

The perception of Nigerian students of German about serious games: Using 'Secret of the Sky Disc' as a case study

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Abstract

The use of serious games is usually common, but digital games are not used in the teaching of German. This study aims to find out the attitude of students of German to the possible use of serious games in the teaching of German at the Obafemi Awolowo University (OAU) and their impression of the game 'secret of the sky disc' introduced by the Goethe Institute for the learning of German as a foreign language. Two different sets of questionnaires were administered to the students of German of OAU. The resulting data were analysed, discussed and conclusions were drawn. The results show the readiness of students of German for the use of digital games in teaching German at the university. The study adds to the limited literature on the use of serious games in teaching German as a foreign language

Keywords: German, Nigeria, perception, serious games, Obafemi Awolowo University, students.

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1. Introduction

Studies in the area of digitally based language learning have identified two major categories of digital games, namely commercial off-the-shelf (COTS) (also adventure–entertainment games) and educational games, also called serious games or edutainment (Alyaz & Genc, 2016).

While COTS are digital computer games that are commercially available and intended for purely entertainment purposes (<https://www.igi-global.com/dictionary/commercial-off-the-shelf-cots/4556>), serious games are games produced basically for educational reasons and not for providing entertainment, enjoyment or fun. The idea of fun, enjoyment and entertainment is, however, not completely ruled out of serious games (de Freitas & Fotis, 2011; Meyer & Sorensen, 2009; Michael & Chen, 2005; Mitgutsch, 2011; Susi, Johannesson & Backlund, 2007).

Mitgutsch (2011), cited in Abt (1970) and Klimmt (2009), explained that serious games are games that:

'... have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement' (Abt, 1970, p. 9). 'This does not mean that serious games should not be entertaining – they must be engaging to capture the learners' attention (Klimmt, 2009, p. 26) – but their primary aim is to have an educational impact'.

Mitgutsch (2011, p. 45) further explains that serious games achieve more than teaching players its rules, but more than that it teaches them about themselves and their environment. According to him:

'...not only teaching their rules, narrative, fictions, metaphors or goals, but they teach the players something about the world, themselves, and their own values, beliefs and behaviours'.

Zhonggen (2019) added that serious games in education were regarded as a communicative instrument through which learners cultivate their learning and practice their ability to overcome a lot of challenges during the game.

'Serious games werden als unterhaltsames Instrument mit dem Ziel der Bildung bezeichnet, bei dem die Spieler ihr Wissen kultivieren und ihre Fähigkeiten durch die Überwindung zahlreicher Hindernisse während der Spiele üben' (Zhonggen, 2019, p. 2).

(*'Serious games are regarded as communicative instruments with the goal of education through which the players cultivate their knowledge and their ability through practicing overcoming a lot of challenges during the game' – my translation.*)

These characteristics make the use of serious games in the second language learning process very important, especially as learning a language involves learning about the people and their culture, while carrying along one's own identity and culture. This may be the reason that the use of serious games in language learning is becoming more and more popular, especially in the teaching of foreign languages to young learners. However, like Alyaz and Genc (2016) rightly stated, the implementation of digital game-based language learning (DGBLL) is yet to reach the expected level, despite the vast research carried out in this regard. This, according to them, may be due to limitations which could be technical, instructional, financial or sociological.

In Nigeria, there has neither been a study on the use of serious games in the teaching of German in any of the country's institutions of learning nor a record of its implementation, hence this pioneer study on the use of serious games in the teaching of German in Nigeria. The study aims at finding out the attitude of students of German of Obafemi Awolowo University (OAU) to serious games in German

studies at the university. It also seeks to assess the students' impression after playing the game 'Das Geheimnis der Himmelscheibe' – 'The Mystery of the Sky Disc' – for the first time.

The results of the research should encourage German language teachers and curriculum planners to take the necessary decision of introducing serious games into the German language curriculum of Nigerian universities which would lead to better performance of the students of German at OAU and Nigeria as a whole.

1.1. Statement of the problem

There has neither been the use of serious games in the teaching of German at OAU nor any study on the attitude of students of German to serious games in the teaching or learning of German at the institution.

1.2. Aim of the research

The study is aimed at finding out the attitude of students of German to the use of serious games in the teaching of German at OAU and their impression after playing the game 'das Geheimnis der Himmelscheibe' for the first time.

