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FACULTY OF EDUCATION

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PERCEPTIONS OF TEACHERS IN IMPLEMENTING SIMULATION GAMES IN
THE TEACHING AND LEARNING OF GEOGRAPHY AT ZIMBABWE JUNIOR
CERTIFICATE LEVEL: A CASE OF WEDZA RURAL DISTRICT SECONDARY
SCHOOLS

BY

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APPROVAL FORM

The undersigned certify that they have supervised the student Muskwe Shelly dissertation entitled: Perceptions of teachers in implementing simulation games in the teaching and learning of Geography at Zimbabwe Junior Certificate Level: A case of Wedza Rural District Secondary Schools. It was submitted in partial fulfilment of the requirements of the Bachelor of Education Honours Degree in Geography at Midlands State University.

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DEDICATION

This project is dedicated to my brothers Phineas and Allen Muskwe.

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I am deeply grateful to my supervisor Mr. S.T Marimo who appraised and criticised this project at different stages. I thank my friends Tsungai Mukoreka and Precious Zindoga for their encouragement and moral support. Special thanks also go to my brother Muskwe T and his loving family for being there for me during my entire studies. All schools which were involved in carrying out this study are gratefully acknowledged. My family's unconditional love and unfailing faith in me is also humbly acknowledged. Last but not least I thank God for this accomplishment.

ABSTRACT

This study examined the perceptions of teachers in implementing simulation games in teaching and learning of Geography at Zimbabwe Junior Certificate Level in Wedza District secondary schools. The problem was that teachers were not using simulation games in teaching and learning of Geography at ZJC. The study, therefore, investigated the perceptions of teachers and challenges faced by teachers in implementing simulation games. The study also looked at possible ways to improve the use of simulation games. A critical literature review was done which revealed that teachers have positive perceptions of simulation games. The literature also revealed that teachers are facing challenges such as lack of teacher training and professional development on the use of simulation games to equip them with skills necessary for successful implementation. The study employed the descriptive research design. The population comprised 10 secondary schools. A sample of three schools was randomly selected which consisted of one Mission Boarding School, one Government High School and one Community Secondary School. Purposive sampling technique was used to select five ZJC Geography teachers, 3 heads of Geography department and 3 heads of schools to serve as informants. Students were selected using stratified random sampling technique. Self structured likert scale questionnaires of teachers and students and interviews of heads of schools, heads of Geography department and ZJC Geography teachers were employed for the purpose of collecting data. The content analysis method was used for data analysis. The results showed that teachers had positive perceptions of simulation games. However they are facing challenges such as lack of adequate simulation games technologies and lack of funds to purchase these technologies in order to successfully implement simulation games in teaching and learning. The study recommended that students be exposed to learning with simulation games as they have positive impacts on students' learning. Other recommendations were that availability of simulation games technologies and access to these technologies be improved in order for teachers to successfully implement simulation games in teaching and learning.

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CHAPTER 1

THE PROBLEM AND ITS CONTEXT

1.0 INTRODUCTION

This chapter focuses on the background to the study, statement of the problem, research questions and significance of the study. It also looks at the delimitations of the study, limitations to the study and definition of key terms.

1.1 BACKGROUND TO THE STUDY

The researcher during her teaching practice noticed that Geography teachers often had difficulty in explaining concepts with complex interactive relationships which cannot be easily isolated such as the development of transport networks and trading. The researcher also noticed that Zimbabwe Junior Certificate (ZJC) students find it difficult as reflected by their test scores to grasp these concepts. They can only understand when these concepts were simulated in the form of a game in the classroom. Yet, even with simulation games technology available such as computers and the internet, teachers rarely use this instructional strategy. Also during departmental meetings when suggestions were made to improve teaching and learning in the classroom, simulation games were rarely mentioned even if teachers were aware of them and the fact that they could be successfully used for teaching and learning of some topics.

Parr (1999) asserts that by the end of the 20th century the games industry was rich with collaborative endeavor, active challenge and ingenuity while on the other hand, the

education system remained in a passive state. This means that during this period, games were already becoming popular but in education they were not recognised. Strudler (1996) is of the view that 25 years of clear research evidence that game playing had a role to play in learning had no impact, but then it changed. This marked the beginning of a shift in perception on the role of simulation games in education. This implies that even when research was done which proved the positive impacts of simulation games in teaching and learning, they remained largely unused but then a different perception on the role of simulation games began to arise.

Sandholtz (2001) asserts that a new millennium was entered in which educators began to slowly realise the many attributes of great game playing from the intellectual challenge to the provision of multiple learning styles had an immediate part to play in learning. This means that the teachers now perceived simulation games as an instructional strategy which had the advantage of not only stimulating the students intellectually but also facilitated a variety of learning styles in one lesson such as tactile and visual learning.

According to Veen (1996) simulation games began to capture the attention of teachers in the 1950's and 1960's. He further notes that there were several reasons for this interest the major one being that there was a major shift from a traditional didactic model of instruction to a learner centered model that emphasises a more active learner role. This suggests that learning was no longer done by listening but now actively involved students. Thus how learning was perceived had changed from being able to recall

information passed on to being able to find and make use of information and this was what led to the recognition of simulation games in education.

However, there was an early acknowledgement that simulation games should not necessarily involve radically different thinking about its role in the teaching and learning process than that afforded to any other teaching innovation, the same general principles should apply (Yee, 2000). This suggests that, although teachers were willing to use simulation games, they were not willing to transform the whole teaching and learning process to suit the principles of simulation games but simulation games were to serve as another instructional strategy in accordance with set educational principles. Stetson and Bagwell (1999) note that simulation gaming is a departure from the conventional method of teaching in that it is a more student centered approach with the teacher acting as the facilitator of learning rather than a dispenser of information. They further argue that, the main purpose of simulation games is to transform the old methods and approaches to curriculum implementation and not to extinguish the curriculum; it should follow the curriculum and not rob the curriculum of its essence. This implies that simulation games were only a shift in how teaching was done but they were tailored to the demands of the curriculum and not to take precedence over the curriculum.

The success of educational games in education, however, is not a precise science as noted by Zammit (1992) that changing instructional strategies has a long history of challenges but with it comes a great understanding of how to achieve success with them. This suggests that adopting new instructional strategies has always been hard for teachers but

eventually they manage to use them competently. According to Parr (1999) one of the obstructions to uptake of simulation games in learning contexts is lack of empirical data to support the fact that they work well as well as lack of understanding of how well these games can be used most effectively in practice. This implies that the main factor hindering the use of simulation games in teaching is that as yet there is not enough research evidence that can convince teachers that these technologies indeed can be used with successful outcomes. Clark (2000) indicates that learning takes place but not always learning that is striven for. This means that although the potential of simulation games has been realised, teachers still lack the necessary skills to successfully implement them due to lack of adequate information on how they can be used.

Dawson (2000) asserts that while games are now regarded as educational tools their association with leisure time activities and addictive qualities has made their acceptance by parents and teachers alike difficult. This implies that although games are now viewed as being educational, the perception still stands that they are mainly for fun and entertainment and this makes their acceptance in education minimal.

It is against this back background that the study intends to investigate the perceptions of teachers in implementing simulation games and the challenges they are facing in implementing these games as well as to identify possible strategies for improving the use of simulation games in teaching and learning of Geography at ZJC.

1.2 STATEMENT OF THE PROBLEM

Chiero (1997) asserts that many rural areas in Zimbabwe are underdeveloped in terms of infrastructure and communication. This makes some of these areas remote and inaccessible. Lack of electricity is another major characteristic of these rural areas. The problem is that most teachers seem not to be employing simulation games in the teaching and learning of Geography at ZJC. .

1.3 RESEARCH QUESTIONS

1. What are the perceptions of teachers in implementing simulation games in teaching and learning of Geography at ZJC?
2. What are the challenges being faced by teachers in implementing simulation games in teaching and learning of Geography at ZJC?
3. What could be done to improve the use of simulation games in the teaching and learning of Geography at ZJC?

1.4 SIGNIFICANCE OF THE STUDY

The study is of importance to the researcher because it will enable the researcher to gather new knowledge on simulation games which the researcher was not previously aware of that will help when the researcher is finally practicing in her chosen career. It will also help the researcher to re-evaluate views pertaining to educational technologies and help reshape ways of thinking to better suit modern times. The research will be important to teachers in the researchers' department in that it will open up a forum for discussion and knowledge sharing within the department as the researcher will consult

colleagues for their views and opinions during the course of research. This will be accomplished through workshops, seminars and staff development programs and it will help teachers in the department realize the ways in which simulation games can be used to teach and learn Geography. Finally, the research will add on to the literature in the Library of Midlands State University which will provide secondary data for other researchers who wish to make a study into simulation games.

1.5 DELIMITATIONS OF THE STUDY

The research was carried out in Wedza Rural District Secondary Schools offering Geography at ZJC. It was carried out within a timeframe of six months from February to October 2013. The researcher investigated the perceptions of teachers in implementing simulation games in teaching and learning Geography at ZJC.

1.6 LIMITATIONS TO THE STUDY

There were a number of constraints in carrying out this study. One of these was financial constraint. This was because the researcher had to move to and from the sampled schools where the data was collected. The other constraint the researcher faced was the challenge of walking long distances to some of the selected schools. In some schools, the school children were unwilling to give answers because they were not sure of what answers would please the school authority. In this case, the researcher had to re-emphasise the fact that all answers were anonymous and only the researcher had access to them. Also, participants' conceptions of simulation games may be different. It is possible that some participants may also have considered none Geographical simulation games. Since

perceptions may change according to the environment and experiences, repeatability may not be possible.

1.7 DEFINITION OF KEY TERMS

Simulation games are a student centered method of teaching and learning that is based on the actual situation. They range from games that require repetitive actions to complex digital worlds and they are highly interactive with many user controlled features.

Perceptions are the negative or positive views; the attitudes and feelings teachers have of simulation games which make them either use or not use simulation games.

1.8 SUMMARY

This chapter discussed the background to the study. This comprised a brief history of teachers' perceptions in implementing simulation games in teaching and learning. It also gave a brief and precise description of the problem and outlined major research questions. Why and to whom the study is of importance was also discussed. The chapter also stated where the research was carried out and the timeframe in which it was carried out. Key terms in the study were defined in this chapter. Also major constraints to the study were outlined and how they were overcome.

The next chapter will focus on review of the related literature.

