Student's Perception Towards the Implementation of the Sandbox Method in Fundamentals of Business Management Subject Virtual Classes

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Abstract. The teaching and learning concepts changed significantly since the pandemic and this resulted in schools, colleges and universities have transitioned to online learning. Both students and teachers find it challenging to adapt to the new norm of teaching and learning. This study aims to identify students' perceptions towards the implementation of the Sandbox Method in Fundamentals of Business Management subject virtual classes. The Sandbox Method enables students to have the flexibility to convey their perceptions or new ideas. The problems that the study identified were a distraction, demotivation and lack of social interaction among students during virtual classes. To address these issues and support the implementation of the Sandbox Method, this study included constructivism theory. The researchers conducted an online survey among foundation program students who are currently enrolled in the above-mentioned subject by applying the convenience sampling method. The main finding of this paper is that the Sandbox Method equips students with a dynamic virtual learning environment for the subject Fundamentals of Business Management.

Keywords: The Sandbox Method · perceptions · constructivism theory

1 Introduction

The teaching methods that a teacher uses in class will have some impact on students' satisfaction and motivation in learning especially in online class which is getting more popular in the 21st century. Since the unprecedented crisis of the Covid-19 pandemic hit the world in December 2019, where most students are required to attend virtual classes through various platforms like Google classroom, Zoom, Webinar, Google meet, and Microsoft Team, online learning has become a new normal of learning. There were many challenges faced by students while having online classes. There were about 64% of the students struggled in motivating themselves to pay attention in an online class and 55% of the students claimed that they have a lack of social interaction where they find that they will learn better with their fellow friends [1].

To overcome these challenges, the Sandbox learning method being the new route to learning which is an approach that focuses on play [2] could bring more meaningful learning experiences to students. Implementing the Sandbox Method in an online class can allow students to explore, practice, and collaborate to gain their own learning experiences [6]. The Sandbox method promotes active learning by engaging students in a playful, real-life and digital environment. This method of learning also allows students to apply their imagination in practice [2]. In this regard, this study attempts to find out the perception of students towards the implementation of the Sandbox Method which focuses particularly on the Fundamentals of Business Management subject in a virtual class. Students' perceptions are a powerful tool in the education system [3]. To understand the students' perception of the implementation of the Sandbox Method in online classes, a set of questionnaires has been circulated among the foundation students in Multimedia University through Google form.

1.1 Educational Theories or References Underlying the Innovation

This study is anchored on constructivism theory. Constructivism is a theory on ways individuals establish their knowledge and relate it to their past experiences [4]. The lives of students have changed thus affecting their perceptions of teaching and learning and making traditional approaches to learning obsolete [5]. Lecturing is an unproductive method of teaching and learning [6]. So, the Sandbox Method which emphasizes student-centered learning allows students to construct their knowledge based on the active and engaging activities in this method. Constructivists believe that learning is interactive as students create their understanding from the learning experience based on what they already know [4]. Students being exposed to various kinds of engaging activities through the Sandbox Method allow them to construct the knowledge from the experiences they gained.

The Sandbox Method required students to interact and share information in group work. In an online class, group work can be in the form of assignment and/or project where students need to coordinate and collaborate to complete the task. Vygotsky, the founder of social constructivism, believed that knowledge is constructed through social interaction in a group context [4]. For example, when students work in groups, they were able to be interactive and draw their conclusion [7]. Interactions among group members not only help students to construct their knowledge but also motivate students in learning where students can find support from peers through the process of learning.

Looking at this matter, the Sandbox Method exposes students to real-world problems and makes them engage and explore in an authentic environment. Technological advancements have opened the opportunities for students to be engaged in real-life scenarios, especially in online classes. When students are exposed to a real-world task, they will construct knowledge based on the hypotheses of the environment and will demonstrate more enthusiasm and interest in the subject matter [7]. Adding to that, 'constructivism activates the student's inborn curiosity about the real world to observe how things work' [7]. The active involvement of students in an authentic environment gave students a better understanding of their ways of learning [8]. Using constructivism theory as the base of learning, the Sandbox Method could cultivate the students' ability to develop ideas or think in a less stressful environment [9].