1.3. Significance of the study

The study adds to existing knowledge in the area of the teaching of German as a Foreign Language, particularly in the use of serious games in German language teaching in Nigeria, as well as in the area of foreign language pedagogy in general.

2. Studies on serious games in language teaching and learning

Observing the increasing use of serious games in the last decades, Casan-Pitarch (2017, p. 84) suggested that longitudinal gamified teaching materials based on storylines and played through tailor-based video games can raise students' interest and motivation in foreign language learning. His paper introduced a bibliographical review on the use of video games in the field of foreign language learning and also discussed outstanding motivational factors in the design of video games. He further suggested that video games based on storylines may be applied in the same way that traditional workbooks and e-workbooks have been used for several years. The use of these types of games may be responsible for the positive results in the teaching of foreign languages as reported in the studies he reviewed. The issue of raising the interest and motivation of students is particularly significant in the case of students of German in Nigeria because many of the students lack both the interest at the beginning of their study and are poorly motivated. This is mostly because these students reluctantly resort to studying German when they fail to acquire enough scores to study their desired courses at the university. The use of serious games may help solve this problem to a large extent.

While Zhonggen (2019) reported some negative results in the use of serious games in education especially in terms of the correlations between mental workload and learning effect (for example, in the case of the game 'Peace maker'), the majority of studies in this area have rated the effectiveness of serious games in education quite high. Zhonggen (2019) remarked further that the perception of teachers and learners about serious games in education is usually based on their experiences and how much of that experience is close to reality. This would suggest that to determine the effect of serious games in the learning of a foreign language, the perception or assessment of the game by the teachers or learners based on their personal experience should be of great importance.

For example, Noraddin and Tse Kian (2014) conducted a research on the perception of Malaysian university and college teachers about the use of digital games in the classroom. To achieve their purpose, they administered questionnaires online to 273 teachers in 5 Malaysian universities. The

results of the research revealed that majority of the teachers had a favourable attitude to the use of serious games in teaching with a few of the teachers without an opinion. In addition, gender, age, years of teaching, teaching discipline and other variables did not play any significant role towards their attitudes. The study also showed that the teachers' habit of playing digital games as individuals influenced their positive attitudes towards the use of games in the classroom.

With respect to teachers' experience with serious games, Hsu and Chiou (2011) carried out a study on 125 pre-service teachers from various disciplines in North Taiwan to find out their level of awareness of digital game for learning. At the end of the research, it was discovered that 64% of the teachers were already exposed to playing educational games which could be the reason for the positive opinions of the instructors with regard to the use of serious games in teaching. Corroborating this view, Gibson, Halverson and Riedel (2007), in their own study of 228 pre-service teachers, assessed the attitudes of the teachers to serious games based on their age and the habits of playing these games in their individual lives. The results revealed that 65% of the teachers were of the opinion that digital games and simulations could be of great help to learning. These studies show the importance in assessing the attitudes of both teachers and students to serious games, hence this current study aimed at assessing the attitudes of Nigerian students of German to digital games with the hope that a similar study for teachers of German in Nigeria would be carried out in the future to either affirm or refute the readiness for the introduction serious games in teaching German in the country.

Still on the use of serious games in education, Kronenberg (2013, p. 108), while analysing various serious games used in education, examined the use of some serious games especially in the second / foreign language learning. For example, he discussed some games developed for learners of German as a second (foreign language) such as *Mingoville* (Meyer & Sorensen, 2009), *Ausflug nach Munchen* (Neville, Shelton & McInnis, 2009), Goethe Institute's *Lernabenteuer Deutsch* (2013a) – 'Adventure German' – and *Das Geheimnis der Himmelsscheibe* (2013a) – 'The Mystery of the Sky Disc' – among others.

Using two of the games mentioned by Kronenberg (2013), namely 'Adventure German – The Mystery of the Nebra Sky Disc' (Goethe Institute, 2013a) and 'Adventure German – A Mysterious Mission' (Goethe Institute, 2013b), Alyaz and Genc (2016) and Alyaz, Spaniel-Weise & Gursoy (2017) investigated the implementation of serious games in foreign language learning in Turkey. In the study, they designed games for two different learning groups, language levels and learning objectives.