CHAPTER 2

REVIEW OF THE RELATED LITERATURE

2.0 INTRODUCTION

This chapter focuses on simulation games and their effects on students, perceptions of teachers in implementing simulation games, challenges faced by teachers in implementing simulation games and ways of improving the use of simulation games in teaching and learning.

2.1 Simulation games and their effect on students

There are several Geographic simulation games that can be used to learn Geography and how Geography plays a role in development. According to Clark (2001:20) these games include the following:

- Civilization 111 – in which the player becomes the leader of a nation and must develop cities, resources, transport networks, scientific discovery and military management.
- SimCity – in which the player creates his or her own city by zoning land, building roads, adding public services and providing water and electricity, then watch as Sim citizens move in and demand more services and lower taxes.
- The Trading game - in which students simulate the trading of goods between countries.
- Railroad Tycoon – in which the player builds a railroad empire to stretch across the fruited plain or across a foreign network. This enables the player to learn about transportation networks and the benefits or hindrance of geography in railroad development.
- National Geographic Trivia Trek – This is a CD from National Geographic which include 2000 questions from the National Geography Bee.

Games are, therefore, simplified models of reality designed to facilitate understanding of the complex world they model.

Piaget (1952) cited in Dawson (2000) asserts that teaching Geography curriculum to 11-15 year old children tends to be difficult not only because of their age, but also because Geographic phenomena often develop over long time scales. This implies that understanding Geography is doubly difficult for this age group because at this age they cannot fully comprehend changes in events that have taken place over a long timescales. Dockstadder (1999) argues that it is also difficult to teach a subject such as Geography because most geographic events occur as a result of complex interactive relationships which cannot be easily isolated. Global warming is one such example which is likely to include multiple linked variables hence an attempt to eliminate a single problem would create or have an impact on other variables. This suggests that most Geographic events are not isolated; therefore students need to understand the multiple linked variables in order to solve geographic problems.

Coutts and Drinkwater (2001) argue that students should learn through their own experience using resources that are engaging immersive and interactive in order to challenge their thoughts and beliefs particularly when involved with open ended and multiple interacting problems. This means that students should be provided with a learning environment which gives them the opportunity to be involved in the learning process hence find correct solutions to problems on their own.

Simulation games can contribute to teaching evaluative thinking (Bates, 2000). This implies that through the use of simulation games, students are able to develop essential skills necessary in learning Geography such as valuing, justifying, criticizing and judging and this enables them to recognize the complexity of issues that do not offer simplistic solutions.

Sandholtz (2001) reporting on a study on student motivation concludes that although simulation games in the classroom do not solve all educational problems with education, it is one of many different methods to engage students with their learning. This means that simulation games provide an opportunity to gain the attention of students who are not otherwise engaged with the content of a class.

Simulation games also encourage student participation. According to Abbott (2000), participation in an activity requires the use of content by learner, thus ensuring students are working with the ideas that are being taught and applying them. This means that through using simulation games students are able to make meaning of what they have learnt through applying taught models to relevant practical scenarios.

According to Smaldino (2005), simulation games guides the learner in discovering the dynamic nature of the underlying model and have the learner experience the impact of their decisions and actions. This implies that simulation games facilitates students' understanding of underlying concepts and also makes them realise the impacts of their decisions.

However, Smaldino (2005) argues that simulation games can have negative effects on students' learning. Carol (1997) emphasises that all games should not be seen as valuable, positive and useful. This suggests that not all simulation games can contribute to meaningful learning. According to Clark (2000) one of the negative effects of gaming is addiction which basically is confusion of reality with fantasy. He further explains that participants maybe very much involved in the flow process that there may be problems arise with addiction. This suggests that through use of simulation pupils may have difficulty in drawing the line between the gaming process and the classroom reality.

Abbort (2000) is of the view that with nonstop speedy games, the opportunity to stop and think about the experience and thinking critically is lessened. He further argues that during an enjoyable activity, not enough time is devoted for thinking and reflection. This means that the pace at which games are played and the fun they provide does not provide students with the opportunity to seriously think about what they are learning.

Smaldino (2005) argues that some games often have the wrong strategies of reinforcement and sometimes provide environments for winning by guessing. This suggests that in learning with simulation games, students' achievement may not be a function of having made correct decisions but correct guesses.

2.2 Perceptions of teachers in implementing simulation games

Abbort (2000) asserts that teachers' decisions to integrate simulation games in their lessons are somewhat dependent on their perceptions regarding the innovation. This implies that teachers' perceptions influence their choice to use or not use simulation games in teaching and learning.

Anandra (1998) asserts that the success of any curriculum innovation depends on the attitudes of teachers towards the implementation of the innovation in the classroom. This shows that the attitude of teachers towards simulation games in education is an important factor in the effective integration and use of simulation games in teaching and learning. Attitude has been defined by Anandra (1998) to encompass various relationships, from simple like and dislike of simulation games to complex attitude such as anxiety and apprehension. This implies that attitude takes many forms all of which can affect the use of simulation games in the classroom.

Carol (1997) notes that teachers' acceptance is believed to depend on their attitudes towards the innovation, since decisions about whether and how to employ the simulation games in teaching and learning are heavily influenced by the teachers' views and attitudes and by their perceptions in motivating students to learn. This shows that the decision of teachers on whether to accept or resist the use of simulation games in the classroom is a function of the teachers' perceptions. Furthermore, research has shown those teachers' attitudes about simulation games can positively or negatively influence their students' attitudes towards gaming in education (Tiene and Ingram 2001). This

suggests that how students tend to perceive gaming in education is a function of teachers' influence.

Moreover, increasing amount of experience has been associated with positive attitudes towards simulation games (Young (2000). He further reported that teachers could develop negative attitudes towards simulation games due to lack of experience with the use of simulation games, lack of interest and lack of support from administration. This implies that teachers' attitudes are also somewhat dependant on their experiences as well as the environment.

Carol (1997) is of the view that many teachers perceive simulation games as time wasters, that simulation games are not beneficial to students. However, others believe that simulation games are important instructional tools. This means that there are two perceptions pertaining to simulation games, one in which they are perceived as useless in teaching and learning and the other is that they are regarded as being essential to the learning process

According to Smaldino (2005) simulation games are not used as effectively as they could be in schools and this is because teachers may feel anxious about potentially losing their authority or may not want to change the power and control balance of the new system. This suggests that teachers may perceive simulation games as being threats to their authority or positions in the class, hence, fail to implement them. However, research by other scholars reported that some teachers perceived themselves as being in control when

using simulation games (Carol, 1997). This implies that not all teachers believe that classroom management is difficult when using simulation games.

Veen (1996) asserts that simulation games have encountered a lot of misconceptions that may influence their integration into education. This implies that there are negative perceptions on simulation games that may hinder their integration. According to Albion (2001) play is perceived by some teachers as not serious and unproductive. This suggests that some teachers still believe that play does not yield any valuable results. Clark (2000) reports that some teachers feel that if learners are laughing and having fun, they could not be learning very much while others feel that learning is directly proportional to the amount of fun a student has. This shows that perceptions do not generalize to every teacher, perceptions differs among individuals.

Tiene and Ingram (2001) associate another misconception of many teachers with a common proverb 'no pain, no gain'. This implies that some teachers believe that if children are having fun then no learning is taking place. However, Clark (2000) notes that some teachers feel that although simulation gaming is fun; it also requires effort on the part of the student in order to make the correct decisions when playing. This shows that some teachers perceive simulation gaming not as a passive form of learning but one in which critical thinking is required.

Kay, Cafferelle and Tharp (1999) assert that teachers generally do not want to use simulation games since they think it takes a lot of time and effort to play games. This

means that some teachers perceive the use of simulation games as a time consuming exercise which needs a lot of effort and this makes them refrain from using them.

According to Clark (2000) most teachers think that the game market has few educationally valuable products and in general games are not designed seriously. This shows that some teachers still believe that there are not many games with real educational value on the market and the game design does not serve educational purposes.

2.3 Challenges faced by teachers in implementing simulation games

Tiene and Ingram (2001) argue that new approaches in education have been proposed but change is slow, there is little agreement even about how people learn. This implies that significant changes typically require much debate and argument as well as time. Kay et.al (1999), however note that attempts to adopt games for learning in classroom settings have resulted in outstanding positive changes in target behaviors. This means that simulation games have proved to be effective as a form of instructional strategy. Albion (2000) argues that, however, in reality, there exist many obstacles to adopt game based learning in the classroom. This means that although attitudes towards gaming are changing for the better, there still exist other challenges to implementation of simulation games in teaching and learning.

Veen (1996) summarises frequently mentioned obstacles as follows: teacher training, teachers' knowledge and skills needed for curriculum innovation, insufficient support materials, accessibility to simulation game technologies and resources for teaching and

learning, technical support for the effective use of simulation game technologies in schools and availability of time to use simulation games in teaching and learning among others.

2.3.1 Teacher Training

Clark (2000) argues that despite the pressure on teachers to increase the use of simulation games in education, progress towards integrating simulation games into the curriculum and subsequent use in the classroom remains limited. He further notes that this is due to the fact that there are not many teachers qualified to use and integrate simulation games into teaching. This implies that lack of teacher training is a factor hampering successful integration of simulation games in the classroom. Kay et.al (1999) assert that if properly trained, the power of technology lies in the teacher's ability to appropriately select, integrate and evaluate simulation game tools to support learning. This means that successful integration of simulation games in the classroom depends strongly on teacher training on the use simulation games.

Tienne and Ingram (2001) argue that teachers are the backbone in any curriculum innovation. They have a central role in integrating simulation games in the school. Therefore, they must be trained properly in the use and integration of simulation games into the curriculum. This suggests that it is essential to provide teachers with adequate training in order to successfully implement any curriculum innovation.

A study by Macro and Eler (1998) in England finds out that gaining experience and confidence, particularly in the use of simulation games and software was seen as the main

deficit in the use of simulation games in schools. This means that lack of expertise on the use of simulation games is a factor hindering their use. Chiero (1997) finds that lack of training was the problem frequently mentioned by teachers as the second highest obstacle to the integration of simulation games into teaching.

2.3.2 Teachers' knowledge and skills needed for curriculum innovation

According to Anandra (1998) teachers who implement curriculum innovation related to simulation games must possess sufficient knowledge and skills to teach simulation gaming skills. Teachers must be competent to deliver the required knowledge. This implies that knowledge and skills must be present for any technology innovation to take place effectively.

