INTEGRATION OF EDUCATIONAL GAME APPLICATION ON VIDEO LESSON IN COOKERY GRADE 12

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ABSTRACT

This quantitative descriptive study aimed to determine the significant relationship between educational game application and behavior of grade 12 students and significant effect of educational game application to the performance of grade 12 students and to answer the research problems posed. It comprised the following to wit; What is the level of educational game application with regards to: Objective, Content, Activities, and Assessment. What is the level of characteristic of educational games application on video lesson in cookery in cookery in terms of
 Sound, Visual, Functionality; and Accessibility. What is the level of behavior in terms of Focus, Interest, and Positive reaction. What is the level of performance of the students in educational game application relatives to Practical Test, and Written test? Does the educational game application have significant relationship to the student's behavior of G 12? Does the educational game application have significant effect to the students' performance of G-12.

On the other hand, descriptive method of research was utilized in this study. Questionnaire was formulated and given to one sixty (60) respondents, who were selected respondents as the Grade 12 students at Kapayapaan Integrated School. The researcher-made questionnaire is composed of three (3) parts: The video lesson, videon lesson characteristic and students' performance.

The findings revealed that the level video lesson in cookery was interpreted as high in terms of: objectives, content, activities, and assessment and very high in terms of video lesson characteristic. In terms of sound, visual, functionality and accessibility. As to the it was also interpreted as high.

Moreover, the level of students' performance in integration of educational game application in terms of characteristics and students' behavior are outstanding.

From the results, the researcher found out that there were lot of students as outstanding from the number of the respondents in Kapayapaan Integrated School . It can imply that the students still learn and gain knowledge through integration of educational game application on video lesson in cookery. The findings also indicated a significant relationship between the component of the video and characteristic of the students engagement no significant relationship and the components and characteristics of the educational game application have no significant effect on the students' performance.

Keywords:

Students' behavior, *students'* performance. Focus, interest, content, and positive

INTRODUCTION

the Department of Education has been seeking for a solution to the learning loss and learning gaps caused by the country's shift in educational learning delivery. According to Asian Development Bank (2022) study, teaching at the student's level, with the support of teaching assistants, tutors, or education technology (edtech), is crucial for learning recovery since it has been demonstrated to increase learning outcomes.

Gaming in school may be considered as an impediment to learning. However, in other cases, it is one of the tactics used in education to boost students' motivation and involvement (Zirawaga, Olusanya & Maduku, 2017). Furthermore, this will boost students' visual capabilities, as well as their engagement and cooperation abilities with classmates or peers. Game allows students to apply gaming values in real-world situations (Martin & Bolliger, 2018). Since the conventional classroom-based method is losing its relevance and becoming less efficient as technology advances, the constantly growing requirements of modern learners are parallel to each other. Gamification of education is a rising approach for motivating students. Incorporating elements of game design into educational contexts may boost motivation and engagement.

Learners are increasingly turning to video-based learning as a fun and engaging strategy that involves both visual and aural cognitive processes. The material and pedagogy are not only aesthetically beautiful, but they also capture students' interest with topic descriptions and oral content. This type of knowledge or expertise will endure longer. Video training has shown to be particularly effective because it provides a comprehensive model training package that addresses the four major components of learning motivation: attention, relevance, confidence, and fulfillment. The numerous advantages of video-based learning drive educational institutions to incorporate these trends into official teaching or learning techniques. Video-based training allows students to study a topic in the most effective and convenient method for them. Video tutorials operate well in the education scenario with the notion of need-based learning interventions, in which learners select when and where they study. Experts' interesting explanations and material enable learning that appeals to modern individuals who are dissatisfied with tedious classroom learning.

Moving course frameworks with a range of picture settings such as static, text, animation, music, and audio are best suited for multimodal teaching techniques that help learners to engage, learn, and retain better at all levels. The integration of game idea in video lessons will be used in this study as an infusion of two supplied concepts to improve students' performance in Grade 12 Cookery.

In light of the benefits that game-based learning and video lesson pedagogy may provide to the teaching and learning process, the integration of educational game application on video lesson in cookery thus, the researcher opted to conduct study and innovation based on these notions. The goal of this study is to see how successful the integration of Grade 12 Cookery to improves students' performance at Kapayapaan Integrated School.

The study determined the effectiveness of integration of game application in enhancing the performance of Grade 12 Cookery students at Kapayapaan Integrated School.

Specifically, the study seeks to answer the following research question

1. What is the level of educational game application with regards to:

    1.1 objective;

    1.2 content;

    1.3 activities; and

    1.4 assessment?

2.   What is the level of characteristic of educational games application on video lesson in cookery in cookery in terms of

    2.1 sound;

    2.2 visual;

    2.3 functionality; and

    2.4 accessibility?

3. What is the level of behavior in terms of

    3.1 focus;

    3.2 interest; and

    3.3 positive reaction?

4. What is the level of performance of the students in educational game application relatives to:

    4.1 Practical Test; and

    4.2 Written test?

5. Does the educational game application have significant relationship to the student's behavior of G 12?

6. Does the educational game application have significant effect to the students' performance of G-12.

REVIEW OF RELATED LITERATURE

       This chapter provides an integrated overview of the literature on integration of educational game application on video lesson and its effects on education.

