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Integrating Game-Based-Learning to Improve Students' Essay Writing in High School Sociology

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Abstract

This study integrates game-based learning (GBL) in sociology lessons to investigate its impact on students' essay writing. The study had a sample size of seven students from a Year 12 Sociology class in one of the high schools in Brunei Darussalam. This qualitative research made use of data collection instruments consisting of pre-test and post-test essay questions, semi-structured interviews, and lesson observations. Findings from the study have shown that the implementation of games that utilize civilization-building elements such as city building and resource management in a sociology lesson had a significant impact on students' performance in essay writing, specifically the quality of their argument, provided that they were used within the right context. The study also found an increase in students' motivation, collaboration, and enjoyment of learning, attributing this to the games' designs and their easy accessibility via smartphones. Students' perceptions of the use of GBL indicated a willingness to use it again as a learning tool in the near future. The findings provided insights into this area of study and may be able to provide useful information to educators, especially sociology teachers, who wish to make use of games to aid in making their students' learning an enjoyable experience in their lessons.

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INTRODUCTION

Sociology is a heavily theory-based subject that requires its students to be familiar with the idea of linking concepts with sociological case studies and relevant social issues that are currently happening around the globe. This means that students will need to build an interest in reading to write simply due to the fact that good writing material helps produce good critical thinking (Burgess-Proctor et al., 2014), and this can aid them in coming up with their own evaluations of sociological arguments and being proficient in essay writing. The study also mentioned that the writing skills obtained by students, such as constructing an argumentative essay, can act as a helpful tool that can help them navigate further in later parts of life. However, due to the wordy and lengthy nature of the subject, students are often overwhelmed by their readings, which usually results in them trying to memorize instead of understanding the content. This places a strain on their ability to make connections between

concepts and their own argument, thus lowering the quality of their writing, as the answers are mainly either a perfect copy of the sentences from the course book or what seems to be an attempt to fill in the space in the answer booklet. There is also the matter of students drawing from their general knowledge of the subject without referring to relevant studies or supporting evidence, which demonstrates a lack of evaluation on their part (CIE, 2019). Pablo and Lasaten (2018) stated in their findings that the prevalent difficulty that students find in essay writing in terms of content is the absence of connectives and ideas. The recommendation to tackle this is to combine activities with more exposure to sample essays that address the identified problem. In addition to this, students are also unable to demonstrate the connections that can be made between the interdisciplinary relationships of the social sciences, which is part of the knowledge that is expected of students in this subject (Ferreira & Serpa, 2017).

Taking into consideration Brunei's national educational strategy, Sistem Pendidikan Negara Abad ke-21, or the National Education System for the 21st Century (codenamed SPN21), the Ministry of Education highlighted the relevant learning outcomes and strategy within the key learning area in relation to social sciences and the use of technology. Among them were to "develop critical and creative thinking, skills in research, communication, and social participation," and to "use technology efficiently and effectively in solving problems and increasing productivity." This points towards the need for students to be outfitted with 21st century skills such as critical thinking skills, technological literacy skills, and problem-solving skills that are deemed of value within the current era (Caesar et al., 2016; Lamit et al., 2017). This is in the hopes that the implementation of the strategy will aid the assimilation of the younger Brunei generation into answering the ever-changing demands of globalization (Ministry of Education, 2013). In order to provide students with valuable skills within the current era that can be used to address the above-mentioned student writing situations, the researchers strongly believe that the implementation of game-based learning (hereafter referred to as GBL) will be able to meet the Ministry's aim of providing a quality education for the students. The reason is that GBL in general can be utilized as an educational tool that helps boost the student's well-being and self-esteem, which can help them improve their soft skills that lead to the development of their critical thinking, decision-making, and problem-solving skills (Anastasiadis et al., 2018). In addition to the benefits that it might have on students' skills, the environmental factor as to how GBL is implemented can also affect the results of students, as it can provide a capacity for motivation and the utilization of incentive elements (Greipl et al., 2020).

Problem Statement

The high school Advanced Level Sociology students should be able to perform well in essay writing, and the ideas proposed in their arguments should be of quality and relevance. Students should be able to get ideas from their surroundings and use them academically, whether as an example or proof of a theory, in their writing to show fluency in the subject. Materials that are relevant to the topic they are studying from media tools such as computers and smartphones should provide a significant amount of content or ideas that students can work with. Fu (2019) found that connecting in-class learning activities with the topic content is effective in terms of improving students' creative writing performance when looking at aspects like fluency and elaboration. Digital games that promote civilization-building elements, such as Sid Meier's Civilization games, Age of Empires, and Sim City on desktops or smartphones, can help students "experience" a given historical process that a particular society undergoes during that era, which could improve their understanding of the

relationship this has with the topics covered in the subject (Kuran, 2018). Ideally, a situation like this would provide students with more opportunity to see the theories they've learned in action, leading to better performance in their essay grades, especially on related topics showing the impact of integrating games on student learning outcomes.

The reality of the situation currently points toward students having a limited understanding of what it means to construct an argumentative essay. This can be clearly seen when they pursue higher education, especially when English is not their first language (Ariyanti & Fitriana, 2017). Pairing this with the lack of comprehension of what they have learned results in poor quality essay writing, in addition to the lack of motivation and initiative to improve by the students (Fareed et al., 2016). They concluded that the factors leading to this are diverse, and among them is the lack of interest in reading and writing practice, which was also a suggestion made by the study on what should be improved by teachers.

One of the main issues that students face with lengthy subjects tends to be a lack of engagement, feedback, and motivation to actually develop and finish a concept or idea. Hung (2017) stated that using a gamification element within a relevant context tends to lead to a focus on providing feedback to the players in addition to keeping them engaged with the content they are learning. Linking this idea with Kirillov et al.'s (2016) findings shows that gamification creates conditions for students' motivation in the long run, which can encourage learning interest and foster better practices. Utilizing a game that is tailored to help students learn the subject, especially strategy civilization-building games, would therefore be a potential solution to this problem. The problems identified with the quality of essay writing and the lack of integration of games to enhance student learning led the tutor to consider these problems as research foci.

Sociology looks at contents that are covered in other social sciences, which makes it valid to use as references, like history and geography. Kuran et al. (2018) stated in their findings that students reported having a better immersive experience of the subject content in learning history when it is simulated in video games. As a result, students were able to experiment with different scenarios, work on concepts, and gain immediate feedback, which led to better discussions with the class on what they had learned compared to a traditional passive reading of the subject. Incorporating games in lessons can become a powerful pedagogical tool for teachers that can enrich and enhance student learning, which can result in students applying and enacting the concepts rather than simply memorizing them as they play (Colby, 2017). Coupled with abstract concepts, students will be able to fully explore their meaning and possible interpretations. Linking this back to the ideal situation mentioned earlier, theoretically, incorporating games into a sociology lesson would prove beneficial in improving the quality of arguments that a student can bring to their essay writing.

Purpose and Significance of Research

This research is intended to look at the implementation of GBL in a sociology classroom in order to improve student learning, which can be applied to their writing to improve the quality of their arguments. The research is significant because it aimed to provide more depth regarding the benefits and challenges of implementing GBL in a Bruneian sociology classroom context, where students are experiencing difficulty in trying to produce arguments that are based on their understanding of the subject matter. It is also hoped that this study can be of help to educators in Brunei by providing different views that might help with trying to find ways to build on the development of 21st-century learning skills in students that are in line with the SPN21 curriculum.

Research Questions

The following are the formulated research questions of this research: 1) To what extent does incorporating GBL games improve students essay writing?; and 2) What are the students' perceptions on the use of GBL in Sociology lessons?

Theoretical Framework

Constructivism is a term that is ordinarily used in education as well as in a wider social science discourse and is often used with a range of different meanings and associations relating to cognitive development, learning theory, and approaches to pedagogy (Taber, 2019). Constructivists believe that new knowledge is constructed through the process of assimilating existing knowledge and checking it against the new information being presented (Bates, 2018). In classroom situations, this could mean a different number of teaching practices, which can include a learner's social interaction with a skillful tutor who is able to model behaviors and/or provide instructions for the child, which leads to the learner seeking to understand the shared information and internalizing it, which is then used to regulate or guide their own performance (Chan et al., 2020). Furthermore, building on Vygotsky's idea of "scaffolding" and the Zone of Proximal Development on what a child can achieve independently versus what they can with guidance and encouragement from a skilled tutor or facilitator shows the opportunity for the child to develop skills that they will or can use on their own, resulting in the development of higher mental functions. He also views the interaction with peers through cooperative learning exercises within this zone of proximal development as an effective way of developing said skills and strategies (McLeod, 2018). Using this as the principle for an approach like GBL, learners can be engaged on an affective, behavioral, cognitive, and sociocultural level in ways few other learning environments are able to, depending on the design of the game that is being used for the learning process (Plass et al., 2015).

Scope and Limitation of the Study

This research focused on the implementation of GBL using desktop and smartphone-accessible games with a civilization-building element in order to improve student essay writing, which involved Year 12 Sociology students in one of the high schools in Brunei. In order to find out if GBL had an impact on student essay writing, alongside its benefits and challenges, the first author, who is the main researcher, made use of various tools such as pre- and post-tests, semi-structured interviews, and video observation. The result of the utilization of these tools gave an insight into students' perceptions of the use of GBL, which was beneficial in answering the research questions. However, there were a few limitations that were of significance, which included the following: Firstly, the availability of civilization-building games The games available for the students were limited, as some of the games that offer more city-building elements are quite costly for students. As a result, the researcher had to make use of user-friendly games that have a city-building element, and this was done using two different games. This meant limitations on the learning experience that students might get. In addition to this, as classes had to be conducted online, further assistance from the researcher in terms of providing devices was difficult. Therefore, this was the best course of action for the choice of games. Secondly, time constraint: the researcher only managed to conduct one study cycle as the time available for data collection was greatly affected by the sudden switch to home-based learning. Modifications to the games used had to be made, and most of the allocated time for data collection was used to make arrangements with the participants on checking their availability for the study and accessibility for devices. Considering the study only managed one cycle, the data does not reflect the best quality that

GBL can do for essay writing. And thirdly, sample size: only 7 students participated in the study, making it ungeneralizable and not an accurate representation of the Year 12 Sociology student population of Brunei.