Opie and Katsu (2000) reporting from Britain notes that the concern of Education and Employment should be to equip newly qualified teachers with the knowledge, skills and understanding to make decisions about when to, and not when to and how to use simulation games effectively in teaching particular topics. This suggests that teachers require the necessary skills to implement simulation games.

However, for teachers to make informed choices, Heinich et al (2002), state that teachers need to be familiar with the various computer application games and simulations. They further argue that these teachers can acquire new knowledge of gaming skills through in-service courses, self instructional programs, tutorials assistance and formal training. This

implies that teacher familiarity with simulation games is vital for successful implementation.

2.3.3 Lack of Simulation Games Technologies for teachers to use in teaching and learning

Opie and Katsu (2000) assert that teaching and learning materials required to enable technology innovation to work should be easily available. In order to integrate simulation games into the school curriculum, there is need for all schools to have adequate supply of simulation games technologies and other related resources. This implies that resources and tools and the support materials that are used to learn through simulation games must be provided in order to implement these games in the classroom.

Clark (2000) reports common research findings that teachers wanted more software and equipment in their classrooms. Similarly Zammit (1992) asserts that the second most important factor that encourages teachers to start using simulation games was software availability and internet access. This means that provision of adequate materials in schools would encourage teachers to implement simulation games. Effective use of simulation games in teaching and learning in the classroom requires sufficient availability of necessary technologies.

Research findings indicate that lack of gaming materials was a major barrier to the effective integration and use of simulation games in the classroom (Carol, 1997, Mellon, 1999 and Zammit 1992). This implies that there is need for stakeholders to plan and

provide adequate funds to be set aside for the purchase of these materials so that teachers and students could use simulation games when necessary.

2.3.4 Accessibility to simulation game technologies and resources for teaching and learning

Carol (1997) defines access as “the state or condition of being approachable or easy to enter” and the second one refers to access as “the right or privilege to approach, reach, enter or make use of something.” These definitions fit very well with the concept of “access” to simulation game technologies meaning the opportunities afforded to all students and teachers to interact with simulation game technologies and to the removal of barriers that might stand in the way of these opportunities being taken up. This means that teachers and students should have the opportunity to use simulation games technologies without any hindering factor.

The issue of access to technology and software is vital in the effective implementation of simulation games into education. Clark (2000) notes that difficulties in access to simulation game technologies have resulted in low level simulation games utilization. This implies that if there are difficulties in accessing simulation games technologies, simulation games are rarely used in the classroom.

In fact access to simulation game technologies for use in teaching and learning stands out prominently and remains a big challenge even in developed countries (Zammit, 1992). This suggests that that lack of access to simulation game technologies is a major factor

hindering the use of simulation games in most developing countries. Therefore, the extent to which teachers and students can use simulation games in teaching and learning depends to a large extent upon how accessible the necessary technology is to them when they want to use it with students.

Zammit (1992) asserts that even if these technologies were available to the teachers, there is also the issue of timetabling and booking the simulation games technology that has to be done in advance. This suggests that access to required technology does not just mean technology availability, but it includes how one obtains it for use when required. The school can purchase much equipment to support teaching, but if students cannot access the technology, all the investment is wasted (Bates, 2000). This implies that student access to simulation games resources is also crucial in implementation of simulation games.

2.3.5 Technical support for the effective use of simulation game technologies in schools

According to Bates (2000) the issue of technical support and maintenance of educational technology equipment is one of the major factors militating against the integration of simulation games in the school curriculum especially in developing countries. This suggests that lack of technical support is a barrier to effective implementation of simulation games. According to Clark (2000) a decision to include simulation games in teaching and learning must consider whether the performance of the technology equipment will be maintained under normal working conditions and whether the

equipment is reliable or not. This shows that in order for simulation game technologies to be included there is need for expert guidance to show whether these technologies are reliable or not.

Veen (1996) reporting on the situation in Netherlands notes that support of the technical assistant is essential to teachers. This shows that teachers count on the support of the technicians for tasks such as use of software and in collaborative work during the lesson. Carol (1997) find that support provided by technical assistants was very valuable to teachers. This suggests that availability of technical support would be an ideal help for implementing simulation games in teaching and learning.

2.3.6 Availability of time to use simulation games in teaching and learning

Researchers indicate that lack of time for teachers and students to use simulation games effectively in teaching and learning is another factor that affects the effective implementation of simulation games in the classroom (Chiero, 1997 and Dawson, 2000). This implies that if there is not enough time simulation games will hardly be used. Strudler (1996) reports that participants in his study complained of being burdened with teaching load, planning duties and other school work such that they had no time to learn, to keep up with and plan to use simulation games. This suggests that coupled with other duties expected to be performed, teachers are not left with enough time to properly plan for use of simulation games.

Dawson (2000) asserts that teachers were least satisfied with time for the use of

simulation games. This suggests that teachers find time as not enough for implementing simulation games. Baron (1999) is of the view that time was a barrier that affected motivated teachers' efforts to use simulation games in teaching and learning. This implies even if teachers are willing to use simulation games time might be the limiting factor. Clark (2000) asserts that teachers need enough time to learn, adapt, integrate and reflect on what they do with students in the class. They need time to try things out, and reflect on their success and failures. They also need to attend in –service courses, they need time to practice with the new materials, and time to evaluate new teaching procedures and attend to their daily load. This show that time is central to successful implementation of simulation games.

2.3.7 Lack of support from Administration

Tily (2007) explains that the main factor affecting implementation of simulation games in a school was leadership. Teachers need to be encouraged to use simulation games in teaching and learning Geography to improve the quality of education and to motivate students to promote critical thinking skills. This implies that administrative support for the implementation of simulation games is a major factor that determines the use of simulation games in teaching and learning.

Veen (1996) states that Principals' leadership in school need to be focused and should influence the allocation of resources to support management, mentoring performance, empowering staff, improving academic standard and displaying desirable behavior in the

school. This implies that leadership should play a central role in facilitating the implementation of simulation games. Guha (2003) reveals that there is a strong positive relationship between school support and simulation games integration. This implies that without support from administration the implementation of simulation games will not succeed.

2.3.8 The cost of using simulation game technologies in schools

Carol (1997) finds out that the cost of purchasing and operating simulation game technologies in schools is the main reason why simulation games have not been widely used in developing countries like Zimbabwe. This suggests that developing countries usually find it hard to implement simulation games because they are costly. Clark (2000) asserts that even in some developed countries lack of funds was one of the major factors affecting the integration and use of simulation games into teaching and learning. This shows that the cost of using simulation games is not only limited to developing countries it affects other developed countries as well.

There have been a number of attempts to estimate the costs of using simulation games in teaching and learning. One such attempt by Scheffler and Logan (1998) conclude that the cost for technology extend well beyond the purchase and installation of hardware and software. Scheffler and Logan (1998) believe that technology training and professional development for teachers is part of the cost. According to them, the training program must be an ongoing process, and this can be expected 30% or more of school budget. They feel that teacher preparation technology course should be based on competencies

essential for designing, developing, delivering, managing and evaluating instruction that will also require additional funding. In addition, the cost will also include purchase of students manuals, teachers travel to and from in-service training centers, maintenance and repairs, electricity supply, teachers support materials and recurrent expenditures. This shows that the cost of using simulation games is ongoing; therefore schools often find them too great to bear.

Moreover, Carol (1997) finds out that the issue of funding technology in education in developed and developing countries is a big problem because budgetary data is often inadequate for a detailed study of costs that sometimes could be immense. This shows that there is not enough information on costs associated with implementing simulation games which often leads to problems with their implementation. Therefore, the problem of expenditure on educational technology is not unique to one country, so schools need to find other sources of funding the implementation. This suggests that in order to integrate simulation games in teaching and learning, schools should look for outside sponsorship.

2.3.9 Lack of relevance to curricula

Dawson (2000) states that without a process of aligning games with standardized testing objectives and state educational standards, proponents of the instructional use of simulation games will be hard pressed to have games accepted in their classrooms. This shows that if games do not encompass educational principles they will not be accepted in education. In addition, they may perceive simulation games as containing content inappropriate for an educational setting (Scheffler and Logan, 1998). This shows that if

there is no consultation with educators, they may think simulation games may contain principles that are not appropriate for students.

Albion (2001) reports that the impediments to addressing these very real concerns is that game developers have little interest in working with educators to infuse educational elements into the game play or to develop after market educational materials that can be tied into the simulation games. This suggests that the main impediment to addressing this problem lies with game developers who do not want to consult with educators when designing educational simulation games.

Scheffler and Logan (1998) conclude that until more game developers actively target the educational market, and align with state educational standards will increase in the acceptance of simulation games in the classroom be witnessed. This shows that integration of simulation games in the classroom will only be fully successful through consultation with educational experts and subsequent alignment with educational standards.

2.4 Ways of improving the use of simulation games in teaching and learning

According to Albion (2001) the effective deployment of any instructional resource requires the support of teachers. This is due to the fact that if the teacher is not convinced that the tool is worth his or her time it will not get used. This implies that teachers cannot feel threatened, be uncomfortable or lose control when they are using something new. In light of this, it is essential to address these problems.

2.4.1 Simulation games need to contain guidelines for classroom management

Dawson (2000) finds out that most early technology adopters are comfortable with the provision of scaffolding experience, a structure that tells them how best to use and manage a product. This shows that most teachers need to understand how the simulation game can be used and how classroom management can be accomplished before they agree to use simulation games.

Tiene and Ingram (2001) assert that teachers also need to understand that there are multiple paths to using games in their classroom and they can choose the one that works best for them and their students. This suggests that it is essential to show teachers a range of options as it helps to alleviate anxiety among the less technically adept teachers.

Scheffler and Logan (1998) assert that it is essential to provide guidelines to show the best methods to successfully use simulation games within the current education system. This suggests that teachers need to be convinced of the value of simulation games to supplement and improve classroom practice within the existing education system.

2.4.2 Teachers need to understand their role as content area experts

Carol (1997) finds out that one of the biggest fears teachers have about using simulation games is that there is not a role for them which may lead to a loss of control in the classroom. This suggests that it is essential to explain the role of the teacher in order to alleviate their reluctance to try games.

Tiene and Ingram (2001) assert that a teacher can prepare students with the necessary background knowledge, intervene with advice during play and guide a reflective conversation after play about what students learned and how it can be applied elsewhere. This shows that a teacher contributes to the process of learning using simulation games. Veen, (1996) asserts that there is nothing artificial about the intelligence a teacher contributes to this process. This shows that the role of the teacher in this learning process is indeed important.