       Students' behavior is an indicator found relevant in this study. Student's behavior is a participation in academic and extracurricular activities in education and training as their primary purpose in serious games mechanism that integrates real-life and logical techniques into learning, which is one of the most used simulators in Virtual Reality (VR) environments. Following Checa and Bustillo's (2020) article, these games are the best way to introduce new methodologies to learners as it concerns most senses. To fully engage and achieve the best results, it requires the participants to maximize their vision, auditory, and retention. Some cases also manipulate olfactory, gustatory, and somatosensorial. However, these games are more immersive and demand high technology.

Over the years, educators are starting to transition from physical activities to Serious Games to catch the attention of today's learners. Zhonggen (2019) proved in his literature that the continual ly rising number of learning-related games in schools and universities is an ongoing trend between facultyand students. It encourages students to try repeatedly and accomplish success by making mistakes without performing harmful and risky operations that may affect surrounding people. Serious Game assisted learning lets its players overcome any hindrances, especially when trying to apply their learning in real -life situations.

       Furthermore, it is very evident that the integration of educational game application on video lesson in cookery created an influential impact to the student's behavior, rendering encouragement and

participation. As stated by Zhonggen, Checa, and Bustillo, gamified video lessons are one way to engage the learner's senses, which leads to changes in their behavior towards studying.

Focus or **interest** is a perfect strategyto learning new things ingame integration intypical learning environments, proving itself to be an important variable as it helps in memory retention. Engagement, attention focus, and retention are significantly higher upon using serious games, providing teachers an opportunity to create motivations and track progress. Inputting literacy among video mechanisms eases educational barriers as it provides a wider variety for the students and simplifies teaching. Advanced technology allows educators to cover more pedagogical features and pursuits to eliminate structural weaknesses (Westera, 2019).

Alrehaili and Osman (2019) emphasized that Role-Playing Games (RPG), a branch of video mechanism that allows its user to enliven situations virtually, mimics and enriches situational analysis in learning. Educational systems significantlybenefit from RPG as it supports learningoutside the educator's capability and materials. It presents various perspectives and broadens the learning experiences of students. Traditional learning and activities limit the possibilities of being creative and executing seemingly impossible ideas. Immersing individuals in Serious RPGs also improves analytical skills and muscle memory, which are helpful in skill-based education.

The studies above are related to the present study in using games in the sense that through individual activity, students get to apply it in their educational values. Their study that is deemed entertaining and technological-based lessons tendto increase engagement, attention, and focus. Alrehaili and Osman thoroughly highlighted that videos are entertaining enough to the students of today's age as they are born within the technological advancement era. Meanwhile, Westera focusedon the advantages to the instructors as gamified video lessons served as a better way to connect to the learners.
Moreover, focus and interest enhance students' sensory and memory retention. It proves that using games in lesson prevents harmful instances. Somehow, it also serves as an activity for learning.

The **positive reaction** of students was identified as a key indicator in this study. Participation is demonstrated by a student's behavior. Technology is increasingly being integrated into school curricula, allowing educators to better teaching, and learning by utilizing cutting-edge information and electronic education (Matos et al., 2019). Numerous studies have shown that technology has a positive impact on student learning. Computers, technical equipment, and technology improvements available to educators are only tools to assist instructors and students in understanding and anal yzing knowledge. These technologies will be essential for learning not just because they will be widely available, but also because they will enhance education and students (Harper, 2018). To effectively use these tools, educators must move away from a "cookbook attitude" and toward an emphasis on creating a foundation in knowledge application.

In similar of student behavior much research has proven that technology improves student learning. Technology is increasingly being incorporated into educational programs, helping teachers and students to improve their teaching, and learning by utilizing innovative information and electronic education. Both Harper and Matos et al. agree that integrating technology within the educational system harbors positive reactions from the students, impacting their achievements and studying attention.

Students' performance was also identified as a critical component in this study as it is one of the main indicators of the study's success, which can be evaluated through written and practical tests. Any learning activity or evaluation that requires students to perform to demonstrate their knowledge, understanding, and skill is referred to as a student performance. Students' performance activities provide a tangible product and/or performance that can be used to demonstrate learning. A students performance assignment, as opposed to a selected-response item that asks students to choose from given alternatives, presents a setting that requires learners to apply their learning in context. Students' performance in practical and written tests enable teachers to gather evidence not just about assessment

becoming phenomenon-based and multidimensional as it assesses both scientific practices and content within a new context (Holthuis et al. 2018).

Moreover, students' performance is the way of a teacher understanding the processes of the design process is critical, but Teachers also discover that support and collaboration are essential components of the process. Remember that designing performance tasks, like any new process, will be difficult. As instructors prepare to transition to specified performance tasks, it is strongly advised that they build a team of forward-thinking colleagues and seek professional development to guide them through this new approach.

Conducting test to evaluate the student's performance shows the memory retention of the students. Holthuis pointed out that tests' asses both the student's and instructors' capabilities, reaching an agreement regarding their ways of interacting. Video lessons aids at knowing the best way to teach and learn.