Literature Review

Game-based learning has become a trend due to its implementation in many settings, including education and workplace training. Whether people are aware of it or not, many of them have been participants in game-based engagement techniques in one form or another (Liu et al., 2020). Hartt et al. (2020) defined the term by extracting key principles that focus on the integration of intrinsic and extrinsic motivational components that create an environment that engages the player in the given activity, making GBL the use of game elements, thinking, and mechanics in a non-game context. In education, GBL generally refers to the utilization of video games to support both teaching and learning. This definition can be narrowed down further and described as a process by which learners are experientially engaged, where they learn through trial and error, where it involves role playing, and where the topic of the lesson is treated as a system of choices and consequences (Ke et al., 2016). In curricular terms, this simply means associating an element of a subject to the mechanics of the game, which operates on a set of rules that offers choice and consequences within a self-contained system. The general view about GBL points towards a view that focuses on the emphasis on gameplay defined with learning outcomes, with the assumption that it is usually associated with digital games. Psychologists like Piaget (1962) and Vygotsky (1978), for example, agree with the idea of play being integral to the development of children's stages of cognitive development, where it affects engagement, player motivation, adaptability, and graceful failure. This suggests that introducing GBL in a classroom environment has the ability to make use of strategies like scaffolding and relevant feedback (Monjelat et al., 2017). Their study also pointed out the importance of accounting for the digital technology used to mediate the scaffolding process, as it leads to a collaborative scenario and active participation between learners. These should all be taken into consideration when trying to implement GBL in order to fully see what games have to offer for learning. Apart from using the computer or certain gaming devices, GBL can also be implemented via mobile devices. This opens up opportunities for learning to take place outside of a classroom, making the assumption that learning can be continuous and convenient for learners. This adds flexibility to implementing GBL, as there is a growing trend in the usage of mobile game-based learning for teaching and learning within a school setting that focuses on its effects on students' motivation and learning from the game itself (Huizenga et al., 2019).

Benefits of Implementing GBL

Westera (2015) critically re-examined and identified the misconceptions and confusion as to whether GBL is beneficial or not. Despite the discipline of GBL being in its infancy, their findings concluded that using games in learning could support educational innovation with emerging technologies in the long run, provided that both the pros and cons of GBL are weighted out. It is also worth noting that their findings were also concerned about the fact that there is a growing need to improve the scientific dimension of the matter that is based on evidence rather than relying on potentialities, beliefs, or references.

The statistical summary done by Wouters and Oostendrop (2017) indicates using games is far more effective for learning, and even when there was only a small increase in motivation in their findings, this doesn't change the fact that its use is beneficial for learning. A more recent finding by Westera (2019) on using serious games in learning led to the conclusion that they can be effective once factors such as experiential learning, motivation, and assessment

are taken into account. The suggested dimensions that need to be considered as part of the game design include: 1) explicitly using game design that is based on improvements and evidence that leads to experience-based learning; 2) offering players gameplay scenarios that allow enough freedom of movement and responsibilities to improve their sense of autonomy and learner motivation; and 3) promoting an environment that allows for trial and error for learners' own reflection. In addition to this, Greipl et al. (2020) also stated that the implementation of these factors, when facilitated by the use of the latest digital technology, can open up opportunities for an adaptive and secure learning environment. Even when GBL is used outside of a classroom setting, the study by Huizenga et al. (2019) on using smartphones for learning showed a significant impact on improving students' collaboration, motivation, and interest in the subject or topic the game is related to.

Games, when looked at at their level of play, tend to offer interactive contexts for critical thinking and experimentation with complex problems in a hands-on fashion. Hussein et al. (2019) stated in their findings that the use of GBL suggested an improvement in students' critical thinking, provided that the purpose and design of the game are in line with what the targeted measure is. Digital games in particular create the opportunity for multiple learning styles and engage players at several levels simultaneously, creating a positive effect on learning (Hamari et al., 2016; Jaidin et al., 2017; Musa, 2015, 2017; Tsng et al., 2021). This is because it is not only done through linear text but also a combination of animation, audio, graphics, and feedback, which spurs decision-making, enables role-playing, and teaches procedural knowledge (Avdiu, 2019). Barr (2019) looked at the implications of GBL on graduate attributes for students, and the findings found that students were better communicators and collaborators as a result of their active participation in the use of games. In addition to this, the participants also demonstrated being resourceful, both personally and socially. Participants were independent when faced with challenging circumstances and took initiatives to seek help from others when they felt there was a need to. Moreover, participants also reported being reflective in their learning, as stated by the findings of Cloude et al. (2021), where the quantity and quality of the reflection largely depend on the problem-solving and learning goals. Evidently, the use of GBL in learning has a significant positive impact on students' achievements (Chang et al., 2018).

Challenges of Implementing GBL

Foster and Shah (2020) highlights the importance of considering whether the technology or game that is being implemented is actually used to improve learning or is done just for the sake of implementing it. This is largely concerned with the teacher's and students' fluency with technological usage so that the technology itself will not be a wall to learning. There is also the matter of context, while a game may be promising in terms of what it can provide to the learners, it is also crucial to consider if it is a good fit for the teacher's curricular goals. In addition to this, the effectiveness of GBL also depends on the teacher's tech savviness and their attitudes to using GBL as a pedagogical tool (All et al., 2016).

One of the main strengths of GBL is the idea that students should be able to learn or relate subject knowledge which could aid them in the construction of knowledge with the easy access to the materials via use of technology. However, Watson and Yang (2016) stated in their findings that the barriers that teachers face in using GBL is that some games are not educationally focused enough and the difficulty and availability in finding the appropriate game to use to convey the concepts and theories of the topic for their lessons. The study also highlighted cost and funding problems, as certain games would require money in order for

the teachers to have access to it, explaining why most teachers would often just opted for traditional teaching methods.

When the main focus of the implementation is motivational, the main benefit of this approach was to originally create a level of engagement that engages players in effortless learning. However, this could lead to taking the cognitive aspects of learning lightly, such as the importance of having a reflection during the learning itself (Hussein et al., 2019). This strongly implies that in order for GBL to be beneficial for learning, other aspects of the games used for GBL implementation should not be taken lightly.

Huizenga et al. (2019) questions the fact that in situations where students are more focused on spending more effort on the character or avatar of the game instead of doing the game activity itself, it could lead to a different learning outcome as was intended by the implementer. The study also raised the matter of when learning should be assessed when GBL is implemented, whether it should be done using a pretest posttest measure or only during the game activity itself.

Relevance to Current study

The different views addressed by different researchers in the literature have provided the researcher with information on how to carry out the implementation of GBL in a school context smoothly. The main intention of this study was to examine the significance of using GBL via civilization-building games on students' essay writing in a Year 12 Sociology classroom within a Bruneian context to see if a similar result can be achieved, be it a positive outcome or the challenges that might arise from doing so. It is also worth noting that there are few studies that look at the implementation of this strategy at this particular level, making it a gap that requires clarification.

METHOD

To define action research, it is important to look at the action aspect (what one does, usually referring to an activity or occupation) and the research aspect (how one learns about and explains what one does) of the term, narrowing down the definition to finding ways of improving one's practice based on research and the creation of knowledge (McNiff, 2016). Within an educational context, action research is an approach to educational research that is more commonly used by educational practitioners to examine and improve their teaching pedagogy and practices (Clark et al. 2020). It is a technique that is interested in how the end product can be of use to researchers, whose main goal is to make it better. It is also important to note that action research is not just a matter of teachers researching their own practices; rather, it should also engage their fundamental beliefs and ideas of education while doing the research process (Banegas & de Castro, 2019). This research study adopted an Action Research format in order to look at the extent to which GBL affects students' essay writing in Advanced Level Sociology which followed the standard Kurt Lewin's (1946) action research cycle. Figure 1 below is adapted from Kamel and Malie (2014).

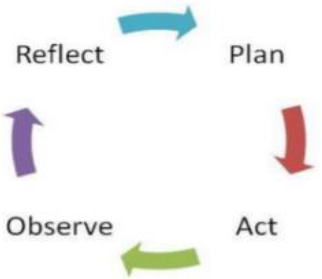

Figure 1. Action research process (Kamel & Malie, 2014).

Only one research cycle was carried out during the research due to the limited duration and sudden changes to the arrangements for the implementation as schools were instructed to conduct online learning during the time the research was underway. The whole cycle consisted of a pre-test, implementation, post-test and reflection.

Research Procedures

Initial Preparation

A pilot study was conducted in a Year 12 Sociology class with 31 students to identify what the problems are with regard to students' essay writing prior to the start of the research. Doing this provided an insight into the strengths and weaknesses of students' approaches to a topic that led to the essays that they produced. Students were given a sample essay question based on the topic covered during the research period and were graded based on the rubrics provided by Cambridge International Examinations, as stated within the subject syllabus. Students had a lesson on the chosen topic where they were able to discuss points that they used for their essay arguments. This went on for two lesson times (1 hour each) to make way for covering the topic and timed essay writing. The data gathered from this was used as a benchmark for comparison with the findings.

Research Implementation

As soon as the pilot study was conducted and any modifications have been made to the research design, the researcher started the action research cycle. It took four class sessions in order to complete one cycle. Below is the list of steps that was taken during the research:

Step 1: Test students' prior knowledge regarding topic covered and compile information on pedagogic teaching methods used by the subject tutor through observation and semi-structured interviews

The first lesson focused on socializing students with the topic that was going to be covered, as mentioned in the subject tutor's scheme of work. The researcher managed to set up a recording for this session for viewing after the lesson ended. In order to ensure there is ample time for the intended content to be covered, the pre-test was only given to the participants during the second lesson, where they were given the essay question to answer within the allocated class time.

A semi-structured interview was then conducted to make sure the findings from the observation were in line with what the students experienced during the lessons. The students were encouraged to provide their honest opinion on the pedagogic methods used by the researcher and to share their opinions on methods that could help with their understanding of the topic. Their responses throughout the interview were mostly elaborate, covering ideas on improvements and individual needs, giving the researcher a baseline to work on.