1.2 Problems Faced in Teaching and Learning in Higher Education

1.2.1 Distraction Among Students During Virtual Classes

There are many challenges faced by students while having online classes. This study discusses three main issues faced by students. The first issue is that students struggled to remain focused during virtual classes. Students are distracted easily, especially having online classes at home. There were about 58% of the students claimed that they have difficulty focusing on online classes [10]. This situation referred to internal distractions like loud TV and interruptions by family members and external distractions from the park or even neighbourhood construction. Besides these distractions, while students are engaged in their virtual classes, they are allowed to access several windows to check their emails or even chat with their friends [11]. This will be another challenge for students to stay focused when using computers or other electronic devices to attend virtual classes. Unlike the traditional classroom, teachers will find it challenging to help students to refocus especially in online classes [11].

Besides, students' body language and other non-verbal cues can help teachers to adjust their teaching approach while having face-to-face classes but not in an online channel [12]. Not only that, students can obtain immediate feedback about their experiences in a face-to-face class but are unable to have it in an online class [12]. So, this will make students lose their focus easily in an online class where they do not know whether what they are doing is right or wrong, or whether they are following the requirements or not? Teachers, in particular, play an essential role in getting students to focus during online classes, even though it is a difficult task for them as well. Teachers should make the effort to make the class interesting and engaging to maintain students' attention [13]. So, the Sandbox Method is undoubtedly important to create an active and engaging environment for students to participate in any online classes. On top of that, it helps keep students involved in the learning process so that they can stay focused in the virtual class.

1.2.2 Demotivation Among Students During Virtual Classes

The findings of past studies stated that about 50% of the students opined that they have low motivation to study in online classes [14]. This situation led to demotivation, the second issue that will be discussed in this study. The syllabus may be one of the elements that cause students to get demotivated. When students are faced with a difficult syllabus, they become demotivated [15]. Besides that, spending long hours on screen or on mobile phones can be stressful for students [14] which might also be another reason that makes students demotivated to study in an online class. Other than that, students felt demotivated when students daydream, have health issues and even have excessive assessments [15].

Based on the aforementioned issue, this study found that there are two types of motivation which are intrinsic and extrinsic motivation. Intrinsic motivation comes from within, and extrinsic motivation arises from outside [16]. For instance, intrinsic motivation occurs when students are motivated by internal benefits such as the desire to learn a certain subject [17]. This will be aligned with the Sandbox Method concept as it prepares a platform for students to have the freedom to express their ideas. As for extrinsic

motivation, there is a possibility that the students may be encouraged to learn to pass a test or receive a prize [17]. In other words, the Sandbox Method is an effective teaching strategy for encouraging students to learn remotely.

1.2.3 Lack of Social Interaction Among Students During Virtual Classes

Lack social interaction while having online classes is the third issue that will be discussed in this study. While attending online classes, students will be alone in front of their computers, making it impossible for them to communicate with their classmates and lecturers digitally. There were about 47% of the students felt that they lacked interaction with the teachers in a virtual class [14]. This might cause them to be demotivated as they felt isolated in the online class. Adding to that, students are unable to receive fast attention or response if they have any doubts during the online lecture because there is no room for virtual social contact.

Social interaction in online learning is vital since it can raise students' interest and motivation, as well as help them improve their performance [18]. Besides that, interaction not only helps students to build knowledge but also empowers learners [19]. Not only that, engaging students with meaningful activities helps to keep them focused during virtual classes [13]. This reflects that in the Sandbox Method students can collaborate and communicate efficiently with their friends and teachers. Furthermore, students will be able to participate actively in giving their opinions or brainstorming for solutions. When students can share their thoughts and communicate with their friends and teachers, they are more likely to stay connected and motivated in the virtual class.

2 Literature Review

2.1 The Background of the Sandbox Method

The Sandbox Method is a continuous step of self-learning that emphasized the way students learn and digest information [20]. Adding to that, the Sandbox method allows students to have direct access to learning content without being observed, evaluated, or restricted by the teacher's instructions [21]. Not only that, the Sandbox Method was seen as a creative platform to create something new with the combination of various objectives [9]. Besides that, the concept of Sandbox was adopted to create an augmented reality sandbox to act as an interactive learning tool for students [22].

Furthermore, looking at the importance of the Sandbox Method, the University of New South Wales, Business School designed an education program that integrates the concept of the sandbox [23]. Similarly, The Sandbox company initiated a program that applied the Sandbox method to provide students a place to learn [24]. Besides that, this method is also known as an online area where students can freely experiment in numerous ways with boundless opportunities [25]. Additionally, the Sandbox Method was introduced in Thailand's education system as an innovative method to further enhance students' development [26].