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Content of the gamified video lessons also provided an impactful insight towards the study as it is the core of teaching. Today's educators recognize that the computer has created a customized learning environment that is too tough for a teacher to manage whole classrooms. This is due to the computer's ability to allow individual pupils to study at their own speed while remaining motivated as they go through the tough virtual learning environment. Previously, students could only learn through traditional methods of instruction. As teaching-learning innovations have evolved, instructors have incorporated these cutting-edge tools, along with other new teaching approaches, into their classrooms. In today's classrooms, computer-assisted education, particularly video technology, is a key and significant teaching material. Previously, students could only learn through traditional methods of instruction. As teaching-learning innovations have evolved, instructors have incorporated.

The **Visual** of educational game application was also highlighted as a significant component. According to Hansch et al. (2015, as cited by Ou, 2019), there are nine types of instructional videos depending on their learning goals or purposes, and 18 video producing styles or genres. Because courses vary considerably in subject matter, training goals, and objectives among students, teachers must make thoughtful decisions about the selection and use of the best available technology and resources to create films that will aid students in reaching the learning outcomes they seek.

There is an increasing need to develop research-based standards to produce instructional videos to improve learning (De Koning et al., 2018; Ou, 2019, 2015; Poquet et al., 2018). Numerous studies have shown that employing short video snippets allows for more efficient processing and storage capabilities .

The visual and auditory character of teacher-created videos that help learners engages a big audience and allows each user to internalize the content. Nowadays, the impact of digital video on everyday life is palpable. With over one million visits every month, online video sharing sites such as YouTube, Vimeo, and Metacafe enjoy a big readership. Much of the educational video research relies heavily on educational design ideas, such as Mayer's cognitive theory of multimedia learning, as a foundation for design considerations (Fiorella & Mayer, 2018; Poquet et al., 2018).

METHODOLOGY

This research will utilize Quantitative research design to determine if there is significant relationship between the component of the video lesson and characteristic of the student's engagement. Additionally, this study will employ an experimental approach to determine if there is significant effect between the component of the video to practical test of a students among grade 12 students.
Respondent of the Study
The respondent of the study will be the selected Grade 12 students of Kapayapaan Integrated School. The students were heterogeneously grouped and whose sections were determined during enrolment.

Research Instrument

In achieving the purpose of the study that is to determine the effectiveness of the integrationof educational game application on video lesson. A Table of Specification was created and validated. The table of Specification contains the set competencies for the second quarter, the number of hours / meetings, topic, the number of items for which competencies are to be tested, the item distribution of the said competency, and the total number of items. Each learning episode used a semi-detailed lesson plan and was accompanied by video lessons related to each lesson. The participants were given a formative test after each complete delivery of a topic or lesson.

Creating a compelling and unique instructional material isone of the skillsa teacher must possess. The lessons are indeed effective depending on how good a teacher is, but the lessons are more efficient if there is learning material that supports the acquisition of learning. Having a learning material or tool enables the learners to develop their logical and creative thinking. Moreover, it makes the learning more enjoyable, realistic, and appealing to all learners.

There are a lot of instructional learning materials that are widely utilized at this time. Some are traditional but most of them are modern because it is more convenient, consistent, and cost-effective. But on the other hand, it requires skills and knowledge to manipulate and create a particular modern instructional material, just like videos. Videos are commonly used, and it was proven effective in the teaching and learning process. The conceptualized video learning material is considered to be helpful, especially in this trying time that teachers are frustratedto transfer learning as they do not see and assess their learners personally.

The integration of educational game application on video lesson. that the researcher established is an instructional material that can prove that teachers are adaptable and flexible especially in teaching

or transferring learning. Integration of educational game application on video lesson, will be the tool that develops learners holistically. Same goes on creating a detailed lesson plan, it include s the three learning domains which are cognitive, affective, and psychomotor.

It involves not just a particular content on a teacher's and learner's guide, but it has values integration that can make learners realize to be good people and appreciate the things around them. Additionally, it has a part where learners can improve their speaking skills, share their experiences, and think critically when they are asked to reflect on the videos.

The first episode of the integration of educational game application on video lesson, contains cognitive domain as the teacher discusses the different concepts of natural resources, their differences, its kinds, and the like. On this part, it develops the mental skills of a learner. On the affective domain, the video holds a part where the teacher discusses the importance on how and why an individual shouldtake care of the environment. The teacher also discusses the things that might happen if an individual fails to do his/her responsibility in the environment. On this part, it touches the emotions, feelings, and attitudes of the learners. Lastly, on the psychomotor domain, the last part of the video requires the learners to answer a specific question that would make them talk and improve their speaking and reasoning abil ities. Next part of the integration of educational game application on video lesson. is the Content where the lesson in Cookery will be discussed then followed by Drill and Review that includes different questions that is situational as a review for the students. Then lastly, assessmentwill be given to the students where students can answer in their notebook. Integration of educational game application on video lesson, will achieve not just the needs of the learners but also their wants. It contains background music, sound effects, and graphics that can catch the attention of the learners. It is also localized, so that the learners can relate and discover the things that are just around them. It is named as a GVL because it proves that in just one subject matter a student can learn, do, and explore different things through gamified learning environment. This instructional material is an all-in-one package for all the students in Grade 12 Cookeryand teachers.

Lastly, the result of the validation of the research instrument will be done by panel of experts in this study and by the curriculum experts in DepEd SDO Calamba City.