Step 2: Analyze findings from class observation, semi-structured interviews and student's pretest

Organization and analysis of the compiled data were done following the flow of steps adopted by Creswell (2018). This initial collection process is meant to provide baseline data that can be used to compare the results of the implementation. The researcher managed to establish a trend from the findings, which was then used as a consideration for modifications to the research design prior to the implementation of GBL. This is to ensure that students are fully engaged and can benefit from the learning process offered. The analyzed result of the pre-test acted as a comparison in order for the researcher to answer the research question.

Step 3: Implementation of GBL in the classroom and track students' progress using observation and semi-structured interviews

The implementation of GBL made use of three different games, which were accessible via computer and smart phones. Students were given a timetable that they could follow on

when to download and play the assigned games. This took place over the course of two weeks, giving two days duration per game (for playing and review) during student's free time. All three games had a civilization building theme, the only difference being the era that the civilization took place. The first game had more focus on family life during the Stone Age, while the second and third game focused more on city building elements in the middle ages and the modern respectively.

As it was the students' first time playing video games with the intention of improving their knowledge of Sociology, the researcher made use of the first few days of the implementation to explain and guide students on the steps they can take to navigate around the Apps. This was mostly done online using Zoom platform. Students were given a description of each game, what to expect and how it is connected to the Sociology topic they are currently doing. After the first few sessions, there were minimal help done by the researcher, providing guidance only when necessary. Observation on students was only possible for the first game as schools switched to Home Based Learning by the time the second game was up.

The researcher kept a reflective journal to keep track of students' progress in the games, taking note of what could be improved further and factors that engaged students in gaining a better understanding of linking what they were experiencing with essay writing. This journal was also used to identify factors that are significant in affecting student learning with GBL. Toward the end of the implementation, another interview session was conducted with the students to gather their views on the gaming experience and enjoyment ability.

Step 4: Give posttest to students once the research cycle has ended

The 4th lesson was used to give a post-test to students, where students spent one hour in an online afternoon class to answer an essay question similar to the one given during the pre-test. This was done to see if there are improvements in the quality of the essays that they produce and to gauge the effectiveness of implementing GBL.

Step 5: Analyze the data gathered from pre-test, post-test, observation and semi-structured interviews

For the final step of the procedure, the researcher compiled the findings collected from students' pre-test and post-test, observations as well as the findings from the semi-structured interviews conducted. This was then analyzed which was then later used to aid the researcher in coming with up a conclusion to answer the research questions of the study.

Data Collection

Recorded Lesson Observation

Recording and observing lessons is suitable for ongoing teacher evaluation and professional development as the process can provide an idea of a teacher's performance and cater to what kinds of needs and improvements can be addressed in order to help with their development as a teaching professional. One of the main intended beneficiaries is the practical means to learn from themselves, which leads to a more powerful end result due to the awareness of the strengths and weaknesses of their teaching (Hollingswoth & Clarke, 2017).

For the study, the researcher managed to record one lesson for the class before the implementation of GBL and analyzed the video for the comparison of the collected data. The main aim of using this method is to get an idea of the behaviors of students in a normal classroom setting and then see their attitudes while doing GBL activities and the interactions between them and the teacher.

Pre-test and Post-test

The study made use of pre- and post-tests to explore if there are any significant changes that will occur once changes to the teaching pedagogy are made. This method is a useful way of measuring the difference in outcomes for student learning, specifically in their essay writing. Students were given a pretest after the introduction of a topic in the form of a sample essay question taken from the syllabus online page by CIE, and this was then compared with the results of the posttest once GBL was implemented for the same topic. The expectation for the outcome was leaning towards an increase in the quality of the essays that students would produce, and results indicate that this is supported.

Semi-structured Interviews

The use of a semi-structured interview can be useful in cases where there are more than a few open-ended questions that require follow-up queries. It is also helpful when there is a need to ask probing questions that participants might not be comfortable giving a candid answer to, especially when they are seated with peers in a focus group and there is a need to know each of their independent thoughts (Newcomer et al., 2015). Considering the strengths and limitations of both structured and unstructured interviews, using semi-structured interviews would allow for freedom of responses to be elaborated further without derailing away from the point of the study, making it not too rigid or time-consuming (Queirós et al., 2017). Due to the modifications that needed to be made as a result of home-based online learning, the research utilized the tools within the Zoom Platform in order to communicate with the participants. This only took one Zoom session, with the participants giving their responses both individually and in a group setting.

Data Analysis

The research focused on using thematic analysis by utilizing the flow of steps adopted from Creswell and Creswell (2018) data analysis process. Firstly, the initial step was for the organization and preparation of collected data, which was then read through and analyzed by the researcher. This was then coded in order of significance to generate a description and theme that was helpful in answering the research questions.

Participants of the Study

The participants chosen for this study were taken from a Year 12 Sociology class of 31 students via random sampling. However, only eight students participated due to the limited time that wasavailable for the study, with one student opting to be left out in the middle of the research for personal reasons. Students were informally interviewed about their knowledge of GBL and their views on essay writing for the subject prior to the start of the study. The findings indicate these students were new to the idea of using games as a tool for learning in this subject and expressed their enthusiasm for wanting to try hands-on experience to help with their essay writing. It was also noted that the majority of the students did not think a game could be used in a learning context, as they were set on the idea that learning sociology could only take place using only textbooks and doing online research, which was "boring" and less engaging to some, making it difficult to understand a concept that requires visualization, such as the idea of how institutions evolve when a society undergoes modernization. Thus, the implementation of GBL seemed appropriate in helping students make connections between the topics learned and arguments that they can use in their essay writing.

Ethical Considerations

In order to ensure this research was as ethical as possible, permission letters and acknowledgments of the research were obtained from the Ministry of Education and the principal of the high school. Once the necessary procedures were approved, the researcher then made arrangements with the Head of the Social Sciences Department to inform him of the nature and scope of the study, taking into account the instruments used and the approximate duration of the study. Due to the possibility of the implementation of the intervention affecting the time frame of the scheme of work, the researcher only took six lessons over the course of three weeks in order to not delay the planned lessons any further.

Participants involved were also briefed on the main purpose of the study, what was expected of them, and the assurance of their anonymity and transparency between them and the researcher. It was made clear to them that their participation in the research will not pose any kind of risk or danger, and the report will be written to ensure that no reader will be able to associate the responses with any of the participants to protect their identity. This was done through the use of pseudonyms. Information sheets and permission slips were given during the briefing, and the latter were returned to the researcher before they could participate in the study.

The data collected from the interviews and recordings was kept safe on the researcher's password-protected laptop to ensure that no other individuals apart from the researcher would have access to it. Transcribing matters with regard to the collected data was done only by the researcher, and it was conducted in a manner that did not change or misinterpret the responses of the participant in the report.

RESULTS AND DISCUSSION

Research question 1: To what extent does incorporating GBL games improve students essay writing?

Data gathered from the pre-test and post-test, video observation, and the use of informal questions and answers were key in order to answer this research question. Prior to the implementation of GBL, the outcome of the discussion with the points given by the Head of Department on how the majority of the students' performance in essay writing tends to cover ideas and concepts that are very general and do not demonstrate their critical understanding of the topics covered This led to underperformance in exams and further difficulty when students proceeded into Year 13 Sociology content and standards, as students were expected to produce work that exhibits real-world examples and awareness of how sociological knowledge can be related to different areas of society. Answers would generally cover the standard essay format, a couple of points that are a result of memorization from the course book, and the use of limited examples.

As a result, this usually puts students in the B to C grade range according to the marking scheme. It is worth noting that initiatives were made by the department to improve their performance, but feedback from students on the use of these alternatives to learning mentioned that they find that only relying on online sources and Kahoot can get "bland" and "boring," which is part of the reason why a majority of them lose focus and become less engaged as they proceed further into the syllabus. Therefore, it is the aim of the researcher to see if the implementation of GBL would help with students' understanding of the subject and their performance in essay writing. The analyzed findings could be categorized under the themes "*Connecting ideas and improving conceptual understanding*" and "*Application of acquired knowledge to essay writing*."

Connecting ideas and improvement of conceptual understanding

The unit topic "The Nuclear Family" was previously covered by the subject tutor before students sat for the pre-test, giving them a background knowledge on the debate of the universality of the Nuclear Family, which was also the topic covered during the first lesson of the research. The researcher intended for the implementation of GBL to help students improve on their essay writing quality, by demonstrating to students that learning Sociology by playing games with civilization building elements can help improve their content knowledge and understanding. As students were inexperienced in using GBL as a tool for learning, the researcher had to emphasize to the students that the games assigned should be played with the intention of linking it back to Sociology, specifically the Nuclear family and being able to participate in the process of how society evolves through different eras will give them a better understanding of the concepts within the topic. Students were also informed that by doing so, it would be easier for them to make the connections to the Sociological theories they've covered in class and applying this into their arguments would make better sense since they would be creating an "experience" by playing the simulation. Students were then shared the details of the following games and were provided a timetable on when they should move on from one game to the next.

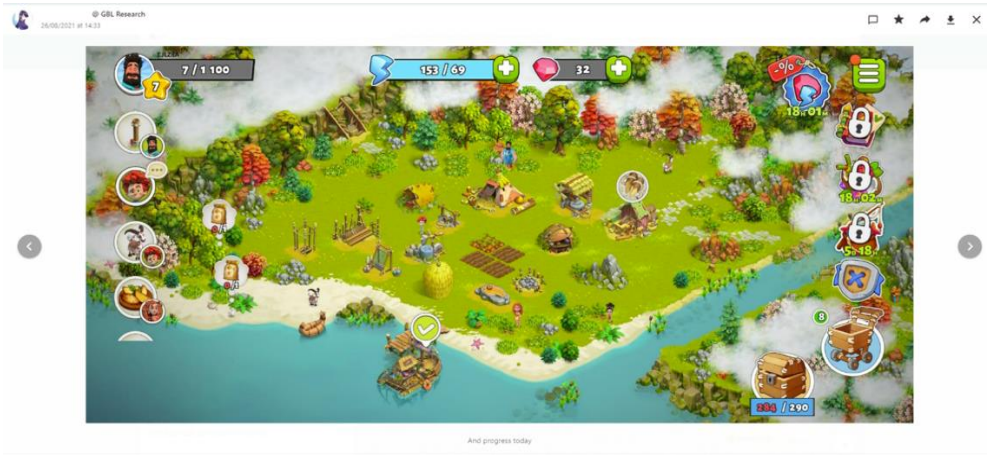

Figure 2. A student's initial progress on Stone Family Age on roles of family members

Figure 2 highlights a student's initial progress on the simulation of the roles of family members in a pre-industrial setting. This initial phase demonstrates to students the assigned member roles for each character and allows them to explore the possible ways they can be put into practice. It is important to note that the game is designed so that players can only progress if these roles are properly managed alongside resource allocation.