2.2 The Sandbox Method Implementation Journey in Fundamentals of Business Management Subject

Online learning using various digital platforms has been the new norm in most educational institutions. Platforms such as Google Meet, Zoom, or Microsoft Team have been continuously used by teachers and students for teaching and learning activities. Hence, this study used the sandbox approach in the subject Fundamentals of Business Management to find out students' perceptions about it during virtual classrooms. The Sandbox Method has been introduced to foundation program students who are taking the Fundamentals of Business Management subject. This method has been introduced to help students have a better understanding of the above-mentioned subject by looking at it from different perspectives. When students were exposed to the Sandbox Method, they will discover that learning can be fun and easy. In order to visualise the Sandbox Method for this business subject, Google Meet was used to act as a platform for students to share their thoughts about new business ideas, new ways to generate income for the business, or even discuss Sustainable Development Goals.

However, relying solely on Google Meet is not enough as it should incorporate other online learning tools like Google Slides, Jamboard, Quizziz and Kahoot. These online learning tools will give students space to test their knowledge about this subject and at the same time, it gives them the freedom to share their views during Fundamentals of Business Management virtual classes. Figure 1 demonstrates how the lecturer utilised Google Meet to assign students to discuss a business management topic during an online lecture session. Students were instructed to discuss in groups using Google Meet's Breakout Rooms, and then present their findings in the Fundamentals of Business Management virtual class. Besides that, Jamboard - one of Google's applications was used to give students the empowerment to voice their opinion on topics discussed in this subject. This can be seen in Fig. 2 whereby students were asked about their perspective on one of the topics in the aforementioned subject.

Not only that, online quizzes like Kahoot and Quizziz were used to create a fun and engaging learning experience for students. This can be seen in Fig. 3 and 4 whereby students answer the questions on these platforms to test their level of understanding of the said business subject. Adding to that, students will find that these tools help them to be competitive and have determination or motivation to learn.
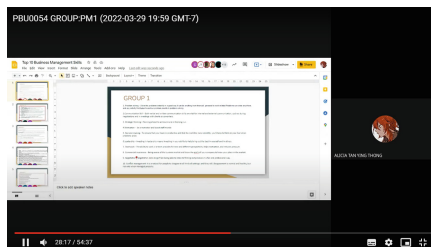
Fig. 1. Google Meet to assign students to discuss a business management topic during an online lecture session.
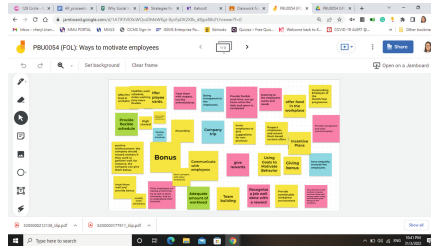
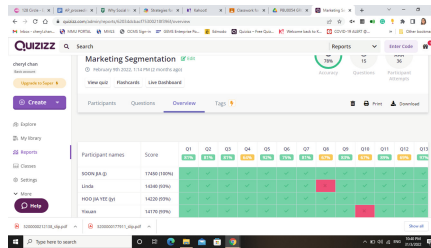**Fig. 2.** Jamboard - Used to discuss topics of the subject.

Fig. 3. Quizziz - test students' level of understanding of the subject.
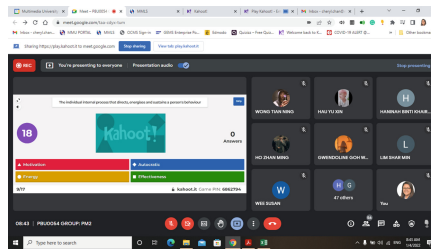

Fig. 4. Kahoot - test students' level of understanding of the subject.

3   Methodology

3.1   Survey

A survey was conducted using a Likert Scale questionnaire to identify the challenges faced by students while attending the Fundamentals of Business Management virtual class and students' insights on ways to make Fundamentals of Business Management virtual class more interesting. The target population consisted of Foundation Programme students from Multimedia University (MMU), Melaka. The sample size of this research is 212 respondents who registered and completed the subject Fundamentals of Business Management. These respondents are students from the Faculty of Business, Faculty of Information Science & Technology, Faculty of Engineering & Technology and Faculty of Law. The survey was distributed for three days using Google Form as it will allow the researchers to collect the relevant information on time. Not only that, the subject lecturers

were able to distribute the survey within three days as students were still registered under this subject.