RESULT AND DISCUSSION
determined by the weighted mean and standard deviation.

Table 1 Level of Components of Educational Game Application with regards to Objectives

Statements	Mean	SD	Remarks
Provide systematic explanations of objective which are aligned in the curriculum guide.	4.58	0.50	Strongly Agree
Video lesson are acceptable and suitable to students' level of understanding as it enhances students' 21st century skills.	4.82	0.39	Strongly Agree
Concepts in the video tutorials are appropriately and accurately explained. They are free from grammatical errors.	4.53	0.50	Strongly Agree
Video tutorial captures the main objective and is acceptable to students with different learning styles.	4.50	0.50	Strongly Agree

Statement	Mean	SD	Remarks
Video tutorial is/are relevant and aligned with the skills and competencies in the curriculum guide.	4.67	0.48	Strongly Agree
Grand Mean	**4.62**		**Strongly Agree**

Legend

Scale	Range	Description	Verbal Interpretation
5	4.20 - 5.00	Strongly Agree	Very High
4	3.40 - 4.19	Agree	High
3	2.60 - 3.39	Moderately Agree	Moderately High
2	1.80 - 2.59	Disagree	Low
1	1.00 - 1.79	Strongly Disagree	Very Low

The table above presented the level of components of Educational Game Application in terms of objectives. It can be gleanedthat the respondents strongly agree that the video lesson are acceptable and suitable to students' level of understanding as it enhances students' 21st century skills, it yielded the highest (M=4.82, SD=0.39). Besides, respondents also agreed strongly that video tutorial captures the main objective and is acceptable to students with different learning styles even thoughit gained the least (M=4.50, SD=0.50).

Overall, level of components of Educational Game Application in terms of objectives attained the grand mean of 4.62 and was interpreted as Very High. This further indicates that the objectives were attained and evident in the videoas assessed by the respondents. According to Hansch et al. (2015, as cited by Ou, 2019), there are nine types of instructional videos depending on their learning goals or purposes, and 18 video producing styles or genres. Because courses vary considerably in subject matter, training goals, and objectives among students, teachers must make thoughtful decisions about the selection and use of the best available technology and resources to create films that will aid students in reaching the learning outcomes they seek.

Table 2 Level of Components of Educational Game Application with regards to Content

Statement	Mean	SD	Remarks
Contents of the video are essential to students since they provide relevant discussions on the subject matter.	4.55	0.50	Strongly Agree
Video can be considered as an essential tool to achieve better retention of students' learning.	4.58	0.50	Strongly Agree
Video is relevant because it reinforces or supplements concepts necessary for mastery.	4.67	0.48	Strongly Agree
Overall discussion in the video tutorial provides a substantial explanation and gives an explicit discussion of the subject matter.	4.57	0.50	Strongly Agree
Content of the video may be used as a tool in helping the viewers understand a series of concepts worth remembering.	4.68	0.47	Strongly Agree
Grand Mean	**4.61**		**Strongly Agree**

The table above presented the level of components of Educational Game Application in terms of content. The respondents strongly agree that the video content can be used as a tool to help viewers understand a series of concepts worth remembering, as evidenced by the highest (M=4.68, SD=0.47). Furthermore, respondents strongly agreed that the video's contents are important to students because they provide relevant discussions on the subject matter, despite the fact that it gained the least (M=4.55, SD=0.50). Overall, the level of components of Educational Game Application in terms of content attained the grand mean of 4.61 and was interpreted as Very High. There is an increasing need to develop research-based standards for the production of instructional videos in order to improve learning (De Koning et al., 2018; Ou, 2019, 2015; Poquet et al., 2018). Numerous studies have shown that employing short video snippets allows for more efficient processing and storage capabilities.

Table 3 Level of Components of Educational Game Application with regards to Activities

Statements	Mean	SD	Remarks
Activities are an innovative material used to reinforce students' learning.	4.60	0.49	Strongly Agree
Activities used to maximize students' learning, beneficial in enhancing their 21st century skills.	4.68	0.47	Strongly Agree
Activities used as a tool in helping the viewers understand a series of concepts worth remembering.	4.50	0.50	Strongly Agree
Activities are comprehensive and are useful to enhance students' learning.	4.45	0.50	Strongly Agree
Activities are suitable for students' learning styles and preferences. Hence, it is helpful to both students and teachers.	4.68	0.47	Strongly Agree
Grand Mean	**4.58**		**Strongly Agree**

The table above presented the level of components of Educational Game Application in terms of activities. As evidenced by the highest (M=4.68, SD=0.47), respondents strongly agree that activities used to maximize students' learning are beneficial in enhancing their 21st century skills and are appropriate for students' learning styles and preferences. Furthermore, despite the fact that it gained the least (M=4.45, SD=0.50), respondents strongly agreed that activities are comprehensive and useful for enhancing students' learning.

Overall, the level of components of Educational Game Application in terms of activities was 4.58, which was interpreted as Very High. According to Woolfitt (2015, as cited by Mosah & Mitch, 2021), "education is undergoing profound transformation," and "brick and mortar classes are accessible to multimedia, subject matter experts, and each other." This rapid shift is influenced by technological trends and the passion of people from various cultures, as well as the increasing use of digital technology and ubiquitous Internet access. To achieve the aim, three creative activities in Video-Based Learning may be implemented: pre-classroom, formative activities, and post-creative engagement activities (Shliakhovchuk, 2018).