2.4.3 Simulation games must be aligned to standards

Albion (2001) asserts that developers and internal advocates will not get permission to talk about new instructional materials unless they can demonstrate how they connect to standards. This implies that for any instructional material to be approved of in education, there has to be a demonstration first of how it connects to educational standards.

Baron (1999) argues that it is therefore, essential for game developers to provide alignment documents as part of the sales process in order to demonstrate how games connect to standards. This implies that in order to successfully sell gaming products to educational institutions alignment documents to prove their worthiness in education should be part and parcel of the sales process.

According to Stetson and Bagwell (1999) games present some challenges in this area because of the naturally multidisciplinary nature of gaming and because most of the skills they develop are not part of the core curriculum therefore it is essential that proof be provided for their alignment to educational standards. This shows unless game developers

make the effort to prove games value in education, they will always be misconceptions concerning their use in education.

2.4.4 Administrators need to understand their unique role and know resources that they can use to explain the project to stakeholders

Tiene and Ingram (2001) note that if an administrator is driving the deployment he or she needs to be prepared to support a wide range of teacher familiarity and comfort with simulation games. This implies that it is the duty of the administrator to support teachers in implementing simulation games. Parr (1999) asserts that administrators need to be flexible about how they allow teachers approach to using these tools and they also need to make a sustained commitment to professional development. This shows that administrators need to help in facilitating teachers' skills on use of simulation games technologies.

According to Comber and Hargeaves (1997) the administrator will also need to be well equipped with research that can be shared with parents or the community. This implies that the administrator should have enough information to share with parents so that they do not resist the implementation of simulation games.

2.5 SUMMARY

This chapter shows that there are various simulation games which can be used in teaching and learning Geography at ZJC such as SimCity, Civilization 111 and the trading game. These games have multiple benefits for classroom practice which include the fact that

they contribute to teaching evaluative thinking, they engage students with their learning and they encourage student participation. Teachers' perceptions regarding simulation games influence their decisions to either use or not to use simulation games in teaching and learning. It has also been discussed that teachers acceptance of simulation games depends on their attitudes towards the innovation. This attitude can also positively or negatively influence their students' attitudes towards gaming in education. Teachers perceive simulation games differently. While other teachers feel that they are important instructional tools, others feel that no learning can take place while students are having fun. Therefore, perceptions do not generalize to every teacher. Teachers also face challenges in implementing simulation games such as lack of training on the use of simulation games, lack of skills and knowledge needed for curriculum innovation, lack of simulation games technologies and lack of access to these technologies among other factors. In order to improve instructional use of simulation games research indicates that it is essential to align simulation games to educational standards, to incorporate guidelines for classroom management into simulation games as well as to aid teachers to understand their role when using simulation games.

The next chapter will focus on data presentation, analysis and discussion.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter focuses on the research design that was employed in the study. It also looks at the population, sample and sampling procedures. The chapter also looks at the research instruments, data collection procedures, as well as the data analysis procedures.

3.1 RESEARCH DESIGN

The researcher employed a descriptive survey design. It involved describing, recording and interpreting of conditions that exist. This research design enabled the researcher to get current information on perceptions of teachers in implementing simulation games at ZJC. It also enabled the researcher to observe and describe the behavior of subjects without influencing them in any way. The instruments that were used include interviews, observations and questionnaires.

3.2 POPULATION SAMPLE AND SAMPLING PROCEDURES

According to Borg (2007), a population is a well defined group of people or objects that share common characteristics. The population in this study comprised 10 secondary schools offering Geography at ZJC in Wedza District. The informants comprised 10 heads of schools, 10 heads of departments (H.O.Ds), 20 teachers and 1200 pupils.

3.2.1 SAMPLE

A sample is defined as a small subset of the population that has been chosen to be studied (Hair, 2003). The sample comprised a total of three schools, one Mission Boarding Secondary School, one Government High School and one Community Secondary School selected using stratified random sampling technique.

3.2.2 SAMPLING PROCEDURES

Hair (2003) asserts that stratified random sampling involves categorising the members of the population into mutually exclusive and collectively exhaustive groups and an individual simple random sample is then drawn from each group. This technique enabled the researcher to put schools into strata based on whether they were mission boarding schools, government schools or community schools and then one school was randomly selected from each stratum. This technique was used because participants' perception and the challenges they face in implementing simulation games in teaching Geography may change in accordance with alteration in their environment.

The stratified random sampling technique was also used to select a sample of 40 pupils in each school. The selection was done by placing two boxes with pieces of paper written YES and NO on the teachers' table. The boys picked up pieces of paper from one box and the girls from the other. Only twenty pieces of paper in each box had a YES. Those students who picked up pieces of papers on which it was written YES qualified to be part of the sample. This enabled the researcher to get a fair representation of gender.

Purposive or judgmental sampling technique was used to select heads of schools, heads of departments and two teachers in each school teaching Geography at ZJC. According to Bell (1993) purposive sampling refers to a procedure where a researcher consciously selects a sample that he or she considers appropriate for the research study. This technique was used because these were people qualified to give relevant information and in this study only ZJC teachers were required. Therefore, the total sample comprised three heads of schools, three heads of departments, six teachers and 120 students. However, in one of the schools there was only one Geography ZJC teacher so only five teachers were used.

3.3.0 RESEARCH INSTRUMENTS

Wilson (2006) defines research instruments as devices for obtaining data relevant to the researchers study. In this study the researcher used questionnaires and interviews. Dawson (2000) defines a questionnaire as a document with preset questions sent to respondents to solicit appropriate responses about the given phenomenon. The researcher used both closed and open ended questions to gather information from students and teachers. Collins (2000) notes that closed ended questions require respondents to choose from a pre-determined set of responses or scale points. The closed ended questions covered demographic information such as qualifications and teaching experience. This enabled the researcher to determine whether teachers' qualifications and teaching experience had any influence on use or lack of use of simulation games.

Closed ended questions were also used by the researcher to gather information from students pertaining to their perceptions on simulation games. This enabled the researcher to gain insight into the impacts of simulation games in teaching and learning. The researcher also used closed ended questions to solicit vital information on teachers' professional views on simulation games and teachers' experience with simulation games. This enabled the researcher to determine teachers' perceptions of simulation games and whether or not they use them. Closed ended questions were also used to gather information on the process of simulation games integration in each school. This helped the researcher determine the level of simulation games use in teaching Geography at ZJC.

3.3.1 INSTRUMENTATION

Open ended questions were administered to gather information on teachers opinions on what could be done to improve the use of simulation games in teaching and learning. This was due to the fact that open ended questions give respondents platform to bring out their emotions and to air out their views without interference. This, therefore, enabled the researcher to gather information on the kind of resources teachers required to integrate simulation games in teaching and learning. It also generated explanations on how these resources should be used for successful implementation of simulation games.

Interview guide was used primarily as follow up to data collected using questionnaires in order to verify the reliability and validity of this data. Skouteries (2003) defines interviews as a verbal technique for obtaining data. In this research structured interviews were used. Leedy (2005) states that structured interviews are interviews in which

questions are pre-determined. This gave the researcher control over the order of the questions which allowed the interview to be timetabled with precision.

The interview enabled the researcher to acquire factual information such as whether simulation game technologies are available and in what quantities, whether there is access to these technologies, the number of times teachers use simulation games in their classes and whether teachers ever attended any staff development programs. The interview also enabled the researcher to determine whether teachers' perceptions or the school environment is the main constraining factor to the implementation of simulation games in teaching Geography.

3.4.0 DATA COLLECTION PROCEDURES

The researcher obtained an introductory letter from the Midlands State University, Faculty of Education, Department of Applied Education. The researcher used this letter to seek permission from Education Officers and school heads of selected secondary schools in Wedza rural district to carry out research.

3.4.1 PILOT STUDY

The researcher carried out a pre-test of the questionnaires and interviews at Rambanapasi Secondary School which was in the population and not sample. This was done to ensure that each item was understandable to the respondents and that the questions were clear and unambiguous.

3.4.2 VALIDITY TEST

The researcher self administered questionnaires which provided clear and detailed instructions for completing them. A due date for completing the questionnaires was given and this facilitated return of data. The purpose of the research was conveyed verbally by the researcher before participants were given questionnaires or interview sessions began. The researcher also ensured that confidential data was protected by not disclosing any confidential aspects of the data collection activity to unauthorized persons. Respondents were also informed that they were free to refuse or discontinue participation at any time. The researcher also carried out document analysis of teachers' schemes of work and timetables to determine whether teachers planned to use simulation games.

The researcher also used multiple sources of evidence to ensure congruence (triangulation). Dawson (2000) describes triangulation as cross validation among data sources, data collection strategies, time periods and theoretical schemes. This was done through administration of questionnaires followed by interviews with questions aimed at cross-checking the validity of questionnaire responses. The responses of teachers were also verified by comparing them with pupils' responses as well as responses of heads of schools and H.O.Ds. In turn, the responses of teachers helped determine the validity of pupils' responses as well as those of heads of schools and H.O.Ds. Therefore, triangulation facilitated comparison of different sources and methods to determine whether some patterns keep recurring.

3.5 DATA ANALYSIS PROCEDURES

The data collected from the sampled secondary schools in Wedza rural district on the perceptions of teachers and challenges faced by teachers in implementing simulation games at ZJC was analysed using the content analysis method. The researcher read through the questionnaires, interview transcripts and document analysis notes and made notes when interesting or relevant information was found. The researcher coded this information, categorised the data and then identified whether the categories could be linked in any way. These were then listed as major themes or minor themes. This produced narrative data in the form of brief phrases or full paragraphs.

3.6 CHAPTER SUMMARY

The chapter discussed the research design employed which was the survey research design; it enabled the researcher to gather current information on the topic under study. The chapter also outlined the population of the study which comprised 10 secondary schools offering Geography at ZJC in Wedza rural district. The sample drawn from this population consisted of Chemhanza Secondary School, Wedza High School and Chigwedere Secondary School. The sampling technique used was stratified random sampling technique. It was also employed to select a sample of students. To gather data questionnaires and interviews were self administered by the researcher. Interviews were follow ups to responses generated from questionnaires with the aim of cross checking the validity of questionnaire responses. Different informants were also used for this purpose. The data was analysed using the content analysis method.