The Goethe 2011 game was designed for the general German group, while the 2013 game was designed for the professional purpose group. For the collection of data, a one group pre-test–post-test design was used in the study. Quantitative data were collected via two opinion questionnaires implemented at the beginning and at the end of the process, as well as a receptive vocabulary test. Qualitative data were equally collected through semi-structured interviews and game diaries that participants kept. The two serious games chosen were used with traditional dictation, transcription and reading activities for a period of 11 weeks. Two different groups were involved in the gaming activities and the results from the two groups were discussed separately (Alyaz et al., 2017).

The 2016 study which is the pioneer study, on the one hand, identified the position of pre-service teachers in using mobile-assisted language learning and DGBLL. It also examined the contribution of the Goethe Institute (2013b) serious game, 'Adventure German – A Mysterious Mission' to the development of vocabulary, language skills and professional development of these teachers. The 2017 research, on the other hand, reported the 2016 pilot project and focused mainly on the analysis of the experiment with the game 'Adventure German – The Mystery of the Nebra Sky Disc' (Goethe Institute, 2013a). According to the authors, the purpose of the study was to promote the linguistic skills of the learner and contribute to the development of professional qualifications of the future foreign language teachers (Alyaz et al., 2017).

The 2016 results of the study revealed that there was a significant difference between pre-tests and post-tests in terms of their vocabulary size. The results of their research showed great improvement in the professional language skills of the pre-service teachers as well as in their attitudes towards their future use of serious games in the classroom. The analysis of the data in pre-service teachers' professional language skills and attitudes towards using these games while teaching in the future showed that they were positively opinionated towards the use of serious games for education. It is concluded that the game 'A Mysterious Mission' contributed to the participants' success.

The 2017 findings discovered that age was an important factor which affects participants' attitude towards serious games as the age and the participants' attitude towards the use of the serious games during the German courses had an influence on the vocabulary learning process. It was, however, discovered on a general note that serious games have a positive effect on vocabulary acquisition (Alyaz et al., 2017, p. 259). The result further indicated that participants found game activities useful in the development of other language skills. The authors concluded that although serious games could not replace the traditional way of teaching foreign languages or the activities and materials, it would in a great deal way enrich the teaching. As would be observed, both studies recorded a very positive effect of the use of serious game in foreign language teaching and learning.

In the present study, however, the Goethe Institute's 2013a game: 'The Mystery of the Sky Disc' will be used. This game has been described as one that offers the players the opportunity of enjoying an exciting adventure, solving a puzzle and still learning German (<https://www.goethe.de/ins/my/en/spr/ueb/him.html>). This is, therefore, a good example of a serious game fulfilling its primary aim of teaching German and also creating fun for the player while acquiring more knowledge about Germany, as well as other general information relating to the German language.

Unlike previously stated studies which looked at the general benefits of the use of serious games in language teaching or those that examined the attitudes of teachers to serious games among other studies, this paper concentrates on the attitude of students of German of OAU to serious games and on their impression after playing one game, 'The Mystery of the Sky Disc', for the first time. It is hoped that this study will pave way for further studies in this regard in the future, especially concerning the attitudes of teachers of German to digital games.

2.1. The game 'The Mystery of the Sky Disc'

The game 'The Mystery of the Sky Disc' was developed by Reality Twist and in editorial collaboration with the Goethe Institute for the learning of German as a foreign language. According to reviews of the game by Wankel and Blessinger (2013, p. 110) and Kronenberg (2013, p.108), the game is aimed at helping learners of German as a foreign language who already have reached at least the language proficiency A2 improve their knowledge of the language. It is designed not only to provide fun for learners of German but also to provide them with knowledge of the German language and reinforce the knowledge gained. The game provides a situation whereby learners could take part in an exciting adventure, solve a puzzle and still learn German in the process.

This exciting and adventurous journey takes the player and the art specialist Vincent Mirano through Germany. The aim is to find out whether Nebra's 4,000-year-old sky disc was stolen and the one hanging in the museum was just a counterfeit. It also seeks to find out where the original could be if it had actually been stolen. The player interacts with different characters he meets along his journey and collects objects and words to help him along the way. Learners get to use their knowledge of German through all these activities. Kronenberg (2013) gives a short description of the game as follows:

The player has to travel to different locations in Germany and solve small puzzles and complete language-based tasks. These include listening to instructions and then determining a rout on a map, small conversations, or the reordering of sentences.