This research implemented convenience sampling to collect data from the respondents due to the limitation of time. The questionnaire was constructed based on three segments. The respondents' demographic which consists of 4 items was shown in Part A. The challenges faced by students while attending the Fundamentals of Business Management virtual class were inserted in Part B (7 items). Part C questioned the students' insights on ways to make Fundamentals of Business Management's virtual class more interesting (6 items).

4   Results

4.1   Demographics

The demographic of the respondents consists of four parts. Figure 5 shows that most of the respondents are female (140; 66%) compared to male (72; 34%).

Figure 6 shows the ages of the respondents which consist of age 18 years old until 20 years old (204; 96.2%) and age 21 years old until 23 years old (8; 3.8%).

Figure 7 project the ethnicity (race) of the respondents whereby it was found that Chinese was the majority ethnicity of the respondents (152; 71.7%). The second highest ethnicity comprises Indian (29; 13.7%) and Malay (29; 13.7%). The other 2 respondents (0.9%) are from other ethnicities.

Based on Fig. 8 the foundation programme of the respondents. It is found that most students from Foundation in Law (114; 53.8%). The second highest from Foundation in Business (67; 31.6%), followed by Foundation in Information Science & Technology (28; 13.2%) and Foundation in Engineering & Technology (3; 1.4%).
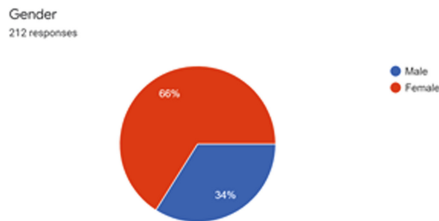

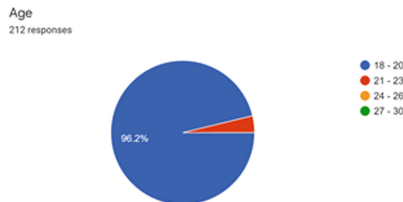**Fig. 5.** Percentages of female & male respondents.

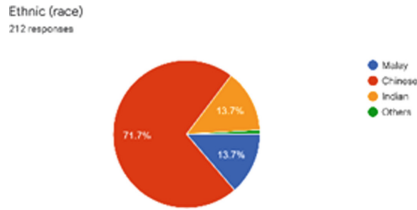
Fig. 6. Age of the respondents.
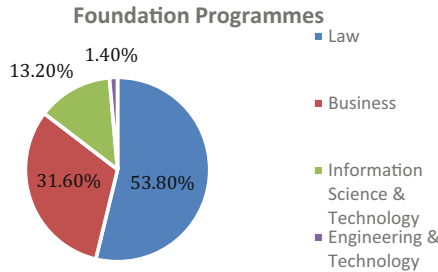
Fig. 7. Ethnicity of the respondents.

Fig. 8. Foundation programme of the respondents.

Table 1. Challenges faced by students in Fundamentals of Business Management virtual class

I face the following challenges while attending Fundamentals of Business Management virtual class	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)
1. I am demotivated when I am unable to understand the terms taught in class	17	22	32	24	5
2. I easily lose focus.	19	42	29	8	1
3. I feel alienated and lonely due to a lack of social connection.	20	37	25	14	4
4. The lecturer provides notes and tutorial questions but no discussions were conducted	42	45	9	3	0
5. I am unable to follow the class due to language barrier.	50	39	9	3	0
6. I have lack of confidence in sharing my ideas during class	19	23	37	15	6
7. I find it challenging to discuss with my coursemates whenever I have assignments to complete.	27	36	25	8	3

4.2 Feedback About Challenges Faced by Students in Fundamentals of Business Management Class

Table 1 projected the respondent's feedback about the challenges faced by them while attending Fundamentals of Business Management virtual classes. This study found that only 29% of the respondents feel demotivated if they are unable to understand the terms taught in class. Also, only 9% of respondents agree that they easily lose focus during virtual classes. Most of the respondents, about 82% agreed that they have good

Table 2. Students' insights on ways to make Fundamentals of Business Management class more interesting.