The next chapter will focus on data presentation, analysis and discussion.

CHAPTER 4

DATA PRESENTATION, ANALYSIS AND DISCUSSION

INTRODUCTION

This chapter focuses on data presentation, analysis, discussion and a summary. The data is presented by research questions.

Research question 1.3.1: What are the perceptions of teachers in implementing simulation games in teaching and learning of Geography at ZJC?

4.1 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.1 Showing teachers' views in implementing simulation games

N=5

Question item	Agree	Neutral	Disagree	Don't know
7. Increases academic achievement	4	1	0	0
8. Is a valuable instructional tool	5	0	0	0
9. Motivates students' personal learning styles	5	0	0	0
10. Motivates students to get more involved in the lesson	5	0	0	0
11. Promotes the development of students' interpersonal skills	5	0	0	0
12. Improves student learning of critical concepts and ideas	5	0	0	0
13. Results in students neglecting traditional learning resources	1	2	2	0
14. Makes classroom management more difficult	0	1	4	0
15. Is too costly in terms of resources, time and effort	4	0	1	0
16. I feel that using Simulation games is risky	1	1	3	0
17. I am satisfied with current teaching methods	2	1	2	0
18. Students will not react well to these methods	1	0	4	0

Results from Geography teachers questionnaire revealed that teachers have positive perceptions in implementing simulation games in teaching Geography at ZJC. All respondents were in agreement with the positive value statements concerning the instructional benefits of simulation games. However, while teachers views of simulation games are positive they still maintain that simulation games are expensive, time consuming and require more effort to use.

4.2 Summary of responses from ZJC Geography students' questionnaire

Table 4.2 Showing students' previous knowledge of simulation games

N=120

Responses	Never		1 time		2 times		3times/more	
	N	%	N	%	N	%	N	%
1a. I have used simulation games on my own for fun outside schools.	43	36	14	12	16	13	47	39
1b. I have used simulation games to compete with my friends.	31	26	20	17	16	13	53	44
1c. I have used simulation games in this school but not during lesson time	80	67	12	10	10	8	18	15

Results from ZJC Geography students' questionnaire revealed that students have previous knowledge of simulation games. Students have used simulation games for fun and with friends. However, student access to simulation games in school is poor as 67% of the students indicated that they had never used simulation games in school.

4.3 Summary of responses from ZJC Geography students' questionnaire

Table 4.3: Students' perceptions regarding the use of simulation games

N=120

Responses	Agree		Neutral		Disagree		Don't know	
	N	%	N	%	N	%	N	%
2. Simulation games realistic recreate the real world.	75	63	22	18	8	7	15	13
I view simulation games as representative of reality to acquire applicable knowledge.	80	67	15	13	18	15	7	6
Simulation games cover essential elements in Geography within a competitive environment.	96	80	14	12	5	4	5	4

Findings from ZJC Geography students' questionnaire reveal that students have positive perceptions on the use of simulation games.

4.4 Summary of responses from ZJC Geography students' questionnaire

Table 4.4: Students' perceptions regarding the overall degree of involvement in simulation games

N=120

Responses	Agree		Neutral		Disagree		Don't know	
	N	%	N	%	N	%	N	%
3. I found the lessons more challenging than usual because of simulation games	70	59	13	11	8	22	11	9
I had fun while playing the simulation game with my group	100	83	7	6	5	6	5	5
The game required a higher degree of involvement for me	64	53	24	20	19	16	7	11

From ZJC Geography students' questionnaire results, there is enough evidence that there is high student involvement in learning with simulation games.

4.5 Summary of responses from ZJC Geography students' questionnaire

Table 4.5: Students' learning's from participating in simulation games.

N=120

Responses	Agree		Neutral		Disagree		Don't know	
	N	%	N	%	N	%	N	%
4. Simulation games enabled me to apply relevant theories and models from the syllabus to a practical scenario.	69	58	20	13	9	6	3	3
The simulation game enabled me to test my decision making ability.	86	72	4	3	5	4	11	9
The simulation game engaged me more in the lesson than a regular teaching method.	51	43	28	23	16	13	5	4

Results from ZJC Geography students' questionnaire revealed that students feel that they learn better when participating in simulation games.

4.6 Summary of responses from ZJC Geography students' questionnaire

Table 4.6: Benefits from participating in simulation games.

N=120

Responses	Agree		Neutral		Disagree		Don't know	
	N	%	N	%	N	%	N	%
5. Simulation games increased my understanding of concepts I had difficulty in understanding.	73	61	18	15	3	3	6	5
Simulation games my interest in Geography.	76	63	10	8	8	7	7	6
The simulation gave me a chance to speak out and be part of the decision making process.	73	61	15	13	6	5	6	5

Results from ZJC Geography students' questionnaire clearly showed that students benefit from participating in simulation games. Student responses indicated that simulation games increased their interest in Geography as it gives them a chance to speak out and be part of the decision making process.

4.7 Summary of responses from ZJC Geography students' questionnaire

Table 4.7: Students level of satisfaction with their simulation games experiences.

N=120

Responses	Agree		Neutral		Disagree		Don't know	
	N	%	N	%	N	%	N	%
6. I would like to play simulation games in class.	63	53	14	12	15	13	8	7
I recommend the use of simulation games for others, e.g., next year ZJC students.	79	66	10	8	7	6	4	3
Simulation games provide an exciting alternative to a regular class lesson.	72	60	19	16	10	8	5	4

Findings from ZJC Geography students' questionnaire shows that students are well satisfied with their simulation games experiences to the point that they strongly recommend the use of simulation games for others.

4.8 When the ZJC Geography teachers were asked to what extent they thought simulation games can be comparable with the real world, they made the following comments:

Teacher 1: *To a lesser extent because games tend to be more fun than educational (interview, 24-09-13).*

Teacher 2: *To a greater extent because they make concepts more tangible (interview, 24- 09-13).*

Teacher 3: *To a greater extent because they are modeled on situations in the real world (interview, 25-09-13).*

Teacher 4: *To a greater extent because they encompass situations from the real world (interview, 26-09-13).*

Teacher 5: *To a greater extent because pupils are able to see the reality in the concepts taught (interview, 26-09-13).*

This shows that teachers perceived simulation games as being comparable to the real world to a greater extent. The reality in simulation games makes learning of concepts more tangible.

4.9 When ZJC Geography teachers were asked on how effective they thought simulation games were as learning tools, they noted the following:

Teacher 1: *Very effective because there is a lot of interaction with reality and games are pupil centred and this makes pupils more active during the lesson (interview, 24-09-13).*

Teacher 2: *Very effective because they are more students centred than teacher centred (interview, 24-09-13).*

Teacher 3: *Very effective because they increase student understanding of concepts (interview, 25-09-13).*

Teacher 4: *Very effective because learning of concepts is made more interesting in the form of play (interview, 26-09-13).*

Teacher 5: *Effective because every student gets to participate during the lesson (interview, 26-09-13).*

This shows that teachers perceive simulation games as very effective learning tools because they are a student centred approach to teaching and learning which has the capacity to engage students with their learning.

4.10 When the ZJC Geography teachers were asked how they would compare a students' performance in a lesson using simulation games compared with a regular lesson, the following were their views:

Teacher 1: *Performance is more or less the same (interview, 24-09-13).*

Teacher 2: *There is more pupil involvement in the lesson as well as increased understanding of concepts (interview, 24-09-13).*

Teacher 3: *There is greater understanding of concepts (interview, 25-09-13).*

Teacher 4: *Students are more able to retain information (interview, 26-09-13).*

Teacher 5: *There is more active participation and pupils are motivated to learn because gaming is fun (interview, 26-09-13).*

Responses from ZJC Geography teachers reveals teachers think that students' performance is better when using simulation games compared with a regular lesson.

4.11 When ZJC Geography teachers were asked what kind of learning they thought students would experience in an active learning environment using simulation games. They made the following comments:

Teacher 1: *Cognitive because games are challenging. Motivational because constant feedback makes students want to continue to learn (interview, 24-09-13).*

Teacher 2: *Social because children interact during the lesson and motivational because gaming is fun and this motivates students to learn (interview, 24-09-13).*

Teacher 3: *Mainly cognitive but also social and motivational (interview, 25-09-13).*

Teacher 4: *Cognitive (interview, 26-09-13).*

Teacher 5: *Cognitive (interview, 26-09-13).*

This shows that teachers think that students are most likely to experience cognitive and motivational learning when learning using simulation games.

4.12 When ZJC Geography teachers were asked which potential they thought simulation games held and what topics it would work better than others. They made the following comments:

Teacher 1: *To enhance students' critical thinking skills: Biogeography*

(interview, 24-09-13).

Teacher 2: *To increase student participation: Transport and trade (interview, 24-09-13).*

Teacher 3: *To capture and hold the attention of students: Map reading*

(interview, 25-09-13).

Teacher 4: *To enhance student decision making ability: Settlement (interview, 26-9-13).*

Teacher 5: *To increase student participation: Settlement (interview, 26-09-13).*

From the ZJC Geography teachers comments it is clear that teachers believe simulation games hold the potential to improve the quality of the lesson through increasing student participation and enhancing their critical thinking skills among other factors.

Research question 1.3.2: What were the challenges faced by teachers in implementing simulation games in teaching and learning of Geography at ZJC?

4.13 Summary of responses from ZJC Geography teachers' questionnaires

Table 4.13: Teachers' Educational Background

N=5

Qualification	Number of teachers
1A. Advanced Level	1
1B. Undergraduate Diploma in Education	2
1C. Diploma in Education	1
1D. Masters in Education	1

The ZJC teachers' questionnaire shows that 3 of the teachers are as yet not fully qualified to teach Geography at ZJC. Only 2 of the teachers are fully qualified ZJC Geography teachers.

4.14 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.14: Teachers' years of teaching experience

N=5

Years of teaching completed	Number of teachers
2A. 0-5 years	3
2B. 6-10	1
2C. 21-25	1

The results from the teachers' questionnaire indicate that 3 of the teachers had little teaching experience. Two of the teachers were very experienced in teaching Geography at ZJC.

4.15 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.15: Teachers' preferred teaching methodology

N=5

Teaching Methodology	Number of teachers
3A. Largely teacher directed (eg lecture method)	0
3B. More teacher directed than student centred	0
3C. Even balance between teacher directed and student centred	1
3D. More student centred than teacher directed	3
3E. Largely student centred	1
3F. Others specify	0

Findings from ZJC Geography teachers' questionnaire revealed teachers in this study hold a conviction for student centredness regardless of their qualifications and years of teaching experience.

