as I should"</i></p> | 4                       |
| FIXED ORDER OF QUESTIONS | Kahoot! played by the students did not randomize the questions, which students disliked. | <i>"I don't like that you have to go through the whole quiz in order, I like how the questions are randomized in gimkit"</i>                                   | 1                       |

### WHAT IS THE BEST PART OF GIMKIT?

| <i><b>CATEGORIES</b></i> | <i><b>Description of the category</b></i>                                           | <i><b>Representative quotes</b></i>                                                                                                                              | <i><b>Frequency</b></i> |
|--------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| FUN AND ENGAGEMENT       | Students enjoyed playing Gimkit and found the game engaging and interactive.        | <p><i>"Its very fun and keeps you engaged"</i></p> <p><i>"fun and interactive"</i></p>                                                                           | 4                       |
| SELF-PACED               | Several students enjoyed the self-paced nature of the games.                        | <i>"Fun competition and less pressure to answer questions quickly (more time to think questions through since the games tend to reward accuracy over speed)"</i> | 2                       |
| EXPOSURE TO QUESTIONS    | Students highly valued the exposure to exam-like practice questions through Gimkit. | <i>"Lots of practice questions that help me learn and review materials, plus help me identify areas I have to spend more time studying."</i>                     | 2                       |

|                      |                                                                                                                                             |                                                                                                                    |   |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---|
| RANDOMIZED QUESTIONS | Gimkit randomizes the questions, and students can answer them throughout the game. This repeated exposure was found beneficial by students. | <i>“Gimkit gives you all of the questions in an endless randomized stream, good for repetition of the content”</i> | 1 |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---|

#### WHAT IS ‘NOT SO GOOD’ ABOUT GIMKIT?

| <i>CATEGORIES</i>           | <i>Description of the category</i>                                                                            | <i>Representative quotes</i>                                                                                                                                                                                                       | <i>Frequency</i> |
|-----------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| MORE GAMEPLAY THAN LEARNING | Several students did not like that in Gimkit, more time is spent on Gameplay than on answering the questions. | <i>“Lots of time is dedicated to the game mechanics rather than practice questions. Perhaps more emphasis on the practice questions could improve this.”</i><br><br><i>“spend less time doing questions and more time playing”</i> | 6                |

#### Supplementary material S1: Survey Questionnaire