Table 4 Level of Components of Educational Game Application with regards to Assessment

Statements	Mean	SD	Remarks
The instructions are both clear and precise to the students	4.50	0.50	Strongly Agree
It provides analysis and demonstrates critical thinking ability.	4.70	0.46	Strongly Agree
Curriculum applied is congruent to the goal as expected to the course offered.	4.37	0.49	Strongly Agree
Provide them of challenging task performance that help them to reach highest potential and develop skills.	4.68	0.47	Strongly Agree
Uses a variety of learning methods to encourage students.	4.50	0.50	Strongly Agree
Grand Mean	**4.55**		**Strongly Agree**

The table above presented the level of components of Educational Game Application in terms of assessment. Respondents strongly agree that assessment provides analysis and demonstrates critical thinking ability, as evidenced by the highest (M=4.70, SD=0.46). Furthermore, despite receivingthe lowest score (M=4.37, SD=0.49), respondents strongly agreed that the curriculum used is congruent with the goal as expected for the course offered.

In terms of assessment, the overall level of components of Educational Game Application was 4.55, which was interpreted as Very High. These video classes frequently include video quizzes or self -assessment questions in order to motivate students and deepen their learning (Poquet et al., 2018). It is self-evident that incorporating video courses into the teaching and learning process, as well as school activities such as training and seminars, helps both teachers and students.

Level of Characteristics of Educational Games Application on Video Lesson in Cookery

Table 5 Level of Characteristics of Educational Games Application on Video Lesson in Cookery in terms of Sound

Statements	Mean	SD	Remarks
Features images appropriate for the interest level, knowledge and abilities of the intended students.	4.67	0.48	Strongly Agree
Enables the students to take part actively in their own educationprocedure.	4.72	0.45	Strongly Agree
Visuals can enhance your written thoughts and make difficult textual descriptions more understandable.	4.30	0.70	Strongly Agree
Viewers are emotionally affected by visual components and have a text font, size, and color that are appropriate.	4.58	0.50	Strongly Agree
Encourage students to connect ideas in order to quickly assimilate large amounts of course material and serve as a memory aid.	4.45	0.50	Strongly Agree

Grand Mean	**4.54**	**Strongly Agree**

The table above presented the level of characteristics of Educational Games Application on video lesson in cookery in terms of sound. It can be deduced that respondents strongly agree that sound allows students to participate actively in their own education procedure, as it yielded the highest (M=4.72, SD=0.45). Furthermore, even though it gained the least (M=4.30, SD=0.70), respondents strongly agreed that visuals can enhance their written thoughts and make difficult textual descriptions more understandable.

Overall, level of characteristics of Educational Games Application on video lesson in cookery in terms of sound attained the grand mean of 4.54 and was interpreted as Very High. According to Iskru and Schulz (2020), while the pedagogical use of video inside a lessonhas beenstudied, what is needed is an emphasis on the pedagogy within the video, which is the pedagogical style, form of the video that leadsto learning, and where information transformations occur.

Table 6 Level of Characteristics of Educational Games Application on Video Lesson in Cookery in terms of Visual

Statements	Mean	SD	Remarks
Visual contents of the video are essentialto students since they provide relevant discussions on the subject matter	4.60	0.49	Strongly Agree
Visual can be considered as an essential tool to achieve better retention of students' learning.	4.57	0.50	Strongly Agree
Images and moving objects is relevant because it reinforces or supplements concepts necessary for mastery.	4.50	0.50	Strongly Agree
Visual contents of the video are essential to students since they provide relevant discussions on the subject matter.	4.45	0.50	Strongly Agree
Visual can be considered as an essential tool to achieve better retention of students' learning.	4.80	0.40	Strongly Agree
Grand Mean	**4.58**		**Strongly Agree**

The table above presented the level of characteristics of Educational Games Application on video lesson in cookery in terms of visual. It can be deduced that respondents strongly agree that visual can be considered an essential tool for improving student learning retention, as it yielded the highest (M=4.80, SD=0.40). Furthermore, despite receiving the lowest score (M=4.45, SD=0.50), respondents strongly agreed that video visual contents are important to studentsbecause they provide relevant discussions on the subject matter.

Overall, the level of visual characteristics of Educational Games Application on video lesson in cookery reached a grand mean of 4.58 and was interpreted as Very High. As technology rises to everyday living, the educational system is also transitioning into maximizing applications and websites to reach their full

learning potential. Websites and games used primarily for education show a higher mastery of culinary terminologies as students have higher academic achievements than traditional evaluations. They also tend to apply their knowledge more profoundly than those outside the gamification curriculum (Sahak et al., 2021).