Figure 3. An example of student gameplay progress showing expansion of roles

In Figure 3, the student has managed to expand their settlement as evident with the presence of new structures. The expansion of the settlement also meant new roles to be distributed for their characters, further showing to students what each family members can do to contribute to the family. When this is seen from a Sociological perspective, it enables students to develop their understanding further on the role allocation of family members and the concept of Nuclear and Extended Families in relation to the workplace in a pre-industrial setting. Figure 4 highlights an improvement in the student's understanding of the concept.

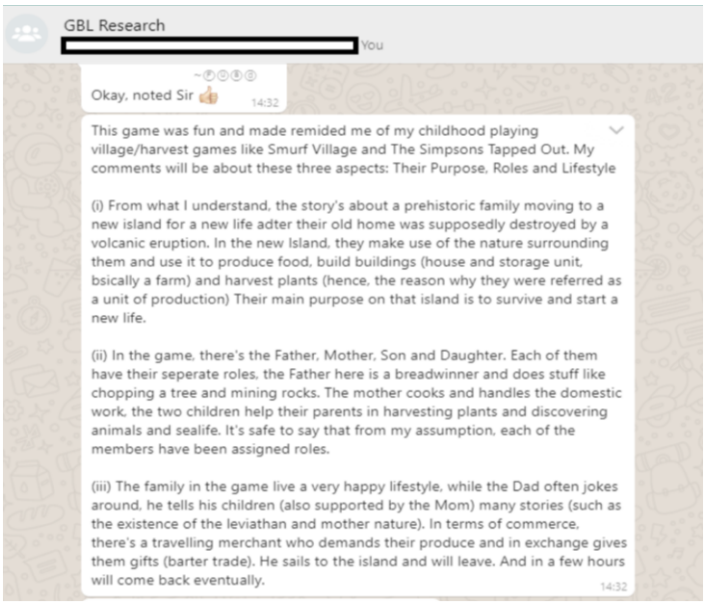

Figure 4. A student's feedback on the gaming experience in connection to Sociology

As shown above, the student was able to apply sociological terms such as "breadwinner" and "unit of production" to their explanation of the rationale of the game. This shows how the students were able to make connections between the concepts and what was shown in the game for their understanding. A similar situation is also seen in the other game that they've played, the only difference being that it is done in an industrial to post-industrial context, as shown in Figure 5.

Figure 5. A student's initial progress on Town city depicting a society in an industrial setting

Similar to what was seen previously, Figures 5 and 6 show a student's progress in the second game that they've played. Both still require students to manage their characters and allocate their resources efficiently in order to progress. The only difference in this game is that

instead of controlling a family unit, students are managing a city. Figure 6 showed students how, with the expansion of facilities and areas, the family unit will be affected in terms of their roles and their position in the workplace. This also gave students an idea of what the processes that led to the changes in the family unit as mentioned in the course book looked like.

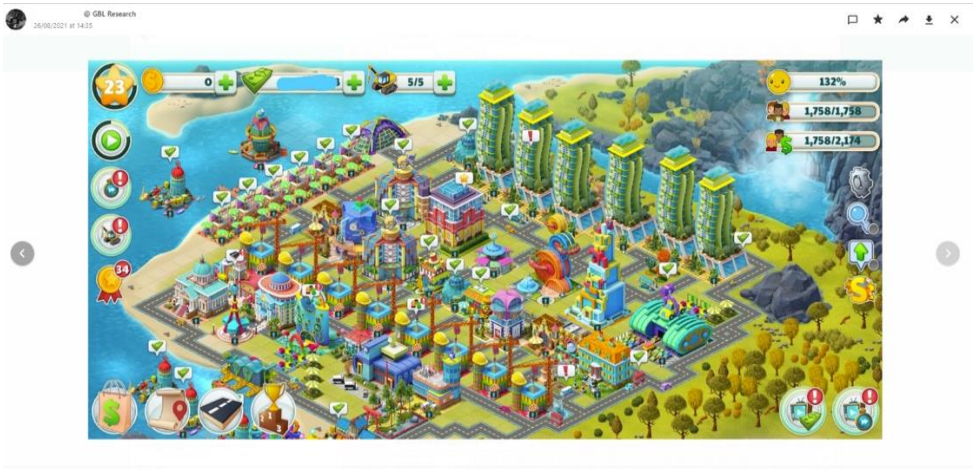

Figure 6. A student's progress on Town city depicting expansion of a society in a post-industrial setting

In Figures 7 and 8, students demonstrated being able to make connections between the concepts in the game and the family topic, as shown in the comments above. Students mentioned processes related to urbanization, work, and the standard of living. Students also related the game back to sociological views, as mentioned by one student from the functionalist perspective. What students mentioned here have developed an understanding of the concepts associated with the family unit and are considered viable ideas that can be used for their essay arguments, such as "geographical mobility," as stated in the marking scheme. Based on this, it can be concluded that GBL had an impact on students' ability to connect ideas together and their conceptual understanding, provided that the game design was taken into consideration for how it could help with learning the topic.

Figure 7. A student's feedback on the gaming experience in connection to urbanization

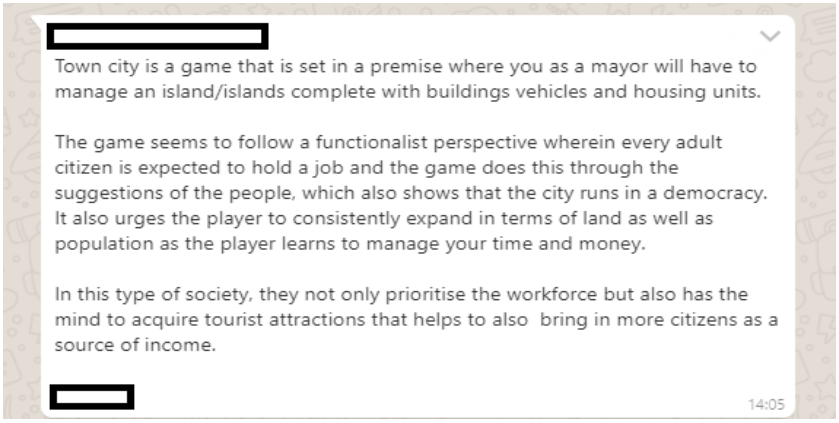

Figure 8. A student's feedback in connection to a Sociological perspective

Application of acquired knowledge to essay writing

The essay question given to students was for them to "evaluate the view that the nuclear family is universal." This required students to provide their supporting or counterarguments using their understanding of sociological theories and relevant case studies. One of the main difficulties that these students faced when doing their essay writing was the lack of demonstration of the application of concepts that they understood, resulting in points that are made up of only memorized relevant key terms and their explanation as what was discussed with the Head of Department. Attempts at doing any analysis were limited and often confused, lacking in depth, focus, and direction in their answers, further showing their limited grasp of the concept. Table 1 highlights some of these difficulties.

Table 1. Sample answers of students A and B during the pre-test

Student	Pre-test answers (before GBL)
A	Parson's view on the family is the two main functions; Primary Socialization is the function that the family does to develop their children to become acceptable members of society and stabilization where adults give emotional support during hard times such as stresses of the work and others. Parson integrated this idea of all families' especially nuclear families due to the effects of industrialization. Another idea that came from Parson was the functional fit theory which suggested that family functions "fit" to social changes. For instance. During pre-industrial era, the families had the role to educate their children and treat their illnesses. As time progresses, these functions were lost to these two institutions; Education (Schools) and healthcare (hospitals and clinics). This proves as an evidence that families have to adapt through the ages.
B	According to the Functionalist, Murdock stated four Functional of family. Sexual content, economic provision, reproduction and socialism. In terms of sexual stability through family, they committed to one partner and their family to survival. Looking for need of family also look for need of social system for e.g. Finding jobs. In terms of economic family need to work so that they get money to survive. Each of them needs to work and get paid. In terms of reproduction, new members are formed, this means new family member come to this nuclear family. Lastly, in terms of socialism the family teach norms and values to their children and wife can also be a support for her husband after work. This can show Murdock support the nuclear family.

For both samples, both students A and B made use of the Functionalist perspective to answer the question. However, while the theory is relevant in tackling the question, their answers did not fully address how the Functionalist views explains the universality of the Nuclear Family. The steps leading to the universality argument was not clear, focused only

on statements made by the theorists, most likely a result of their memorization of the point from the course book. This led to a weak conclusion for their paragraph. What these students demonstrated was the lack of understanding of the knowledge that can be applied as points for their arguments. This is most likely due to the fact that these students are used to just reading and using information that was presented to them. There is evidence of the attempt on evaluating but it is possible that the absence or the lack of visual aid tools that are interactive in stimulating students' engagement in lengthy subjects like this is a factor to their underperformance (Kuran, 2018). Relating this to Bloom's taxonomy, students' performance mainly demonstrated lower order thinking and while there is an attempt to venture into higher order thinking, the difficulty in making the proper connections is holding them back. As previously mentioned, it results in an unclear process to the conclusion of their argument. With the implementation of GBL, the post test result showed a significant difference as can be seen in Table 2.