The game 'can be played as a standalone, single player game, or as a course-integrated learning module' The Goethe Institute does provide some work sheets and documents for teachers of German. Help is available in English and in German. Overall, the game feels like an interactive textbook, with tasks closely resembling activities found in a textbook. For fun, it cannot compete with commercial game offerings. But as a serious game, as the Goethe Institute classifies it, it is certainly a valuable resource and adds some interactive features that a textbook cannot offer. Since it is free, it can definitely be mentioned to students for independent language practice.

3. Methods and Materials

Both qualitative and quantitative data will be used in this research. The primary data will be gathered through the administration of questionnaires to students of German at OAU, while the secondary data will be collected through the consultation of books, journals and the Internet.

3.1. The questionnaires

The first questionnaire consisted of only structured questions and was prepared to find out the general attitudes of the students to serious games in their German studies. A part of the first questionnaire was aimed at getting information about the respondents, namely their gender, age, year of study at the university and their level of German proficiency. The other part contained 'yes' or 'no' questions posed to find out the students' experiences as students of German and the methods or materials used in teaching German at the institution. All the information was to be gathered before administering the second questionnaire.

The second questionnaire consisted of both structured and unstructured questions and was designed to find out the students' opinion about the game 'The Mystery of the Missing Sky Disc'. The students were to answer 'yes' or 'no' to the first few questions and write their opinions freely to the last question. The data from each questionnaire will be presented and analysed separately to allow for easy and clear analysis.

3.2. Data presentation

The presentation of the data is divided into two. The first part of the analysis will be a descriptive evaluation of the first questionnaire, while the second part will present findings from the second questionnaire. The presentation of the results is carried out through the use of tables.

3.3. Respondents

The group of respondents consists of students of German at the Department of Foreign Languages, OAU, Ile-Ife for the 2018/2019 academic year. The population of students of German for the session was about 150 students from years 1 to 4, with year 3 students numbering over 60. The majority of these year 3 students were not available for the administration of the questionnaires because they had just concluded their language immersion programme outside the university and were not expected back at the university until at the beginning of the new session 2019/2020. The year 3 students available for the study had come to sort out some administrative issues at the department. This left us with about 100 students available for the study.

3.4. Sampling

Due to the fact that the students were already in the lecture-free week preceding the beginning of the second semester examinations, many of them were no longer coming to the department.

Therefore, a convenient sampling of the students was opted for with questionnaires distributed to well over 60 of them. Out of these, however, only 40 of the students filled and returned the questionnaires. Tables 1–4 represent information gathered about the sex, age, year of study and their German language proficiency.

3.4.1. Gender

Table 1. Gender

Sex	Number of students	% of the students' number	Cumulative %
Male	16	40.0	40.0
Female	24	60.0	100.0
Total	40	100.0	

Table 1 shows that the number of female respondents was 20% higher than that of male students. This could be because there are generally a higher number of females studying German at the Department of Foreign Languages than that of the males.

3.4.2. Age

Table 2. Age

Age of students	Number of students	% of the students' number	Cumulative %
16 years	2	5.0	5.0
18 years	2	5.0	10.0
19 years	14	35.0	45.0
20 years	16	40.0	85.0
22 years	4	10.0	95.0
25 years	2	5.0	100.0
Total	40	100.0	

Table 2 shows that the respondents were between the ages of 16 and 25 years with the majority between the ages of 19 and 20. This further buttresses the point that the majority of the students of German are youth and normally should be interested in playing games or learning through games, hence ideal for our survey.