Students' insights on ways to make Fundamentals of Business Management virtual class more interesting	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)
1. If I am given the opportunity to share my ideas.	1	4	50	32	14
2. If the lecturer conducts interesting and fun activities.	1	2	15	55	26
3. I can obtain feedback from my lecturers and peers.	0	2	25	49	24
4. I am given the chance to create and present own ideas/solutions.	0	4	37	39	19
5. Lecturer exposed us to real-life examples and case studies.	1	1	11	43	43
6. My lecturers use different teaching methods. (eg: Use Kahoot, Blendspace, Padlet, Jamboard, or Break out rooms in Google Meet)	2	5	14	35	44

social connections during Business Management virtual classes. On top of that, 87% of respondents agree that the Business Management lecturers who provided notes and tutorial questions, also conducted discussions during virtual classes. 79% of the students find that they have the confidence to share ideas in the Fundamentals of Business Management virtual classes.

4.3 Students' Insights on Ways to Make Fundamentals of Business Management Class More Interesting

Table 2 shows students' insights on ways to make Fundamentals of Business Management virtual classes more interesting. This study discovered that 50% of respondents were neutral about the opportunity given to them to share ideas during class. Other than that, 81% of students who participated in this survey agree that if lecturers conduct interesting and fun activities, the fundamentals of Business management virtual class will be more interesting. The result also showed that 73% of respondents agree that obtaining feedback from their lecturers and peers will make the virtual class more engaging. In addition, students were also asked about the chance to create and present their own ideas/solutions during the virtual classes. The result showed that 58% of the respondents agree that the involvement of students in giving their own ideas and/or solutions will make virtual class more fun. 86% of students agreed that if the lecturer exposes them to real-life examples and case studies, Business Management virtual classes will be more exciting. Additionally, this study found that 79% of the respondents agree that various teaching methods stimulate students to be proactive and virtual classes become entertaining.

5   Discussion and Conclusion

The purpose of this study is to examine the perception of the students towards the implementation of the Sandbox Method in the Fundamentals of Business Management subject virtual class. Part B of the survey refers to the challenges faced by students while

attending the Fundamentals of Business Management virtual class. This study found that 61% of the students agree or remain neutral about the **demotivation that they felt when they were unable to understand the terms taught in class.** Referring to this matter, this study suggests that if the Sandbox Method is implemented it will help students to feel less stress whenever they are faced with challenging terms in the future. Besides that, based on the feedback, only 9% of the students agree that they **easily lose focus** while attending the Fundamentals of Business Management virtual class. So, this showed that the implementation of the Sandbox Method can help the majority of the students to stay focused in the virtual class.

Other than that, about 18% of the students felt that they are having **lack of social connection** while attending the Fundamentals of Business Management virtual class. In other words, most of the students find that they are having a good social interaction in the virtual class with the implementation of the Sandbox Method. Engaging quizzes, assignments and projects requiring students to participate actively through the Sandbox Method have made the majority of the students feel connected in the virtual class. On top of that, students need to communicate and collaborate with their peers and teachers while completing their assignments and project. So, when students stay connected, they will tend to be more motivated in the learning environment. As mentioned in past studies, when teachers make the class interesting and engaging, students will tend to be more interested in the subject, thus making them more attentive in the virtual class [13]. This is deemed to be true when 87% of the students **disagreed that the lecturers only provide notes and tutorial questions without conducting any discussion in the Fundamentals of Business Management virtual class**. As a consequence, the Sandbox Method provides innovative teaching methods and also plays an important role in motivating and keeping students to stay focused in the online class.

The next challenge that students might face is unable to follow class due to the **language barrier**. This study found that 89% of students disagree that language is a problem they faced during the Fundamentals of Business Management virtual class. This reflects that the language used while implementing the Sandbox Method is easy to understand allowing students to better express their ideas. The implementation of the Sandbox Method is indeed providing a good opportunity for students to increase their motivation in learning virtually.

Besides, using sandbox tools in virtual class can also build the **confidence of the students** to share their ideas. From the study, about 79% of the students found that they have the confidence to share ideas in the Fundamentals of Business Management virtual class. Through the implementation of the Sandbox Method, students are not only involved in a hands-on environment where they need to critically think about ways to solve the authentic task given, but they also need to present their product after completing the task. In the process of completing the task, students have to share their ideas and opinions with the group members to ensure that they can produce the "product" and share it with everyone later in the virtual class. Most of the students find that after the process of sharing their opinions in the group, they have more confidence to present their ideas to the entire class. Furthermore, it helps students to improve their social skills and remains optimistic. When students have good social interaction in a virtual class, they will find it is easy and comfortable to **discuss with their coursemates in**

completing their assignments. This is shown in the results where 89% of the students agreed that they do not face challenges to discuss with their coursemates to complete their assignments. The Sandbox Method has helped students to give their ideas and opinions openly in group discussions.