Table 2. Sample answers of students A and B during the post-test

Student	Post-test answers (before GBL)
A	In the Pre-Industrial era, certain families were in some traditional peasant societies and were known as the Extended Family, at that time, they were only a unit of production, this is backed by Arensberg and Kimball's 1968 study on Irish farmers where the basic family unit is this and they consist of the male head, his wife, children as well as his ageing parents who've passed the farm to him and any unmarried brothers and sisters. However, this is conflicted in terms of historical context as Peter Laslett (1972, 1977) studied family life in Pre-Industrial England (1564-1821) and found that only 10% of households contained kin beyond the nuclear family. This low figure may be due to the short life expectancy and late marriages at the time. Thus, Laslett found no evidence to support the view that the classic extended family was widespread in Pre-Industrial England. From these statements, it is therefore made clear that indeed Nuclear families are universal but only in a sense of industrialization or Modernization. If a certain area or certain group has not yet met these events then the existence of a nuclear family within is less likely.
B	Murdock (1949) and his survey of 250 representative from human societies. From his survey he lists that two main characterizations. First is Structural convergence. Which this point tells that idea family structure are historically moving towards the nuclear norms which becomes a sole prevailing family norm. Next point is dominance thesis which the nuclear family is simply the main family structure in all societies. This we can see in some countries that have this type of family and led to decrease childbirth. However there a debate on this which Herndon (2004) argues that they follow a matriarchal family system where children belongs legally to their mother and her clan in Ashanti of West Africa. In this statement also tell that father role only to provide material support but any matters other than that is controlled by the mother and two thirds of the couple do not share common residence because they cannot afford to. This mean that Murdock survey only at one place and not include all states in these countries. And to clearly statement not all states in Africa already modernization.

The differences between the pretest and posttest was seen in terms of how both students now made use of an argumentative approach in addressing the notion that the Nuclear family is universal. In addition to the use of different references, both arguments also compared supporting and counters against the idea, leading to a better flow and clearer demonstration of content knowledge. It was also observed that both students made use of the knowledge

from the games they played about the Family unit during a pre-industrial and post-industrial setting, supporting the idea that they were able to apply those ideas into their writing while still maintaining a relevant context. Students also managed to demonstrate higher order thinking as a result of this.

Table 3. Comparison of student marks during pre-test and post-test

Student	Pre-test marks (100%)	Post-test marks (100%)	Differences in marks
A	64	80	+16
B	48	64	+16
C	72	80	+8
D	32	64	+32
E	32	68	+36
F	64	76	+12
G	76	88	+12

Table 3 shows the differences in marks obtained by students after doing their pre-test and post-test. Improved scores were seen in all of the students, with students D and E having the most significant increase. Students C and G, who scored well initially also managed to improve on their scores to an A grade.

Table 4. Examples of high grade student answers during the post-test

Student	Post-test answers (after GBL)
C	There are various ways to see how the nuclear family is not only universal but also the preferred type of family. Going back to the pre industrial era, the goal was mainly to survive. Due to the complexity of survival, which required people to constantly provide for themselves in order to keep roofs above their heads, families were mostly in the nuclear form. Reasons to this include, but not limited to, avoiding burden. Resources were obviously limited back in the past and again, everyone was trying to ensure their own survival. By having more children, and having to fulfill every child's needs, it is almost impossible to keep progressing. Moreover, in that era, the source of everyday needs usually came from manual labor. This means that men often leave their homes to find necessary materials for their family at home, which leads to only women carrying the responsibility of childcare. This kind of situation would probably lead to people in the past deciding to only build a small family. However, around that time, where most individuals are blood-related, it is not fair to overlook that most of the people, although having families of their own, actually come from the same family line. This actually rejects the fact that families were nuclear ever since the pre industrial era. Nevertheless, considering that there were limited resources in terms of money and healthcare, it is actually possible that people might have died from old age, leading to families turning into nuclear forms. Moving onto the industrial era, where machines took over manual labor, there are two sides that can be perceived from. As machines did most of the work in terms of heavy load tasks, many, but not all, people actually decided to let loose and build a bigger family with more children. This can be seen in families of people from the upper class and some from the middle class. This is simply because they are the ones managing the resources for that society, or country, and having more family members was not really burdensome.

Student	Post-test answers (after GBL)
G	In the perspective of the traditional functionalists, such as Parsons (1959) and Goode (1963), they make use of the 'Fit Thesis' that claims that as we move from a pre-industrial to a post-industrial society, industrialization and urbanization takes place. With these two processes, there is a shift from extended to nuclear families. This can be due to a few reasons. With a nuclear family, the family will have more mobility and labor flexibility. The need for extended families in the past was due to the mentality of having more workers and, thus, more profit is brought in. Similarly, with more family members, the family would find it easier to expand their networking so finding jobs would be easier due to the presence of nepotism. However, in the industrial and post-industrial society, this is not the case. Jobs are now requiring specific skills for certain jobs. This is referred to as institutional specialization. These specialized skills can only be learnt in educational institutions, such as schools and universities. Having more children not only causes more trouble in terms of childcare, as the parents would be both working especially in the industrial society, but also would cost more money. Therefore, it would be plausible to assume that the popular family form of that time would be the nuclear family form and, to some extent, be considered universal during the industrial era.

From Table 4, it can be seen that students who scored higher marks in the pre-test showed better elaboration and a descriptive focus on the situation of the family during the pre-industrial and post- industrial society in their post-test. The terminologies were used properly and students showed awareness of the multi-layered processes that occurs when a society progresses towards the next era. Their arguments are mostly constructed in a way that reflects their critical understanding which shows clarity when it comes to their conclusions to the universality statement. Some of the examples used in their explanation reflects their effort in connecting what they have experienced in the games they played, especially the parts about family producing workers, management of resources, distribution of roles and the differences in classes. Students were also aware of the importance of institutional differentiation and how that led to the family adopting a nuclear structure, further improving their marks. This is in line with what Colby (2017) argued on games becoming a powerful pedagogical tool that can enrich and enhance student learning where they apply and enact the concepts rather than simply memorizing them.

Generally, students moved up a grade in terms of their responses, putting a majority of them from a grade C to a grade B range. To further support this finding, the researcher conducted an informal question-and-answer session with the students as soon as the implementation of GBL ended. When asked what they could remember from writing in both tests, most of their responses were in line with what they had written. This supports the idea that GBL has a positive impact on students' overall essay writing quality, as they were graded based on the structure, flow, and quality of their arguments.

However, upon further analysis, it was found that students did not really cover much in the way of real-world examples for their arguments. This is possibly due to the limitations of the game design, where it does not provide any real-world examples that the students can relate to, or it could also be due to a lack of emphasis on the researcher's part in the explanations of the rationale of using games with regards to real-world application, similar to the argument by Watson and Yang (2016) on games not being educational enough. If students are able to incorporate real-world examples into their arguments, it is possible that this will improve their marks further. Despite all this, the students mentioned during the question and answer that, given future opportunities, it would be easier to use real-world examples in their writing considering this is their first time using GBL as a learning tool.

In conclusion, these findings suggest that GBL does indeed improve the quality of students' performance in essay writing, especially for those that scored low during their pre-test. While there are limitations that prevent them from performing better, the whole idea of using games to aid learning in an A-level sociology environment is no doubt a powerful tool that students could grow to like and utilize in their learning experience of the subject.

Research question 2: What are the students' perceptions on the use of GBL in Sociology lessons?

For this research question, the researcher made use of the findings from the semi-structured interviews conducted with students via Zoom after the implementation of GBL had ended. During the interview, the students were asked what their thoughts were on their experiences with GBL. The findings lean towards students favoring the use of GBL as a learning tool to improve their content knowledge and understanding.

Effects of motivation on students' learning

One of the main benefits of using games for learning is that it keeps the player engaged and gives them a chance to enjoy themselves while playing the game. This leads to an increase in motivation levels in students who participate in games that are meant to help with their education (Hamari et al., 2016). The outcome of this research supported the statistical summary done by Wouters and Oostendrop (2017), which stated that using games is far more effective for learning, even when there is only a small increase in student motivation.

By being motivated, students were more inclined to participate in any activities that were related to what they had learned from the games, especially when they were rewarded for the effort and time investment they had made. This factors into the design and mechanics of the game, supporting the claim made by Westera (2019) that games, if properly considered within an educational context, will lead to experiential learning and increased motivation. Every time they manage to complete an assigned task set by the game, they are rewarded by getting more playing time and new buildings to construct, which adds to the aesthetic and exploring factor of their cities. When coupled with sociological concepts, the students mentioned that they find the activity enjoyable, motivating, and worth the time investment as learners. By the second session, most of the students were eager to play the next game, had no problems progressing to tackle the next concept, and expressed their dissatisfaction when there were no more energy points available for them to carry on with their city building. They commented how there is not enough time to fully experience GBL, as by the time the implementation has ended, students have discovered different perspectives that can be linked back to the subject and wish to explore and experiment on the different possibilities that a society might undergo when exposed to certain conditions. Students also stated how seeing the different outcomes encouraged them to find a possible perspective that can be linked to be able to explain the reason as to why the outcome came to be.

Table 5. Student response on experience of using GBL

Student	What is your experience with the use of GBL so far?	
	First session	Second session
A	We can use games to learn Socio?	I'm enjoying it so far. Wished there was more time for exploring.
B	Quite excited!	Very cool, it's easy to make connections between concepts.
C	It's new to me. Too soon to say	Surprisingly engaging. I'm hooked in trying to manage my resources and the next stage.

Student	What is your experience with the use of GBL so far?	
	First session	Second session
D	It's exciting	Being a Capitalist is hard! Loving the challenge though
E	I like the idea	Pretty fun and motivating. No problems so far.
F	Can't wait to see what's next	Helps with current knowledge, more on the visualization aspect and how it can be linked to Socio.
G	It's okay	I find myself playing this automatically after Sociology lessons. Helps solidify my understanding on the topic.