4.16 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.16: Average class size

N=5

Class size	Number of teachers
4. 40	1
45	2
47	1
54	1

Results from ZJC Geography teachers' questionnaire showed that average class size range from 40-54 with the majority of teachers teaching a class size of 45 pupils.

4.17 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.17: Students' access to simulation games technology in the school

N=5

Response	Number of teachers
5A. Extremely Poor	0
5B. Poor	3
5C. Acceptable	0
5D. Good	1
5E. Very Good	0
5F. Excellent	1

Findings from ZJC Geography teachers' questionnaire indicated that in many schools student access to simulation games technology is poor.

4.18 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.18: Teachers' access to technology resource personnel in schools

N=5

Response	Number of teachers
6A. Extremely Poor	0
6B. Poor	1
6C. Acceptable	1
6D. Good	2
6E. Very Good	1
6F. Excellent	0

From results of ZJC Geography teachers it is clear that on average, teachers' access to technology personnel in schools is good.

4.19 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.19: Use of simulation games in teaching activities

N=5

Response	Number of teachers
19A. Not at all	0
19B. Rarely	2
19C. Occasionally	3
19D. Frequently	0
19E. Almost Always	0
19F. All the time	0

From results of ZJC teachers' questionnaire there is evidence that simulation games integration in teaching activities is mainly occasional if not rare.

4.20 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.20: Hours per week teachers spent playing simulation games outside of teaching activities

N=5

Responses	Number of teachers
20A. None	0
20B. Less than 1 hour	1
20C. 1 hour or more but less than 3 hours	3
20D. 3 hours or more but less than 5 hours	1
20E. 5 hours or more but less than 10 hours	0
20F. 10 hours or more	0

Findings from ZJC Geography teachers' questionnaire revealed that teachers do not spend much time per week playing simulation games outside of school activities.

4.21 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.21: Teachers' proficiency level in relation to simulation games

N=5

Response	Number of teachers
21A. Unfamiliar: I have no experience with simulation games	0
21B. Newcomer: I have attempted to use simulation games but still require help on a regular basis	1
21C. Beginner: I am able to use a limited number of simulation games	2
21D. Average: I demonstrate a general competency in a number of simulation games	2
21E. Advanced: I have acquired the ability to completely use a broad spectrum of simulation games	0
21F. Expert: I am extremely proficient in using a variety of simulation games	0

Results of ZJC teachers' questionnaire clearly showed that teachers are not very proficient in the use of simulation games as indicated by their self proclaimed levels as newcomers 1, beginners 2 and average 2. As a result they rarely integrate simulation games in teaching activities.

4.22 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.22: Frequency of simulation games integration in teaching activities

N=5

Responses	Number of teachers
22A. Never	0
22B. Practically never	1
22C. Once in a while	4
22D. Fairly often	0
22E. Very often	0
22F. Almost always	0

Results of ZJC teachers' questionnaire clearly showed that simulation games are not frequently integrated in teaching activities.

4.23 Summary of responses from ZJC Geography teachers' questionnaires.

Table 4.23: Amount of in service training on using simulation games in the classroom

N=5

Response	Number of teachers
23A. None	4
23B. A full day/ less	0
23C. More than a full day and less than one semester course	1
24D. A one semester course	0
24E. More than one semester course	0
24F. Others: specify	0

Results of ZJC teachers' questionnaire clearly showed that 4 of the teachers have never received any in service training. Only 1 teacher received more than a full day and less than one semester course of in service training on using simulation games in the classroom.

4.24 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.24: Stages related to the process of integrating simulation games in teaching activities

N=5

Response	Number of teachers
24A. Awareness: I am aware that simulation games exist but have not used them. Perhaps I am avoiding them. I am anxious about the prospect of using simulation games	0
24B. Learning: I am currently trying to learn the basics. I am sometimes frustrated about using simulation games and I lack confidence in using them	2
24C. Understanding: I am beginning to understand the process of using simulation games and can think of specific topics in which they might be useful	2
24D. Familiarity: I am gaining a sense of self confidence in using simulation games for specific topics. I am starting to feel comfortable using simulation games	0
24E. Adaptation: I think about simulation games as an instructional tool to help me	
24F. Creative application: I can apply what I knows about simulation games in the classroom. I am able to use them and have integrated them into the curriculum	1

Findings from ZJC Geography teachers' questionnaire revealed that teachers are learning or only coming to understand the process of using simulation games. As a result they rarely use them.

4.25 When the ZJC Geography teachers were asked on whether there are any circumstances where using simulation games would not be advisable. They made the following comments:

Teacher 1. *Yes. When there is lack of enough to incorporate the game (interview, 24-09-13).*

Teacher 2. *Yes. Some of the games lack relevance to the curriculum (interview, 24-09-13).*

Teacher 3. *Yes. In a classroom with too many pupils and too few resources. (interview, 25-09-13).*

Teacher 4. *No. They can be used in any circumstance (interview, 26-09-13).*

Teacher 5. *Yes. When there is not enough time to properly implement the game (interview, 26-09-13).*

This reveals that teachers find time as a constraining factor to the implementation of simulation games. Other factors include availability of resources and lack of relevance to the curriculum.

4.26 When asked if there are any challenges they are facing in implementing simulation games, ZJC Geography teachers noted the following:

Teacher 1. *Time constrains because our lessons are done in 35 minutes only*

There are also inadequate resources to use with pupils (interview, 24-09-13).

.Teacher 2. *Lack of skills to successfully implement simulation games.*

The resources are also not enough (interview, 24-09-13).

.Teacher 3. *Inadequate resources.*

Lack of support from the administration (interview, 26-09-13).

Teacher 4. *Simulation games need lots of time for lesson preparation and implementation and we only have a 35 minutes lesson which is not adequate.*

There is also the problem of inadequate resources (interview, 26-09-13).

Teacher 5. *Limited lesson times (interview, 26-09-13).*

Results from teachers' interviews reveals that the major challenges teachers are facing in implementing simulation games are lack of adequate resources and time constrains. Other mentioned factors include lack of skills to successfully implement simulation games and lack of support from the administration.

Research question 1.3.3: What could be done to improve the use of simulation games in teaching and learning of Geography at ZJC?

4.27 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.27: Types of resources needed for improving use of simulation games

N=5

Types of resources	Number of teachers
25. computers	4
Laptops	1
Flipcharts	2
Markers	1

From the findings of ZJC Geography teachers' questionnaire 4 of the teachers indicated that computers should be provided to increase instructional use of simulation games. Teachers are therefore in favour of using computer simulation games.

4.28 Summary of responses from ZJC Geography teachers' questionnaire

Table 4.28: Ways in which resources can be used to improve instructional use of simulation games

N=5

Comments	Number of teachers
25. Resources should be accessible	3
Technical support should be provided	2
The timetable should be flexible	1
Resources should be made available	1

Responses from ZJC Geography teachers questionnaire indicates that access to simulation game resources is a major factor in improving instructional use of simulation games. Other mentioned strategies for improving the use of simulation games include provision of technical support, making resources available and provision of a flexible timetable.

4.29 When asked what they thought should be done to improve the use of simulation games in teaching and learning, ZJC Geography teachers noted the following:

Teacher 1. *Teacher training in the use of simulation games in the classroom should be made a priority (interview, 24-09-13).*

Teacher 2. *Teacher training is vital (interview, 24-09-13).*

Teacher 3. *Provision of necessary resources.*

The timetable should be made flexible (Interview, 26-09-13).

Teacher 4. *There is need for adequate time for proper lesson preparation, therefore the timetable should be made flexible.*

Resources should be made available (Interview, 26-09-13).

Teacher 5. *There is need for teacher training in order for teachers to learn the necessary skills for using simulation games in the classroom (Interview, 26-09-13).*

Findings from ZJC Geography teachers' interview shows that teacher training is the most crucial factor in improving the use of simulation games. Other factors that can promote instructional use of simulation games include provision of adequate resources, timetable flexibility and aligning games to educational standards.

4.3 Discussion

The results pointed to a number of factors related to the frequency of simulation games use in teaching and learning. Results revealed that there is a significant difference in how teachers perceive simulation games and the frequency of their use. Major findings include technology related training, access to simulation games technologies, cost of using simulation games, availability of time to use simulation games, availability of simulation games resources and personal simulation games technology use.

Research question 1.3.1: What were the perceptions of teachers in implementing simulation games in teaching and learning of Geography at ZJC?

Results from ZJC Geography teachers' questionnaire revealed that 5 out of 5 of the teachers perceive simulation games as valuable instructional tools. In the follow up interview 4 of the teachers comment that simulation games were very effective learning tools with multiple benefits for classroom practice. One of the perceived benefits is that it makes learning more fun in the form of play thus motivating pupils to learn. This view was also held by 2 heads of schools who also commented that simulation games were very effective learning tools. One of the heads of schools further commented that this was so because most children learn well through play. This shows that generally teachers perceive simulation games as valuable instructional tools. However, research by Smaldino (2005) reports that while some teachers perceive simulation games as important instructional tools, other teachers think that the game market has few educationally valuable products. This suggests that the perception that simulation games are important instructional tools does not generalise to every other teacher, other teachers think that gaming is not compatible with education.

Other findings of this study from teachers' questionnaire indicated that 4 of the teachers perceive simulation games as increasing academic achievement. In students' questionnaire, 69% of the pupils reported that simulation games enabled them to apply relevant theories and models from the syllabus to a practical scenario. Results from interviews of heads of schools also showed that simulation games increases academic

achievement. One head of school commented that this was because simulation games promote the development of critical thinking skills required in learning Geography. Another head of school notes that this was because simulation games enhance decision making skills. This shows that teachers hold the belief that simulation games increases academic achievement. Bates (2000) reports that simulation games can contribute to teaching evaluative thinking. This shows that simulation games develop essential skills for learning Geography.

Results from questionnaire responses indicated that all 5 teachers think simulation games motivates students to get more involved in the lesson. In the student's questionnaire 51% of the students indicated that simulation games engaged them in the lesson more than a regular teaching method. In the follow up interviews 4 of the teachers also commented that as compared with a regular teaching method students are more involved in the lesson when using simulation games. Findings from heads of schools interviews revealed that one head of school also shared the view that simulation games engaged students more with their learning. This shows that teachers believe that through the use of simulation games student motivation is increased. Sandholtz (2001) reporting on a study on student motivation concludes that although simulation games in the classroom does not solve all educational problems with education, it is one of the many different methods to engage students with their learning. This suggests that simulation games can impact on student engagement.