3.4.3. Academic year

Table 3. Years already spent learning German language

Number of years spent	Number of students	% of number	Cumulative %
1	10	25.0	25.0
2	18	45	70.0
3	10	25.0	95.0
4	2	5.0	100
Total	40	100	

Table 3 shows the number of years that the students have been studying German which corresponds with their school year. Those who indicated to have studied for 1 year had just concluded two semesters of German studies; those who said 2 years had concluded four semesters of German

studies and so on. The above data show that 45% of the respondents had just concluded their second year (18 out of 40), while 25% was in the first and third years, respectively, and only two were in the fourth year. This variation in the number of participants was due to the fact that the study was carried out at a time when the students were preparing for their second semester exams and many of them, especially those in the fourth year, were not willing to take part in the survey. The mere mention of the topic, serious games, perhaps gave them the impression that this was all about a mere game which would not show the kind of seriousness expected of students preparing for exams.

In addition, there were some of them who were in the second year but had learnt German earlier at a German language school before gaining admission into the university and, therefore, may have learnt German for a longer period of time. It should be noted also that the number of years of study at the university includes the holiday periods between the first and second semesters, when no German classes or learning take place. Therefore, it could actually be better to simply say that all have spent a minimum of two semesters and a maximum of eight semesters at the university. This also means that they are expected to have attained a minimum of A2 German language competence level.

Out of the 40 students, 10 students were from the first and the third years, respectively. A total of 18 students were in the second year, while only two were in the fourth year. All the students had just completed the second semesters of their respective academic years and were preparing for their final examination, with the exception of the students in the third year who had completed their language immersion programme named Equivalent Year Abroad Programme (EYAP) at the Goethe Institute, Lagos. This was particularly useful as it meant for example that the students in their first year had acquired the minimum required language competence to be able to play the game to be introduced to them. It also meant that the students in the second year had not proceeded on their EYAP in Lagos, while the students in the third year had just completed their EYAP at the Goethe Institute. The students in their third year that were available for the survey had only come to the department for personal or administrative reasons.

3.4.4. German language proficiency

In spite of the fact that the questionnaires and discussions were in English and very little emphasis is laid on the respondents' German proficiency, the students were still required to make a self-evaluation of their proficiency in the language based on the German language proficiency certificates, namely A1 to C1 (Table 4).

Table 4. Students' self-assessed German language proficiency

Language proficiency	Number of students	% of the number of students	Cumulative %
A2	8	20.0	20.0
B1	22	55.0	75.0
B2	8	20.0	95.0
C1	2	5.0	100.0
Total	40	100.0	

To the question, majority (55%) of the students claimed to have a good command of German with a B1 level, while 20% of them claimed to have attained the level A2 in German. Another 20% rated their language proficiency to be at the B2 level, while 5% claimed to be on a C1 level.

On further verbal questioning, however, the students explained that the majority of them only picked the option which best described their self-presumed German language proficiency and not exactly the certificates that they had already acquired. For example, some of them picked the level B2 because they had already passed the B1 and were already preparing for the B2 examination.

4. Presentation and evaluation of data

4.1. Presentation and evaluation of data from the first questionnaire

This part of the survey attempted to discover the students' experiences as students of German as it relates to the methods or materials used in teaching German at OAU and with the use of games in the classroom. It also sought to find out whether they were familiar with the term 'serious games', especially as a means of learning. The students were only requested to answer either 'yes' or 'no' to the questions posed. Table 5 shows the questions and responses given by the students.

Table 5. Students' previous experience on methods and materials for teaching German at the OAU and on the use of serious games in teaching German

Questions	Options	Answers			
		Yes		No	
		Number of students	%	Number of students	%
Which materials are used for the learning of German at OAU?	Audiovisual	40	100.0	0	0
	Textbooks	40	100.0	0	0
	Workbooks	36	90.0	4	10.0
Do you find the use of the audiovisual materials interesting and helpful?		40	100.0	0	0
Do you find the use of the textbooks interesting and helpful?		36	90.0	4	10.0
Do you find the use of the workbooks interesting and helpful?		15	37.5	25	62.5
Have you ever been involved in any form of game in a classroom?		12	30.0	28	70.0
Have you ever been involved in games of any form in the classroom during the course of learning German language?		12	30.0	28	70.0
Have you ever heard of the term 'serious game'?		16	40.0	24	60.0
If yes, do you believe that it is possible to have 'serious' games as part of the materials of language learning?		38	95.0	2	5.0

The responses shown in Table 5 determine that audiovisual materials and the use of text books were the mostly used teaching resources for the teaching of German at the university. 10% of the students opined that they found the use of textbooks challenging, while all of them found the use of the audiovisual materials interesting. This could be due to the fact that the audiovisual materials allow them to see day-to-day activities on film, which they could easily relate to and in addition provide some avenues for short games; however, these materials are usually accompanied by relevant books and compact discs.