This is in line with what Hussein et al. (2019) stated about games, where they offer interactive contexts for critical thinking and experimentation with complex problems in a hands-on fashion that create the opportunity for multiple learning styles and engagement. Further relating this to the works of Piaget (1962) and Vygotsky (1978), the idea of play being integral in the development of children's stages of cognitive development and affecting engagement, player motivation, adaptability, and graceful failure is supported. While some of the students did express how completing the first game made them get bored, this was only due to the fact that the first game only covered the basic elements of a pre-industrial family and was designed to be simple for the player. It was mainly intended for younger players, children ages 12 and below, so it is no surprise that advanced-level students can easily see through what the game is meant to teach. If the students were given a game of higher difficulty, this would possibly be a different scenario. Students also mentioned how this could also be because they have previously learned and generally understood the topic, but argued that if a simple game that tries to demonstrate the theories and concepts of a new topic was given to them, then GBL would be more beneficial in terms of its application.

Table 6. Student response on application of GBL

Student	Has the use of GBL changed your opinions about learning Sociology?
A	Yes. I always thought learning Sociology was all about boring books and online resources. I now realize there's better alternatives.
B	Yes. Sociology can be fun if you know how to link it on what you are consuming (E.g. Games, YouTube videos).
C	Yes. I never expected using games would help me study better. I always thought it was the other way around.
D	Yes. But to be fair, I already thought that Sociology would be fun so GBL is actually a bonus and it adds to my opinion that Sociology is fun and entertaining if you learn it in a way where you don't make yourself bored with the topic.

In answering the research question, the findings indicate an increase in students' motivation to learn content that is related to the subject. When the topic of essay writing was brought up, students stated that they were more confident and willing to create sociological arguments based on their understanding of the nuclear family and modernization topics. When asked if they would use GBL again, students replied that they were more than willing, as they thought it was a great addition to the many strategies for learning.

Supporting educational innovation using latest technology

As previously mentioned, the easy access to these games using their phones gave them the motivation to carry on smoothly with their learning activity. All of the students were in

agreement on how the use of smartphones to play games and its incorporation into learning sociology make learning sociology more enjoyable and student-friendly. They felt that learning was not rigid and limited to only the classroom. This is in agreement with what Huizenga et al. (2019) and Greipl et al. (2020) stated about the use of games increasing the motivation and engagement of the learners, whether inside or outside of the classroom, provided that the use of games is coupled with the right learning principles. Feedback on time management points to how students still had time to play these games as they could easily access them on their phones, and they felt it was more of a relaxing activity than a taxing one. However, it should also be noted that all of the participants did not face any problems with accessing the games, resulting in a positive outcome for this research. In the case of students who have no means of access to the required devices or who are not fluent in the use of technology, this could become a wall in their learning instead. Foster and Shah (2020) highlighted this matter of the use of technology having the potential to hinder students' learning progress as it might prevent them from benefiting from the information being shared. For the implementation to actually be beneficial to students, the pros should first outweigh the cons.

The researcher had also found that there was an increase in students' collaboration while they were playing the games. Students were sharing their experiences with each other in their discussion group and worked together to figure out a solution on any difficulties on the tasks from the game that they have found during the implementation. When asked during the interviews on the reasons for doing so, students replied that they wanted to see how others are doing with their cities and what steps they took in order to reach a certain progress. They liked the idea of working together to achievement a common goal and doing so meant there was more things to discuss among themselves, especially if it is something that they enjoyed doing. It is important to note that there were no instructions given by the researcher for the students to work together while playing the game, making this finding an interesting outcome.

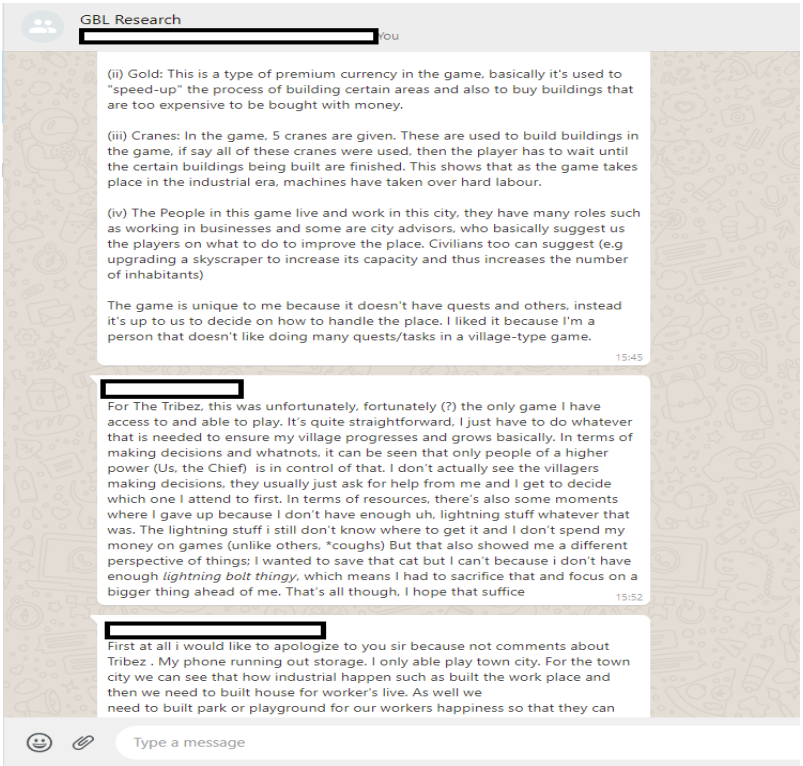

Figure 9. Students' contributions to their discussions on games played

This can be related to a study done by Huizenga et al. (2019) on the use of serious mobile games, where they found that the use of mobile games contributes to the development of collaboration skills in students. When it comes to Brunei's national educational strategy, SPN21, this finding supports the need for the development of communication and social participation, the ability to use technology efficiently and effectively in solving problems, and productivity in students.

In addition to this, the incorporation of devices that not only give access to playing games but also act as a platform for discussions meant that scaffolding and relevant feedback were easily done between the tutor and students, especially in the case of this study. In line with what Monjelat et al. (2017) suggested on introducing GBL in a classroom environment with the ability to make use of strategies like scaffolding and relevant feedback if consideration is taken on the integrated views of affective, cognitive, and motivational perspectives, it would demonstrate the full potential of what GBL has to offer to benefit learning. The findings of this study came in the form of opportunities for active participation and the opportunity to develop individual ideas. As seen previously, students not only took the initiative to collaborate with each other but also checked with the researcher if the steps they had taken were in line with learning the topic. In cases where they failed to manage their resources in the game, for example, they would try to find out the reasons why a society would slowly break. Making use of recent technology in the classroom for learning answers to educational innovation, especially the utilization of virtual discussions,

Lastly, the findings suggest that students' general views on the use of GBL are different and new. It deviates from the traditional learning experiences they have previously had, which to some feel bland and could lead to them becoming disengaged. It is safe to say that the use of GBL has changed the views of students on learning sociology, given the right conditions and context. All this points to how using GBL supports making learning efficient, flexible, and enjoyable for students.

CONCLUSION

The pre-test and post-test showed an improvement in students' essay marks with the implementation of GBL. It factors in students' progress while doing the implementation and the quality of arguments provided in their writing. Students managed to improve their scores by a level in terms of the level response as shown in the marking scheme. The most notable difference was seen in students who scored low in their pre-test, signifying the impact of GBL on their understanding. The quality of arguments produced by students covered what was expected of them in terms of sociological materials given in the syllabus, with the addition of a more critical take on perspectives and the process a society undergoes in modernization. This answers the claims made by Colby (2017) that games are becoming powerful pedagogical tools that can enhance and improve learning. However, further analysis revealed students were not covering many real-world examples in their arguments, which the researcher attributes to the limitations of the game design and a lack of emphasis on the researcher's part in the explanations of the rationale of using games with regards to real-world applications.

When it comes to students' perspectives on the use of GBL, an increase in motivation and positive reception to the use of recent technology were the most notable ones. The different approach I took as a learner on a subject that students consider lengthy was eye-opening and innovative. The easy access of the games via smart phones meant that learning could be ongoing even outside of the classroom (Huizenga et al., 2019). Paired with enjoyment and eagerness as a result of playing the game, students were actively participating in discussions with the tutor and their peers, collaborating with each other to find solutions for

their progress in the game. Giving feedback on how the concepts were related to sociology was easier as it was mainly done virtually. As a whole, students' perception of GBL leans towards a willingness to use it again as one of the many tools to aid in their learning of the subject.

RECOMMENDATION

This research does not in any way suggest that the use of GBL is better than the traditional approach or other alternatives to learning to improve students' essay writing. It's findings does, however, suggest that incorporating GBL in Sociology lessons can function as an additional learning tool that enrich and improve student learning that promotes enjoyment in the topics that they are covering. Of course, this is provided that it is used within the right context and design, as only relying on the use of technology alone could have its drawbacks. There is also the matter of realizing the nation's vision to equip the students with the relevant 21st century skills. Thus, it needs to be emphasized that the purpose and lesson design should be carefully considered for teachers who wishes to make use of GBL to ensure the highest chance of a positive outcome for their students. Games and technology should not be used if the sole purpose is only for the sake of implementation as the takes the students might get will be greatly affected.

In order to get the best out of the implementation of GBL in Sociology lessons, the following recommendations are given. Firstly, the idea of using games for learning is rarely used for Sociology students in A-levels. With that in mind, explanations on the rationale of using games for a certain topic should be clear and confirmed with students. Secondly, it is worth noting that a larger sample size would better reflect the impacts of GBL on Sociology students' learning. In addition, considering a good mix of male to female ratio would also be beneficial in identifying the engagement factor of students for learning as male students tend to be more participative in using games for learning compared to female students. And finally, the time for the implementation should be extended to no less than three weeks, to better gauge its effects over time on students' perception and performance.

Author Contributions

The authors have sufficiently contributed to the study, and have read and agreed to the published version of the manuscript.

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Declaration of Interest

The authors declare no conflict of interest.

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Appendix A:

Pre- and Post-Test Question

Instruction:

Answer the following question, taking into account of Sociological theories for your arguments. You have 50 minutes.