Research question 1.3.2: What were the challenges being faced by teachers in implementing simulation games in teaching and learning of Geography at ZJC?

Findings from teachers' questionnaire indicated that 4 of the teachers in this study had never received any in-service training on use of simulation games in the classroom. This was also confirmed in the interviews of heads of departments where 2 heads of departments reported that they had never arranged any in-service training program for teachers. This means that teachers are not equipped with the necessary skills required to implement simulation games into the classroom. Clark (2000) notes that the amount of in service training is significantly related to simulation games use in the classroom. This implies that lack of skills is the factor limiting use of simulation games technology in schools.

Results from teachers' questionnaire indicated that 3 of the teachers pointed out that student access to simulation games in their schools is poor. Student questionnaire responses also indicate that 67% of the students had never used simulation games in school outside of school activities. This shows that student access to simulation games technology in schools is poor. Interview responses of the heads of departments revealed that teacher access to simulation games is poor. Two heads of departments reported that teachers have to book in advance in order to use simulation games technologies. Bates (2000) points out that even if technologies were available to teachers there is the issue of booking to be done in advance which often frustrates teachers. On the other hand Bates (2000) reports that the school can purchase much equipment but if students cannot access

the technology all investment is wasted. This implies that simulation games are rarely used because there are difficulties in accessing the simulation games technologies.

Another perceived drawback of using simulation games in education is the cost of using simulation games in terms of money, time and effort required to use them. 80% of teachers in their questionnaire responses indicated that simulation games are too costly to use as they require a lot of time and effort to prepare and execute. In interviews with heads of schools one head of school commented:

Because the fees and levies are not paid on time we often lack funds to purchase simulation games technologies because they are costly.

This shows that the cost associated with purchasing of simulation games has resulted in poor implementation of simulation games in the classroom as schools lack funds to purchase them. Clark (2000) finds out that lack of funds was one of the major factors affecting the integration and use of simulation games into teaching and learning.

The amount of time allocated to Geography lessons was one of the strongest predictor of simulation games use in the classroom. From their interview responses 3 of the teachers generally commented that time is the constraining factor in implementing simulation games. Other 2 teachers reported that simulation games were not always possible to use due to lack of enough time to incorporate the game and reflect on it. One teacher commented that:

Lessons are done in 35 minutes only. This won't give the class enough time to play and review the learning process.

One head of school and two heads of departments also reported that time was the main constraint in using simulation games during their interview sessions. This was confirmed by findings from document analysis which revealed that lesson times were only 35 minutes and that there were no double periods at ZJC. Dawson (2000) reports that teachers were least satisfied with the use of simulation games because time was not enough to plan effectively to implement simulation games in teaching and learning. This shows that teachers rarely use simulation games because they are not satisfied with the time allocated to their lessons.

Results from heads of departments' interview indicated that there were no adequate simulation games technologies to use in schools. Two heads of departments reported that they only had 3 simulation games technologies in relation to an average class size of 45 pupils. Findings from interviewing teachers indicate that 2 of the teachers mentioned the need for resources in order to improve instructional use of simulation games. This shows that schools do not have enough simulation games technology to use in relation to the number of pupils they have. Carol (1997) notes that lack of gaming materials is a major barrier to the effective integration and use of simulation games in the classroom. This shows that lack of simulation games technology is a major factor that hinders effective implementation of technology in schools

Findings from ZJC Geography teachers' questionnaire reveal that 80% of the teachers spend 1 hour but less than 3 hours per week playing simulation games outside of teaching activities. This shows that teachers rarely use simulation games outside of school

activities. Young (2000) argues that playing gives ideas on how to use simulation games with students. The author further notes that increasing amount of experience with the use of simulation games has been associated with positive attitudes towards simulation games. This implies that the amount of time teachers spend playing simulation games outside of school activities can boost their confidence in using simulation games. Lack of gaming experience due to lack of practice in using simulation games is therefore another constrain to the use of simulation games in schools.

Research question 1.3.3: What could be done to improve the use of simulation games in teaching and learning of Geography at ZJC?

Results from teachers' questionnaire reveal that 3 of the teachers indicated that teacher training on use of simulation games was one way to improve the use of simulation games in teaching and learning. In interviewing heads of schools, two heads of schools also commented that teacher training was important for successful integration of simulation games into the curriculum. This shows that teacher training is a crucial factor in improving the use of simulation games in teaching and learning. Chiero (1997) finds out that lack of training was the problem frequently mentioned by teachers as the second highest obstacle to the integration of simulation games into teaching. This shows that it is essential to provide teachers with adequate training in order to successfully implement simulation games in teaching and learning.

In interviewing teachers, 3 of the teachers generally commented that use of simulation games would improve with improvement in access to simulation games. Two heads of departments were in agreement with teachers over this fact. This shows that teachers believe that if simulation games are accessible then use of simulation games in the classroom increases. Clark (2000) notes that the issue of access to technology and software is vital in the effective implementation of simulation games in education. This shows that access to simulation games technologies may result in improved use of simulation games in teaching and learning.

Results from teachers' questionnaire reveal that 2 of the teachers mentioned time table flexibility to allow for the use of simulation games as factor in improving simulation games use. In the follow up interviews to teachers, 2 of teachers also mentioned that the time table should be made flexible to allow for use of simulation games. One teacher commented

The timetable should be made in such a way as to allow for enough time for teachers to use simulation games when required.

Two heads of department were also in agreement with teachers over this fact. One head of department commented that if the timetable would sometimes accommodate long lessons teachers would improve instructional use of simulation games.

4.4 SUMMARY

The main findings of the research were that Geography teachers rarely use simulation games in the teaching and learning of ZJC Geography in Wedza District Secondary

Schools. The results from teachers' questionnaire, interviewing teachers, heads of schools and Geography heads of Departments revealed that teachers face numerous challenges such as lack of funds to purchase simulation games technologies, lack of adequate resources to implement simulation games in teaching and learning, time table inflexibility as well as the problem of access to simulation games technology. The results show that teachers' perceptions of simulation games were positive yet their implementation of simulation games in the classroom was only occasional. This shows that the challenges being faced by teachers were the constraining factor to simulation games use and not teachers' perceptions.

The next chapter will focus on summary, conclusions and recommendations.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter focuses on the summary, conclusions and recommendations.

5.1 Summary of findings

This research study focused on finding out the perceptions of teachers in implementing simulation games in teaching and learning of Geography at ZJC in schools in Wedza Rural District. The problem is that teachers are not using simulation games in teaching and learning of Geography. This prompted the researcher to investigate the perceptions of teachers and challenges faced by teachers in implementing simulation games in teaching and learning of Geography at ZJC in Wedza Rural District. The study also sought to investigate possible ways to improve instructional use of simulation games. Various scholars cited in the literature revealed that teachers generally are of the view that the positive impacts of simulation games outweigh their perceived negative impacts. However, in spite of this, simulation games are rarely used in educational environments. This is due to constraints such as the cost of implementing simulation games, teacher training and professional development, access to simulation games technologies and resource personnel.

A descriptive research design was used to collect data from teachers, students, heads of departments and heads of schools. Data collected was analysed using the content analysis

method. Data categories were identified and were listed as major themes or minor themes. The population in this study comprised 10 secondary schools offering Geography at ZJC in Wedza District. The informants comprised 10 heads of schools, 10 heads of departments, 20 teachers and 1200 pupils. The sample comprised a total of three schools, Chemhanza Mission Boarding Secondary School, Wedza Government High School and Chigwedere Community Secondary School selected using stratified random sampling technique. The total sample comprised three heads of schools, three heads of departments, five teachers and 120 students. To collect data from the sample, the researcher used questionnaires and interviews which the researcher self administered. In order to carry out research the researcher used an introductory letter obtained from the Midlands States University, Faculty of Education, Department of Applied Education to seek permission from Education Officers and school heads of the selected secondary schools in Wedza District. The researcher carried out a pre-test of the questionnaires and interviews at Rambanapasi Secondary School which was in the population and not sample.

The study revealed that teachers rarely use simulation games in spite of the fact that they had positive perceptions of simulation games. The study also revealed that teachers were facing various challenges in implementing simulation games such as lack of funds to purchase simulation games technologies, lack of adequate resources to implement simulation games in teaching and learning, time table inflexibility as well as the problem of access to simulation games technology. The research findings also indicated that time table flexibility, improved access to simulation games resource personnel and

technologies, availability of simulation games technologies as well as teacher training on the use of simulation games is vital in improving the use of simulation games.

5.2 Conclusions

Based on research findings the researcher concludes that teachers have positive perceptions of simulation games and regard them as effective learning tools. This is because simulation games are a student centred approach to teaching and learning that involves the students with their learning

The study concludes that teachers were facing challenges in implementing simulation games in teaching and learning. The fixed length of the lessons was among one of the challenges teachers are facing in both the planning and implementation of simulation games in teaching and learning.

The cost of using simulation games was another drawback to the use of simulation games because many schools lacked funds to purchase simulation games technologies. This ultimately led to problems of availability of simulation games technologies and access to simulation games technologies in schools which also impacts on use of simulation games.

Teacher training and professional development were other constrains in implementing simulation games in schools. Related to these constrains was teachers' use of simulation games outside of school activities which also influence the level of skills and teacher

familiarity with simulation games technologies necessary for simulation games implementation.

In order to improve the use of simulation games in schools, teacher training and professional development on simulation games use in the classroom is vital. Greater flexibility in timetable and organisation of lessons, access to simulation games technologies and the provision of simulation games technologies is also essential in improving simulation games use in schools.

5.3 Recommendations for this study

- Teachers should expose students to simulation games based instruction because simulation games have positive impacts on students' learning.
- Teacher training should include instruction on use of simulation games in the classroom to enable teachers to gain skills necessary for implementation.
- Schools should develop greater flexibility in timetables and organisation of lessons in order to allow teachers to use simulation games in the classroom.
- Resources for both teachers and students such as computers and technical support should be made available and accessible by the schools.

- Schools should seek for donations from the government, Non Governmental Organisations and communities in order to buy simulation games technologies.
- Teachers s Smaldino (2005) argues hould spend more time using simulation games outside of school activities to gain more experience with their use in the classroom.