Table 7 Level of Characteristics of Educational Games Application on Video Lesson in Cookery in terms of Functionality

Statements	Mean	SD	Remarks
Video is an innovative material used to reinforce students' learning.	4.77	0.43	Strongly Agree
Video tutorial used to maximize students' learning, beneficial in enhancing their 21st century skills.	4.57	0.67	Strongly Agree
Content of the video may be used as a tool in helping the viewers understand a series of concepts worth remembering.	4.68	0.47	Strongly Agree
Video is an innovative material used to reinforce students' learning	4.60	0.49	Strongly Agree
Visual can be considered as an essential tool to achieve better retention of students' learning.	4.75	0.44	Strongly Agree
Grand Mean	**4.67**		**Strongly Agree**

In terms of functionality, the table above presented the level of characteristics of Educational Games Application on video lesson in cookery. According to the results, respondents strongly agree that video is an innovative material used to reinforce students' learning (M=4.77, SD=0.43). Furthermore, despite receiving the lowest score (M=4.57, SD=0.67), respondents strongly agreed that video tutorials were beneficial in improving students' 21st century skills.

Overall, the level of functionality of Educational Games Application on video lesson in cookery reached a grand mean of 4.67 and was interpreted as Very High. The study above is related to the present study in the sense that through Integrating technology into the educational system has already been widespread for decades; thus, Bista and Garca-Ruiz (2021) innovate cooking simulators to help aspiring chefs and professions-alike experience trial and error endlessly.

Table 8 Level of Characteristics of Educational Games Application on Video Lesson in Cookery in terms of Accessibility

Statements	Mean	SD	Remarks
Being diverse of the learners.	4.43	0.53	Strongly Agree
Flexible that can be altered to fit different curriculums.	4.45	0.50	Strongly Agree
Able to cope up with the discussions even when internet connection is not stable.	4.38	0.49	Strongly Agree
Use colors thoughtfully and with good contrast.	4.82	0.39	Strongly Agree
The media player and the video are both in an accessible format.	4.43	0.50	Strongly Agree

Grand Mean	4.50	Strongly Agree

In terms of accessibility, the table above presented the level of characteristics of Educational Games Application on video lesson in cookery. According to the results, respondents strongly agree that they use colors thoughtfully and with good contrast (M=4.82, SD=0.39). Furthermore, despite gaining the least (M=4.38, SD=0.49), respondents strongly agreed that they could keep up with the discussions even when their internet connection was unstable.

Overall, level of characteristics of Educational Games Application on video lesson in cookery in terms of accessibility attained the grand mean of 4.50 and was interpreted as Very High. El-Ariss et al research's from 2021 also cited the benefit of employing video in instruction. The authors pointed out that all students may easily access the course teaching videos, which is seen to be one of the remarkable advantages for students who study online.

Level of Students' Behavior

Table 9 Level of Students' Behavior in terms of Focus

Statements	Mean	SD	Remarks
I can preserve more information when watching recorded tutorial video lesson rather than reading my notes alone.	4.43	0.50	Strongly Agree
I can simply understand the lesson because of tutorial video lesson representations.	4.48	0.54	Strongly Agree
Recorded tutorial video lesson are very convenient since I can re watch them offline	4.30	0.50	Strongly Agree
The Audio and visual from recorded tutorial video lesson helps to promote my attention span	4.18	0.39	Agree
Recorded tutorial video lesson are easy to use	4.60	0.49	Strongly Agree
Grand Mean	**4.40**		**Strongly Agree**

The table above presented the level of students' behavior in terms of focus. It can be gleaned that the respondents strongly agree that recorded tutorial video lesson are easy to use, it yielded the highest (M=4.60, SD=0.49). Besides, respondents also agreed strongly that the audio and visual from recorded tutorial video lesson helps to promote my attention span even though it gained the least (M=4.18, SD=0.39).

Overall, level of students' behavior in terms of focus attained the grand mean of 4.40 and was interpreted as Very High. Almuslamani et al. (2020) looked at how instructional videos affected the participation of 24 students at the University of Applied Sciences in Bahrain. It was found that student-selected educational movies had a stronger influence.

Table 10 Level of Students' Behavior in terms of Interest

Statements	Mean	SD	Remarks
Tutorial video lesson improve my achievement of practical skills.	4.58	0.50	Strongly Agree
I preferred using recorded tutorial video lesson in learning practical skills rather than synchronous online class	4.65	0.48	Strongly Agree
I can pause the tutorial video lesson and follow how to properly perform the instructions that were given thus promotes skill competence.	4.50	0.50	Strongly Agree
I can re watch the recorded tutorial video lesson anytime I want, so I can recall the proper way of performing the task.	4.82	0.39	Strongly Agree
The recorded tutorial video lesson provides animation or visual representation that helps to promote familiarization of the actual practice.	4.55	0.50	Strongly Agree
I am more confident to perform after watching the recorded tutorial video lesson.	4.60	0.49	Strongly Agree
Grand Mean	**4.62**		**Strongly Agree**

The table above depicted the level of interest displayed by students. It can be deduced that the respondents stronglyagree that they can re watch the recorded tutorial video lesson whenever they want, in order to recall the proper way of performing the task, which yielded the highest (M=4.82, SD=0.39). Furthermore, respondents strongly agreed that they could pause the tutorial video lesson and followhow to properly perform the instructions that were given, promoting skill competence despite the fact that it gained the least (M=4.50, SD=0.50).

Overall, level of students' behavior in terms of interest attained the grand mean of 4.62 and was interpreted as Very High. People may now use modern technology to help with adaptive learning. Intelligent machines as potential instructors, on the other hand, represent a hypothetical circumstance that is now beyond the capabilities of current technology. Essentially, adaptive learning means that what the learner encounters next is personalized or adjusted in relation to what the learner has already encountered (Johnson & Sloan 2020).