Question:

"Evaluate the view that nuclear family is universal" [26 marks]

Question adopted from CIE Sociology 9699 Syllabus specimen paper 2021, Question 4

Appendix B

Mark Scheme For Pre- and Post- Test

9699/02 Cambridge International AS & A Level – Mark Scheme **SPECIMEN** For examination from 2021

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1: Marks must be awarded in line with: • the specific content of the mark scheme or the generic level descriptors for the question • the specific skills defined in the mark scheme or in the generic level descriptors for the question • the standard of response required by a candidate as exemplified by the standardisation scripts.
GENERIC MARKING PRINCIPLE 2: Marks awarded are always **whole marks** (not half marks, or other fractions).
GENERIC MARKING PRINCIPLE 3: Marks must be awarded **positively**: • marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate • marks are awarded when candidates clearly demonstrate what they know and can do • marks are not deducted for errors • marks are not deducted for omissions • answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.
GENERIC MARKING PRINCIPLE 4: Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.
GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>4</td><td>
Evaluate the view that the nuclear family is universal.

Indicative content
<table>
<tr><td></td><td>In support</td><td>In evaluation</td></tr>
<tr><td>Points</td><td>Murdock's cross-cultural study

Parsons and functional fit

Structural convergence

Dominance thesis</td><td>Evidence of family diversity used to question the universality of the nuclear family.

Cross-cultural evidence against the universality of the nuclear family (e.g. the Nayar, the Lakker, the Ashanti).

Laslett and Anderson and/or other historical evidence to criticise Parsons.</td></tr>
<tr><td>Research evidence</td><td>Parsons, Murdock, Goode, Skolnick</td><td>Stacey, Gough, Keesing, Herndon, Sheeran</td></tr>
<tr><td>Additional concepts</td><td>Geographic mobility, basic and irreducible functions</td><td>Matrifocal families, female-carer core, same-sex families, new world black families, families of choice.</td></tr>
</table>
The above content is indicative and other relevant approaches to the question should be rewarded appropriately.

Or any other relevant point.

Levels of response

Level 5: 22–26 marks
• Very good knowledge and understanding of the view that the nuclear family is universal. The response contains a wide range of detailed points with very good use of concepts and theory/research evidence.
• The material selected will be accurately interpreted, well developed and consistently applied to answering the question.
• Clear, explicit and sustained analysis/evaluation of the view that the nuclear family is universal.

Level 4: 17–21 marks
• Good knowledge and understanding of the view that the nuclear family is universal. The response contains a range of detailed points with good use of concepts and theory or research evidence.
• The material selected will be accurate and relevant but not always consistently applied to answering the question.
• Good analysis/evaluation of the view that the nuclear family is universal. The evaluation may be explicit and direct but not sustained or a more descriptive account of evidence and arguments suggesting that the nuclear family is not universal.
</td><td>26</td></tr>
</table>

Question	Answer	Marks
4	**Level 3: 11–16 marks** • Reasonable knowledge and understanding of the view that the nuclear family is universal. The response contains a narrow range of detailed points or a wider range of underdeveloped points, with some use of concepts or theory or research evidence. • The material selected will be largely appropriate but its relevance to the question may be unclear or confused at times. • Some analysis/evaluation of the view that the nuclear family is universal. The evaluation may be a simple juxtaposition of different arguments and theories which are not clearly focused on the question or a few simple points suggesting that the nuclear family is not universal. **Level 2: 6–10 marks** • Basic knowledge and understanding of the view that the nuclear family is universal. The response contains a narrow range of underdeveloped points and may include basic references to concepts or theories or research evidence. • The material selected is relevant to the topic but lacks focus on or relevance to the specific question. • Any analysis or evaluation is likely to be incidental, confused or simply assertive. **Level 1: 1–5 marks** • Limited knowledge and understanding of the view that the nuclear family is universal. The response contains only assertive points or common sense observations. • There is little or no application of sociological material. • Little or no attempt at analysis or evaluation. **Level 0: 0 marks** • No response worthy of credit.	

Appendix C

Interview questions

Semi-structured Interview Questions while the implementation is still in progress:

1) What is your experience with the use of GBL so far? (Encourage students to give reasons why)

2) What difficulties are you currently facing at this stage?

Semi-structured Interview Questions once the cycle has ended:

1) Did you enjoy Game-based learning? (Provide reasons why)

2) Did the use of GBL help you in improving your understanding of the topic? (Provide reasons why)

3) What part of GBL did you enjoy the most?

4) What part of GBL did you enjoy the least?

5) Has the use of GBL changed your opinions about learning Sociology? (Provide reasons why)

Appendix D

Student interview

(Before the cycle ended)

Semi-structured Interview Questions before the cycle ended:

Student	What is your experience with the use of GBL so far?		What difficulties are you currently facing at this stage?	
	First session	Second session	First session	Second session
A	We can use games to learn Socio?	I'm enjoying it so far. Wished there was more time for exploring.	Applying own arguments in my essay is my main issue	Downloading and accessing the Apps
B	Quite excited!	Very cool, it's easy to make connections between concepts	I want to improve the quality of my essay writing	There's not enough time for all the games
C	It's new to me. Too soon to say	Surprisingly engaging. I'm hooked in trying to manage my resources and the next stage	I'm not confident when it comes to section B (Essay)	I think the time given is too short to fully experience the games
D	It's exciting	Being a Capitalist is hard! Loving the challenge though	It's hard to visualize some of the concepts just by reading and pictures	Can't download the first game
E	I like the idea	Pretty fun and motivating. No problems so far.	Sometimes I misunderstand the topic as I have a different interpretation	No problem
F	Can't wait to see what's next	Helps with current knowledge, more on the visualization aspect and how it can be linked to Socio	Essay writing	No problem
G	It's okay	I find myself playing this automatically after Sociology lessons. Helps solidify my understanding on the topic	I'm okay so far, I just want to see alternatives to methods to improve my essay arguments	No issues. It's been a smooth process so far

Semi-structured Interview Questions once the cycle has ended:

Student	Did you enjoy Game-based learning?	Did the use of GBL help you in improving your understanding of the topic?	What part of GBL did you enjoy the most?	What part of GBL did you enjoy the least?	Has the use of GBL changed your opinions about learning Sociology?
A	I enjoyed it. Reduced stress and helped me explore my capabilities in these games	Definitely. It's very engaging and helpful in developing ideas on how family	Playing the games of course and it's helping with Socio concepts	I didn't experience any in my opinion	Yes. I always thought learning Sociology was all about boring books and online resources. I now

Student	Did you enjoy Game-based learning?	Did the use of GBL help you in improving your understanding of the topic?	What part of GBL did you enjoy the most?	What part of GBL did you enjoy the least?	Has the use of GBL changed your opinions about learning Sociology?
		developed over time			realize there's better alternatives
B	Loved it. Way better than Kahoot.	Yes. I find it very simple now, not as complicated as I thought	The moment it all clicked. Once I played all the games, I find the whole topic easier	Some of the games were not accessible on my phone	Yes. Sociology can be fun if you know how to link it on what you are consuming (Eg. Games, Youtube videos)
C	I really enjoyed playing the games and linking it with Socio	I think that I can tackle essay questions better as I have more ideas on own things to say now	How using games can be beneficial in this subject. I always thought it was just books	The first game was unavailable to my phone	Yes. I never expected using games would help me study better. I always thought it was the other way round.
D	It's my first time participating in something like this and it's quite fun actually. I get to learn while entertaining myself	Yes, although it's only a bit since we have gone through this topic once. I think if it was a new topic we haven't covered, it would help a lot	The game's simple gameplay and making socio connections	Downloading the games and the game mechanic. It becomes predictable overtime.	Yes. But to be fair, I already thought that Sociology would be fun so GBL is actually a bonus and it adds to my opinion that Sociology is fun and entertaining if you learn it in a way where you don't make yourself bored with the topic
E	Yeah	Yeah, it's relatable since I can take part during the process of how societies evolve over time	How it can be connected to Sociological concepts, it's pretty cool to see it being simulated in a game	I feel like I didn't get enough time to enjoy the games fully	The use of games on Sociology topics can greatly benefit learning. I feel like making arguments on things that I understand better would yield better essay quality
F	I actually do enjoy it since it's a game. Who doesn't? It gave me the opportunity to relax my mind as well	A bit? Playing the game puts me in the shoes of the Capitalist we learn in class so I can see the roles and how they work better	I like how the game is rewarding when I progress. It's very motivating as a learner	I don't like how I'm time gated in the games. I wish I could progress more in a short amount of time	I always thought Sociology is a bland subject and how it is always about the same stuff over and over but GBL changed that. I find Sociology can be way more fun given the right approach

Student	Did you enjoy Game-based learning?	Did the use of GBL help you in improving your understanding of the topic?	What part of GBL did you enjoy the most?	What part of GBL did you enjoy the least?	Has the use of GBL changed your opinions about learning Sociology?
G	Yes, I enjoyed it. One of the reasons boils down to the fact that I have a legitimate reason to playing games for an hour straight. Another would be due to the experience of learning through a different medium that is different from books and videos	Yes, it did. As we were required to take part in the happenings of the game, we were able to actively experience first-hand as compared to a passive observation that we would usually make when reading textbook or watching a video. Hence visuals cannot compare to being immersed in the family dynamic plus family structure (In this case the Nuclear Family)	I enjoyed the learning through playing games aspect. It made learning more fun and does not bore the person after continuously doing so for an hour, or even more.	Given the research was limited in terms of duration, I find that I struggle to meet a minimum time for playing as I have other works to do.	It did not changed my opinion on learning Sociology in my opinion as I already liked it beforehand, However the use of GBL have enriched the lessons by providing an immersive example that allows the student to experience first-hand dynamics and concepts we are being taught in our lessons. Therefore, the use of GBL is a useful supplementary to normal lessons as it adds on an additional layer of understanding in my lessons.