This study also discovered students' insights on ways to make the Fundamentals of Business Management virtual class more interesting. About 46% of the students agreed that if they were given the **opportunity to share their ideas**, it would make the virtual class more interesting. 50% of the students remained neutral for this point, most probably because the students are shy and "introverted" towards sharing ideas. However, the study has shown that most of the students agreed (46%) compared to those who disagreed (4%) that allowing sharing ideas would make the virtual class more interesting. Hence, this study recommended implementing the Sandbox Method to motivate students to have confidence in sharing their ideas. For example, students will be given a lot of opportunities to share their ideas and opinions through group discussions, assignments and projects through the Sandbox Method. This will truly make the class livelier and more interesting to attend.

Besides that, this study found that 81% of the students opined that the virtual class will be more interesting if the **lecturer conducts interesting and fun activities**. Students tend to be more interested in the subject when the teacher makes the class interesting [13]. The Sandbox Method that focuses on "play" seems to be fulfilling this requirement. Through the activities and authentic tasks given, lecturers who implemented the Sandbox Method will not be labeled as teacher-centered - only lecture in the virtual class. This will definitely bring more fun to students as it is engaging and at the same time inculcates the interest in learning in the virtual class.

Other than conducting interesting and fun activities, 73% of the students found that it is important that the lecturer can provide **feedback** to make the virtual class more interesting. For example, if students continue to participate in the activities in class without knowing their mistakes or obtaining comments on ways to improve their academic performance, they will not have satisfaction in learning. Most of the time, students will be seeking feedback no matter whether they are attempting a quiz, presenting their assignments, or solving their projects. Referring to this matter, providing feedback not only gives the students an explanation of what they have done incorrectly but also informs them about what they have done correctly. Giving the right and positive feedback will enable students to be very productive in learning. Not only does the lecturer need to provide feedback, but students also need input from their peers. This is exactly how the Sandbox Method works to improve students' confidence and enthusiasm in learning and thus make the students feel the virtual class is interesting.

From the study, more than half of the students (58%) suggested that the virtual class will be more interesting if they were given **the chance to create and present their ideas and/or solutions**. Students who participate in class for the sake of participating without being given the opportunity to create and communicate their thoughts are passively participating, which is pointless participation. Students will not find it interesting when this occurs in a virtual class. With that, the Sandbox Method plays an important role to ensure that students are given the chance to share their ideas and opinions. This will drive them to participate actively, build their knowledge, and keep learning encouraged.

Apart from that, 86% of the students strongly agree and agree that if the **lecturer exposed them to real-life examples and case studies**, it will make the virtual class more interesting. Real-life examples help the students to retain their knowledge for a longer time [27]. Students welcomed projects that applied to real-life events and they noted that when the lecturer ties the subject to real-life issues, they have a greater understanding and pleasure [28]. Besides giving real-life examples, involving students in case studies that relate to real-life problems would also promote students' interest in learning. Students need to diagnose the case given and make an evaluation or report. This is part of the Sandbox Method to engage students in the virtual class and make the class a more interesting place to learn.

Other than that, this study also found that 79% of the students agree that lecturers **use different teaching methods** (for example Kahoot, Blendspace, Padlet, Jamboard or Break out rooms in Google Meet) as one of the ways to make the virtual class more interesting. Using only one way to teach online will be the same as giving a lecture in person whereby students feel bored, lose their attention and interest in class, and eventually become demotivated in learning. The use of the Sandbox Method provides lecturers with a variety of teaching methods and strategies. This method not only enables the students to have fun in learning but also helps the students to remain focused during the virtual lessons. Furthermore, when a lecturer uses different methods in teaching online classes, it also provides students with the opportunity to have a better understanding of the subjects taught.

The findings from this study indicated that students perceived the implementation of the Sandbox Method in Fundamentals of Business Management subject virtual classes as beneficial and interesting. The majority of students noticed that when their lecturers used the Sandbox Method, they are more motivated, focused and able to have more social interactions in the virtual class. The implementation of the Sandbox Method in the virtual class has also increased the confidence of the students to share their ideas and to have open discussions with their group mates. Thus, the Sandbox Method is indeed an effective approach to promoting 21st-century learning in the virtual class.

Authors' Contributions.   All authors contributed to the main idea of this paper.

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