Table 11 Level of Students' Behavior in terms of Positive Reaction

Statements	Mean	SD	Remarks
I am contented since I can download the recorded of tutorial video lesson	4.43	0.53	Strongly Agree
I am contented with the use of visualeffects that promotes visualization.	4.47	0.54	Strongly Agree
I am contented with the use of audio that enhances my attention span.	4.80	0.40	Strongly Agree

I am contented with the result of my academic performance after using recorded the tutorial video lesson.	4.45	0.50	Strongly Agree
I will recommend using recorded tutorial video lesson.	4.55	0.50	Strongly Agree
Grand Mean	**4.54**		**Strongly Agree**

The table above displayed the level of positive reaction among students. It can be deduced that the respondents strongly agree that they are satisfied with the use of audio that increases their attention span, as it produced the highest (M=4.80, SD=0.40). Furthermore, respondents strongly agreed that they are satisfied because they can downloadthe recorded tutorial video lesson even though it gained the least (M=4.43, SD=0.53).

Overall, level of students' behavior in terms of positive reaction attained the grand mean of 4.54 and was interpreted as Very High. Technology is increasingly being integrated into school curricula, allowing educators to better teaching and learning by utilizing cutting-edge information and electronic education (Matos et al., 2019). Numerous studies have shown that technology has a positive impact on student learning.

Level of Students' Performance

Table 12 Level of Students' Performance relative to Practical Test

Grading Scale	Frequency	Percentage	Descriptors
90 – 100	40	100%	Outstanding
85 – 89	0	0	Very Satisfactory
80 – 84	0	0	Satisfactory
75 - 79	0	0	Fairly Satisfactory
Below 74	0	0	Did Not Meet Expectations
Mean	**96.63**	**Interpretation**	**Outstanding**

Table 12 revealed the level of students' performance relative to their practical test. It can be seen that 40 or 100% of the respondents showed an "Outstanding" performance as they attained grades ranging from "90 to 100". The mean grade of 96.63 with verbal interpretation of "Outstanding" indicates that the respondents performed beyond excellent satisfactory level in their practical test.

Table 13 Level of Students' Performance relative to Written Test

Grading Scale	Frequency	Percentage	Descriptors
90 – 100	40	100%	Outstanding
85 – 89	0	0	Very Satisfactory

80 – 84	0	0	Satisfactory
75 - 79	0	0	Fairly Satisfactory
Below 74	0	0	Did Not Meet Expectations
Mean	**94.17**	**Interpretation**	**Outstanding**

Table 13 revealed the level of performance of students in relation to their writtentest. It can be seen that 40 or 100% of the respondents performed "Outstanding," with grades ranging from "90 to 100". The mean grade of 94.17, with a verbal interpretation of "Outstanding," indicates that the respondents performed above the level of excellent satisfactory in their written test.

Significant Relationship of the Components and Characteristics of the Educational Game Application to Student's Behavior

Minitab 14 was used in computing the data gathered and treated them statistically using Pearson's Moment of Correlation Coefficient (Pearson's R). The computed p-values were compared to the level of significance at 0.05 to determine the significant relationship between components and characteristics of the educational game application to student's behavior.

Table 14 Significant Relationship of the Components and Characteristics of the Educational Game Application to Student's Behavior

Variables		r - value	Degree of Correlation	p-value	Analysis
Objectives	Focus	0.213	Weak	0.102	Not Significant
	Interest	0.258	Weak	0.047	Significant
	Positive Reaction	0.143	Negligible	0.276	Not Significant
Content	Focus	0.315	Moderate	0.014	Significant
	Interest	0.292	Weak	0.024	Significant
	Positive Reaction	0.138	Negligible	0.292	Not Significant
Activities	Focus	0.027	Negligible	0.838	Not Significant
	Interest	0.323	Weak	0.012	Significant
	Positive Reaction	0.037	Negligible	0.781	Not Significant
Assessment	Focus	0.646	Strong	0.000	Significant
	Interest	0.431	Moderate	0.001	Significant
	Positive Reaction	0.334	Weak	0.009	Significant
Sound	Focus	0.082	Negligible	0.533	Not Significant
	Interest	0.078	Negligible	0.554	Not Significant
	Positive Reaction	0.194	Negligible	0.137	Not Significant
Visual	Focus	0.249	Weak	0.050	Significant
	Interest	0.456	Moderate	0.000	Significant
	Positive Reaction	0.419	Moderate	0.001	Significant
Functionality	Focus	0.108	Negligible	0.412	Not Significant

		Interest	0.051	Negligible	0.699	Not Significant
		Positive Reaction	0.177	Negligible	0.176	Not Significant
Accessibility		Focus	0.602	Strong	0.000	Significant
		Interest	0.304	Weak	0.018	Significant
		Positive Reaction	0.113	Negligible	0.390	Not Significant

*significant at .05 level of significance

Table 14 reveals the relationship between the components and characteristics of the Educational Game Application to student's behavior.