Examples of students' Pre-test and Post-test answers

Student	Pre-Test (Before GBL)	Post-Test (After GBL)
A	Parson's view on the family is the 2 main functions; Primary Socialization is the function that the family does to develop their children to become acceptable members of society and stabilization where adults give emotional support during hard times such as stresses of the work and others. Parson integrated this idea of all families' especially nuclear families due to the effects of industrialization. Another idea that came from Parson was the functional fit theory which suggested that family functions "fit" to social changes. For instance. During Pre-industrial era, the families had the role to educate their children and treat their illnesses. As time progresses, these functions were lost to these 2 institutions; Education (Schools) and healthcare (Hospitals and	In the Pre-Industrial era, certain families were in some traditional peasant societies and were known as the Extended Family, at that time, they were only a unit of production, this is backed by Arensberg and Kimball's 1968 study on Irish farmers where the basic family unit is this and they consist of the male head, his wife, children as well as his ageing parents who've passed the farm to him and any unmarried brothers and sisters. However, this is conflicted in terms of historical context as Peter Laslett (1972, 1977) studied family life in Pre-Industrial England (1564-1821) and found that only 10% of households contained kin beyond the nuclear family. This low figure may be due to the short life expectancy and late marriages at the time. Thus, Laslett found no evidence to support the view that the

Student	Pre-Test (Before GBL)	Post-Test (After GBL)
	clinics). This proves as an evidence that families have to adapt through the ages.	classic extended family was widespread in Pre-Industrial England. From these statements, it is therefore made clear that indeed Nuclear families are universal but only in a sense of industrialization or Modernization. If a certain area or certain group has not yet met these events then the existence of a nuclear family within is less likely.
B	According to the Functionalist, Murdock stated 4 Functional of family. Sexual content, economic provision, reproduction and socialism. In terms of sexual stability through family, they committed to one partners and their family to survival. Looking for need of family also look for need of social system for eg. Finding jobs. In terms of economic family need to work so that they get money to survive. Each of them need to work and get paid. In terms of reproduction, new members are formed, this means new family member come to this nuclear family. Lastly, in terms of socialism the family teach norms and values to their children and wife can also be a support for her husband after work. This can show Murdock support the nuclear family.	Murdock (1949) and his survey of 250 representative from human societies. From his survey he list that 2 main characterizations. First is. Structural convergence. Which this point tell that idea family structure are historically moving towards the nuclear norms which becomes a sole prevailing family norms. Next point is dominance thesis which the nuclear family is simply the main family structure in all societies. This we can see in some countries that have this type of family and led to decrease childbirth. However there a debate on this which Herndon (2004) argues that they follow a matriarchal family system where children belongs legally to their mother and her clan in Ashanti if West Africa. In this statement also tell that father role only to provide material support but any matters other than that is controlled by the mother and two thirds of the couple do not share common residence because they cannot afford to . This mean that Murdock survey only at one place and not include all states in this countries. And to clearly statement not all states in Africa already modernization.
C	As the world advances, so should people. The effect of urbanization had immensely changed the way the world initially started as. People are now more keen to focus on getting a proper life with proper jobs and proper income. This leads to many children moving out and away from their parents' houses in order to create a life of their own. After that, when these children finally settle down and decides to build a family, they put some thought into it. Taking a lot into consideration such as housing, job opportunities, overpopulation and more, these new parents often try to reduce the amount for children they plan on having – minimize the risk.	There are various ways to see how the nuclear family is not only universal but also the preferred type of family. Going back to the pre industrial era, the goal was mainly to survive. Due to the complexity of survival, which required people to constantly provide for themselves in order to keep roofs above their heads, families were mostly in the nuclear form. Reasons to this include, but not limited to, avoiding burden. Resources were obviously limited back in the past and again, everyone was trying to ensure their own survival. By having more children, and having to fulfill every child's needs, it is almost impossible to keep progressing. Moreover, in that era, the source of everyday needs usually came from

Student	Pre-Test (Before GBL)	Post-Test (After GBL)
		manual labour. This means that men often leave their homes to find necessary materials for their family at home, which leads to only women carrying the responsibility of childcare. This kind of situation would probably lead to people in the past deciding to only build a small family. However, around that time, where most individuals are blood-related, it is not fair to overlook that most of the people, although having families of their own, actually come from the same family line. This actually rejects the fact that families were nuclear ever since the pre industrial era. Nevertheless, considering that there were limited resources in terms of money and healthcare, it is actually possible that people might have died from old age, leading to families turning into nuclear forms. Moving onto the industrial era, where machines took over manual labour, there are two sides that can be perceived from. As machines did most of the work in terms of heavy load tasks, many, but not all, people actually decided to let loose and build a bigger family with more children. This can be seen in families of people from the upper class and some from the middle class. This is simply because they are the ones managing the resources for that society, or country, and having more family members was not really burdensome.
D	One of the reasons why Nuclear family is universal is because according to the ruling, middle and working class, the nuclear family is common among the middle and working class. This is due to them not having enough wealth to support themselves enough like the ruling class. Having more children in their families would also mean that they have to spend more in terms of money	The concept of nuclear family is widely believed to be universal since the changes that occurred in society have affected everyone's lives. One of these changes was urbanization, which caused many people to move. The resulting migration separated people from their families and made them look for a new partner. Functionalists only believed how there should be two parents to make the family function properly in society. In this case, they disregarded the lone family structures. This family structure is a family which consists of only one parent because of divorce and not because of the death of their partner. According to Allan and Crow (2001) one of the reasons why lone family structures are

Student	Pre-Test (Before GBL)	Post-Test (After GBL)
		increasing in numbers is because of an increase in marital breakdown and secondly a rise in births to unmarried mothers. They argue these trends are due to society's acceptance of family diversity. Other than that, social changes make it relatively easier to access divorce leading to greater numbers of lone parent or reconstituted family structure. Thus, this shows how lone parent family structure can also be universal and not only nuclear family structure.
E	One of the sociologists who are against it being Murdock. Murdock believes that a nuclear family can be considered universal that is because a nuclear family has multi-functions. Murdock came up with functional prerequisites which defines as the needs that has to be in a family. For this it consists of sexual control, reproduction, socialization and economic provision. Murdock also viewed that nuclear family exists in all societies. To elaborate more on this is that all families started out as a nuclear family. Therefore, it exists in all societies.	The reason why the nuclear family is considered to be universal is because it is the starting form of a family. However, it is almost universal due to it being a common family arrangement today. This is because historically, many children lived with only one parent because spouses died early and many babies were born out of wedlock. Exclusive definition can be useful for distinguishing between family and non-family groups though this can exclude household forms that are considered to be families in many modern societies. Popenoe (1988) suggests that a contemporary exclusive definition can encompass both single parents and homosexual relationships. Whilst for Giddens (2006) suggests an alternative, inclusive, definition that focuses on kinship and the general relationships that make families different from other social groups. One benefit of this is that it is able to cover a variety of possible family forms, though the drawback of this is that it may be too broad to the point where it can include groups that are not usually considered to be part of family. In today's generation, it is discovered that more family groups are being formed besides the basics which is the nuclear and extended family. There is such thing like the lone-parent family, involving a single adult plus dependent children, they can sometimes be known as the broken nuclear family especially when it arises from the break-up of a two-parent family. Another family group that Brannen (2003) calls the Beanpole family. This defines as an inter-generational, vertically extended family structure with very weak intra-generational links. This structure develops in societies with low or declining birth rates and increasing life expectancies.
F	A Functionalist, Murdock, propose the family prerequisites of which each family has to have	Nuclear family structure is said to be the most dominant structure in society based on the fit

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	4 core roles or functions. They are reproduction, sexual control, socialization and economic provision. Reproduction is when the family needs to produce children in order to replace the people who are working in the future since they will be retired or just pass away and to produce new people for society. Sexual control is when the family provides stable sexual relationships for adults and control the sexual habits of the children. Socialization teaches children the norms and values of society to keep society going. Finally, the economic provision, it is for the division of labor for paid jobs and unpaid domestic labor. All of this is crucial in order for the society to function successfully. If one is not there, everything will fall apart.	thesis which supported the claim of the shift from extended family to nuclear family from the pre industrial to industrial era. There are many reasons for this. Based on the functionalist such as Murdock, there was only the existence of extended and nuclear family structure in the pre industrial era. This is because of the amount of members it consists of. Back then family members solely relied on each other for survival in the means of health, socialization and education. Not only that, it is believed that the more members there were, there would be more workforce to work on the farm to grow crops which would be their source of food. There were roles divided according to gender as it was a norm at the time. This is why there was a majority of nuclear family structure. Nuclear family is believed to be universal is because of the changes that occurred to the world that affects societal life - urbanisation due to population growth. Urbanization is the movement from rural areas to urban areas. People moved because they wanted to work at another place, for education reasons or other push factors like natural disasters or merely there were overpopulation issues. The fact that there was a huge improvement to communication and transportation made it easier for people to migrate. The migration separates members from their families and when they move, they are more likely to find a partner which they want to marry. Thus, it will create a whole separate family that is nuclear.
G	One supporting reason that functionalist believe the view to be true is due to the concept of the 'Fit' thesis. It states that during the pre-industrial period, most family structure were extended. However, as society moves on from Pre-industrial to industrial and then, to the 20th century, there is a shift in the family structure. Parsons (1959) and Goode (1963) states that the extended family structure shifts into a nuclear family due to a need for mobility and labor flexibility. So, it would've been more convenient for families to be nuclear to be able to readily adapt to the changing needs of society. Thus it could be said that in this era, the nuclear family could be considered universal due to institutional differentiation.	In the perspective of the traditional functionalists, such as Parsons (1959) and Goode (1963), they make use of the 'Fit Thesis' that claims that as we move from a pre-industrial to a post-industrial society, industrialisation and urbanization takes place. With these two processes, there is a shift from extended to nuclear families. This can be due to a few reasons. With a nuclear family, the family will have more mobility and labor flexibility. The need for extended families in the past was due to the mentality of having more workers and, thus, more profit is brought in. Similarly, with more family members, the family would find it easier to expand their networking so finding jobs would be easier due to the presence of nepotism. However, in the industrial and post-

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		industrial society, this is not the case. Jobs are now requiring specific skills for certain jobs. This is referred to as institutional specialization. These specialized skills can only be learnt in educational institutions, such as schools and universities. Having more children not only causes more trouble in terms of childcare, as the parents would be both working especially in the industrial society, but also would cost more money. Therefore, it would be plausible to assume that the popular family form of that time would be the nuclear family form and, to some extent, be considered universal during the industrial era.