5.4 Recommendations for further studies

Other researchers should make an investigation into the following in order to find ways improve the use of simulation games in schools:

- The positive impacts of using simulation games in teaching and learning of Geography at ZJC as this motivate teachers to use them.
- The role of teachers when using simulation games in teaching and learning as it helps build teachers confidence with the use of simulation games.
- Factors influencing teachers' perceptions on the use of simulation games in teaching and learning of Geography in order to overcome negative perceptions on use of simulation games.

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APPENDIX A

QUESTIONNAIRE FOR ZJC GEOGRAPHY TEACHERS

This survey intends to gather information to be used in a research project in partial fulfillment of the award of a BED Honours Degree in Geography. Your answers will be completely anonymous. Your response is much appreciated.

This questionnaire has 5 sections and consists of 5 printed pages. Circle the most appropriate response when answering the closed ended questions. Space is provided to record your comments to the open ended questions.

SECTION 1- BACKGROUND, TEACHING STYLE AND RESOURCES

1. Qualifications

A. Diploma in Education	B. Degree in Education	C. Masters in Education	D. Any other: specify
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2. Years of teaching completed

A. 0-5	B. 6-10	C. 11-15	D. 16-20	E. 21-25	F. 26+
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3. Preferred teaching Methodology

- A. largely teacher directed (eg, lecture method)
- B. More teacher directed than student centered
- C. Even balance between teacher directed and student centred activities
- D. More student centred than teacher directed
- E. largely student centred

4. Average class size that you teach (please provide a whole number, not a range)

For question 5 and 6 the following scale is used to rate the responses

Extremely poor	Poor	Acceptable	Good	Very Good	Excellent
A	B	C	D	E	F

5. How would you rate student access to simulation games technologies in your school?

6. How would you rate teacher access to technology resource personnel in your school?

SECTION 2- PROFESSIONAL VIEWS ON SIMULATION GAMES

Using the scale provided please rate the extent to which you agree/disagree with the following statements regarding the use of simulation games in the classroom.

7Increases academic achievement

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

8Is a valuable instructional tool

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

9. Motivates students' personal learning styles

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

10. Motivates students to get more involved in learning activities

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

11. Promotes the development of students' interpersonal skills
(eg ability to work with others)

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

12. Improves student learning of critical concepts and ideas

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

13. Results in students neglecting important traditional learning resources
(eg library books)

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

14. Makes classroom management more difficult.

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

15. Is too costly in terms of resources, time and effort.

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

16. I feel that using simulation games is risky.

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

17. I am satisfied with current teaching methods.

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

18. Students will not react well to these methods.

Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Don't Know
A	B	C	D	E	F

SECTION THREE- YOUR EXPERIENCE WITH SIMULATION GAMES

19. Please indicate how often you integrate simulation games in your teaching activities by circling the relevant area.

A. Not at all	D. Frequently
B. Rarely	E. Almost Always
C. Occasionally	F. All the time

20. On the average, how many hours per week do you spent time playing simulation games outside of teaching activities?

A. Non	D. 3 hours/ More but less than 5 hours
B. Less than an hour	E. 5 hours/ More but less than 10 hours
C. 1 hour/ More but less than 3 hours	F. 10 hours or more

21. Please read the following description of the proficiency levels a user has in relation to simulation games. Determine the level that best describes you and circle the corresponding letter.
- A. Unfamiliar: I have no experience with simulation games.
 - B. Newcomer: I have attempted to use simulation games but still require help on a regular basis.
 - C. Beginner: I am able to use a limited number of simulation games.
 - D. Average: I demonstrate a general competency in a number of simulation games.
 - E. Advanced: I have acquired the ability to completely use a broad spectrum of simulation games.
 - F. Expert: I am extremely proficient in using a wide variety of simulation games.

SECTION 4- PROCESS OF INTERGRATION

22. Please indicate how frequently simulation games are integrated into your teaching activities. Circle the appropriate response.

Never	Practically never	Once in a while	Fairly often	Very often	Almost always
A	B	C	D	E	F

23. Total amount of in-service training you have received to date on using simulation games in the classroom.
- A. None
 - B. A full day/ less
 - C. More than a full day and less than one semester course
 - D. A one semester course
 - E. More than a one semester course
 - F. Others: Specify
24. Please read the description of each of the six stages related to the process of integrating simulation games in teaching activities. Choose the stage that best describe were you are in the process and circle the corresponding letter.
- A. Awareness: I am aware that simulation games exist but have not used them. Perhaps I am even avoiding them. I am anxious about the prospect of using simulation games.
 - B. Learning: I am currently trying to learn the basics. I am sometimes frustrated about using simulation games and I lack confidence in using them.
 - C. Understanding: I am beginning to understand the process of using simulation games and can think of specific topics in which they might be useful.
 - D. Familiarity: I am gaining a sense of self confidence in using simulation games for specific topics. I am starting to feel comfortable using simulation games.
 - E. Adaptation: I think about simulation games as an instructional tool to help me.
 - F. Creative application: I can apply what I know about simulation games in the classroom. I am able to use them as an instructional aid and have integrated simulation games into the curriculum.

SECTION 5- ADDITIONAL COMMENTS

Suppose your school administration annually made resources available, for example, for improving simulation games based instruction. In your opinion, what kind of resources should they provide? How would you like to see these resources used in order to improve your instructional use of simulation games?

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Thank you very much for participating in the study.

APPENDIX B

QUESTIONNAIRE OF STUDENTS

This survey intends to gather data to be used in a Research Project on implementation of Simulation Games in Schools. Your answers will be completely anonymous. Your response is much appreciated. To ensure high quality and validity in answers, please do not rush through the questionnaire. In advance thank you for your participation.

Circle the most appropriate response

1. What is your previous knowledge of simulation games?

Only one answer in each line

- | | | | | |
|---|-----------------------------------|-----------------------------------|------------------------------------|---|
| a) I have used simulation games on my own for fun outside of school. | NEVER
<input type="checkbox"/> | 1TIME
<input type="checkbox"/> | 2TIMES
<input type="checkbox"/> | 3TIMES/MORE
<input type="checkbox"/> |
| b) I have used simulation games to compete with my friends. | NEVER
<input type="checkbox"/> | 1TIME
<input type="checkbox"/> | 2TIMES
<input type="checkbox"/> | 3TIMES/MORE
<input type="checkbox"/> |
| c) I have used simulation games in this School (i.e in the computer lab) but not during lesson times. | NEVER
<input type="checkbox"/> | 1TIME
<input type="checkbox"/> | 2TIMES
<input type="checkbox"/> | 3TIMES/MORE
<input type="checkbox"/> |

Using the scale provided please rate the extent to which you agree/ disagree with the following statements regarding your perceptions of use of simulation games in the classroom. Circle where appropriate for you.

2. What are your overall perceptions regarding the use of simulation games?

Only one answer in each line.

Simulation games realistic recreates the real world.

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

I view simulation games as representations of reality to acquire applicable knowledge.

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

Simulation games cover essential elements in Geography within a competitive environment.

STRONGLY AGREE	AGREE	NEUTRA	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	D	E	F	G

3. What are your perceptions regarding the overall degree of involvement in simulation games.

Only one answer in each line

I found the lessons more challenging than usual because of simulation games.

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

The game required a higher degree of involvement for me.

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

I had fun while playing the simulation game with my group.

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

4. What are your learnings from participating in simulation games?

Only one answer in each line

The simulation game enabled me to apply relevant theories and models from the syllabus to a practical scenario

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

The simulation game enabled me to test my decision making ability.

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

The simulation game engaged me more in the lesson than a regular teaching method.

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

5. How have you benefited from participating in simulation games?

Only one answer in each line

Simulation games increased my interest in Geography

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

Simulation games increased my understanding of concepts I had difficulty in understanding.

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

The simulation game gave me a chance to speak out and be part of the decision making process.

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

6. How satisfied are you with the simulation games experience?

Only one answer in each line please

I would like to play the simulation game again in class

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

I recommend the use of simulation games for others, for example, next year ZJC students

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGRE E	DONT KNOW
A	B	C	D	E	F

Simulation games provide an exciting alternative to a regular class lesson

STRONGLY AGREE	AGREE	NEUTRAL	STRONGLY DISAGREE	DISAGREE	DONT KNOW
A	B	C	D	E	F

Thank you for participating in the study.

APPENDIX C

INTERVIEW GUIDE FOR THE HEAD OF SCHOOL

1. What is your experience with educational simulation games?
2. Do you think simulation games can be an effective learning tool? If so how?
3. In your opinion what are the immediate benefits or effects of such games? Can you characterize those?
4. Which factors or conditions do you believe must be met to make a simulation game a successful and integrated part of today's learning experience?
5. Any recommendations when introducing simulation games? How should it be integrated?
6. How do you see the use of simulation games for learning purposes in the future? Any challenges?

APPENDIX D

INTERVIEW GUIDE FOR GEOGRAPHY HEAD OF DEPARTMENT

1. Are there any simulation games technologies for teachers in your department to use?
2. How many do you have?
3. What are the procedures teachers have to follow in order to use them?
4. Have you ever arranged any staff development programs in your department to train teachers on the use of simulation games?
5. Are there any other challenges teachers are facing in implementing simulation games in teaching and learning of Geography?
6. Have you ever observed any Geography lesson at ZJC in which the teacher made use of simulation games?
7. Did the teacher manage to accomplish set objectives
8. What do you think should be done to improve the use of simulation games in teaching and learning of Geography?

APPENDIX E

INTERVIEW GUIDE FOR ZJC GEOGRAPHY TEACHERS

1. To what extent do you think simulation games can be compared with the real world?
2. How effective are simulation games as learning tools?
3. How would you compare a student's performance in a lesson using simulation games compared with a regular lesson?
4. In an active learning environment using simulation games, what kind of learning (cognitive, social, motivational etc) do you think students will experience or gain?
5. Which potential do you think simulation games holds? Any specific topics it would work better than others?
6. Are there any circumstances where using simulation games would not be advisable? Why?
7. Could you share any best practices?
8. Are there any challenges you are facing in implementing simulation games in teaching and learning?
9. What do you think should be done to improve the use of simulation games in teaching and learning?

APPENDIX F

DOCUMENT ANALYSIS CHECKLIST

DOCUMENT	CHECKLIST	FIELD NOTES
Schemes of work	To check the methods schemed and planned	
Timetable	To check the amount of time allocated to each learning period	