It can be manifested that the components of the game application in terms of assessment convey a significant relationship to students' behavior in terms of focus, interest and positive reaction. On the other hand, content was found to have a significant relationship to students' focusand interest while objectives and activities indicates a significant relationship to students' interest only. The obtainedp-value was lower than the 0.05 level of significance that supports the result of the analysis.

Furthermore, the visual characteristic of the game application was significantly inrelationship to students' focus, interest and positive reaction. Accessibilityresultedto have a significant relationship with students' focus and interest. The obtained p-value was lower than the 0.05 level of significance that supports the result of the analysis. However, sound and functionality showed no relationship with students' behavior.

Significant Effect of Components and Characteristics of the Educational Game Application on Students' Performance

Minitab 14 was used in computing the data gathered and treated them statistically using Regression Analysis. The computed p-values were compared to the level of significance at 0.05 to determine the significant effect of the components and characteristics of the Educational Game Application on students' performance.

Table 15. Significant Effect of Components and Characteristics of the EducationalGame Application on Students' Performance

Variables		t-value	p-value	Analysis
Objective	Practical Test	0.06	0.949	Not Significant
Content		0.59	0.561	Not Significant
Activities		0.04	0.964	Not Significant
Assessment		1.13	0.261	Not Significant
Sound	Practical Test	1.50	0.139	Not Significant
Visual		3.57	0.001	Significant
Functionality		1.16	0.249	Not Significant
Accessibility		0.94	0.350	Not Significant
Objective	Written Test	0.99	0.328	Not Significant
Content		0.39	0.701	Not Significant
Activities		3.95	0.000	Significant
Assessment		9.05	0.000	Significant
Sound	Written Test	1.44	0.155	Not Significant
Visual		0.51	0.613	Not Significant
Functionality		0.11	0.913	Not Significant
Visual		0.42	0.677	Not Significant

*significant at .05 level of significance

Table 15 reveals the effects of components and characteristics of the Educational Game Application on student's performance.

It can be manifested that the componentsof the game application in terms of objective (t=0.06, p=0.949), content (t=0.59, p=0.561), activities (t=0.04, p=0.964), assessment (t=1.13, p=0.261), sound (t=1.50, p=0.139), functionality (t=1.16, p=0.249), and accessibility (t=0.84, p=0.350) do not significant affect the performance of the students. On the other hand, sound was found to have a significant effect to students' performance. The obtained p-value were all higher than 0.05 level of significance that supports the result of the analysis.

On a different note, a significant analysis was revealed on the effect of educational game application characteristics in terms of activities (t=3.95, p=0.000) and assessment (t=9.05, p=0.000) except only for objective (t=0.99, p=0.328), content (t=0.39, p=0.701), sound (t=1.44, p=0.155), visual (t=0.51, p=0.613), functionality (t=0.11, p=0.913) and visual (t=0.42, p=0.677) on students' performance. The obtained p-value was lower than the 0.05 level of significance that supports the result of the analysis.

CONCLUSION

Based on the findings of the study, the following conclusion were drawn

The study shows that there is a significant relationship between the educational game application have a significant relationship to the to the student's behavior. The researcher then come up to the conclusion that the null hypothesis of which states that does the educational game application have significant relationship to the student's behavior of grade 12 is accepted.

It can infer that the null hypothesis stating that "the educational game application have a significant relationship to the to the student's behavior is true. Hence, there is no significant relationship between the two.

This calls for the acceptance of the alternative which incites that there is a significant relationship. On the other hand, study reveals that there is no significant relationship between the educational game to the student's behavior.

Game application do affect the student's behavior in terms of focus, interest, and positive reaction. From the findings above, all variables are less than the 0.05 level of significance. With this, the researcher came up to the conclusion that the null hypothesis stating that "There is no significant relationship betweenthe "The characteristic of educational game application on the student's performance" is accepted Nevertheless, in termsof Practical and written test , the variable is less than 0.05 level of significance. The researcher therefore concludes that the null hypothesis stating "There is significant effect between "behavior and performance of a student's" is true. Hence, there is no significant relationship betweenthe two.

The effect between the component of the video and characteristic of the student's engagement in engagement the research hypothesis; therefore, the null hypothesis is accepted .The educational game application have significant effect to the students' performance in G12 the research hypothesis therefore; The null hypothesis is accepted.

RECOMMENDATIONS

In the light of the findings and conclusion of the study, the following recommendations were drawn.

1. It is highly suggested that the school and teachers may adapt in this study called " Integration of game application on video lesson" to maintain and enhance the teaching strategies in cookery to continue

prepare for the current situation that our education system is facing today to bring out the best of the students' performance for the benefit of our students and their future.

2. It recommends that the teacher employ their creativity in building or integrating gaming applications in teaching cookery on a constant basis to maintain and improve the students' performance in class so that students are enthused.3. Furthermore, teachers may also emphasize the value of learning in cookery while integrating the games and promotes its importance for the learners. Enhancement program and/or extendedperformance activitiesmay help themto fully understand the importance of education for their daily lives.

3. The researcher would advocate extending the interactive activities till the end of the quarter so that students are inspired to study cooking while playing games that are linked to the topic addressed.

4. The Researcher suggests that this approach of game application on video lesson be
    adopted or create their own game to be use in teaching.

6.The researcher Continue to prepare the game and video lesson for the benefit of students

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