The workbooks seem to have less popularity among the students as 62.5% of them considered it boring and less helpful. This could be because of the nature of the books which naturally will require more concentration and focus. In addition, they are usually less colourful with little or few pictures for illustration unlike the textbooks. In general, it can be assumed that the students enjoy the materials used for the teaching of German at the university.

The table also reveals that many (60%) of the students of German have never had an encounter with serious games in the process of learning the language. However, 95% believed that serious games can be used as a medium of instruction in the teaching of the language, but only 40% had encountered serious games. This optimistic view could be due to the fact that many of the students easily identified with games during the discussion held with them, especially as the word 'serious' was explained to them and the bias opinion of a few of them about the classroom being turned into a play centre was removed. Their positive opinion, hence, shows a large reception awaits the use of serious games in the teaching of German at OAU.

4.2. Presentation and analysis of the data from the second questionnaire

This second part of this research attempted to examine the views of the students of OAU about the game 'Das Geheimnis der Himmelscheibe' for teaching German at the university. The game 'Das Geheimnis der Himmelscheibe' was introduced to the students and details (author, purpose, content etc.) were explained to them. The game was then installed on each mobile phone and played by everybody simultaneously.

At first, the game was played for 15 minutes after which a 5-minute break was observed to discuss how the game should progress. The game was then played for 10 minutes. While the first 15 minutes of play went on smoothly, the second round of 10 minutes did not go without questions from the students. It was, therefore, necessary to guide the students through the game, especially when it came to the next steps to be taken and the direction in which the game should generally go. A few of them also needed some technical assistance. After the game had been successfully played, the students were given the second questionnaire. This was with the aim of allowing the students share their experiences about the game. This second part of the data collection, therefore, involves the presentation and analysis of data received from the second questionnaire. Table 6 shows the responses of the students to the questions posed.

Table 6. Students' impression about the game 'Das Geheimnis der Himmelscheibe'

Questions	Answers			
	Yes		No	
	Number of students	%	Number of students	%
Do you find the game 'Das Geheimnis der Himmelscheibe' interactive and engaging?	32	80.0	8	20.0
Question	Responses		No of respondents	
	I learnt/acquired new words/ vocabulary/ phrases & expressions.		25	
What was your impression about the game and how did it help your knowledge of German?	It is good for learning German/ it is instructive/ I find it interesting & engaging/ I got more insight into some everyday life experiences in German		14	

It offers a view of how points are distributed for every variable before and after the game and also how the average point for each group in the game can be decided in German

1

Table 6 reveals the attitude of the students before and after playing the game 'Das Geheimnis des Himmelscheibe'. The analysis of the questionnaire given before they were allowed to play the game shows that the majority of the respondents (80%) believed that serious games could be useful in the German language classroom, while the remaining 20% had a negative impression about the use of serious games in the teaching of German in the university.

After the students played the game, 'Das Geheimnis der Himmelscheibe', however, more of them were convinced of the usefulness of serious games in the classroom as over 97% was of the opinion that the game could be used in the teaching of German at the university because they claimed that they were able to find some elements of grammar lexis and other topics with which they were already familiar in their classes, which corroborates the submission of Alyaz et al. (2017, p. 259) that digital games have a positive effect on vocabulary acquisition. The students also claimed to have enjoyed playing the game, describing it as instructive, engaging and interesting. This shows their readiness to try out serious games in the classroom, which is a very positive sign that its introduction would be very successful. This study hence concludes that serious games can be employed in the teaching of German at the university level because its introduction would bring maximum productiveness among students by arousing their interests in the lesson being taught and engaging them actively in the class.

5. Discussion

The results of this study align with previous studies on the use of serious games in foreign language studies which suggest that the idea is generally accepted and very helpful in foreign language studies. Although those studies did not go all out to sample the opinions of students as carried out in our current study, they were able to prove that the use of serious game is considered a positive move by learners, especially the youth. In spite of the report of some negative attitudes from some teachers by some studies, majority of the findings about the attitudes of teachers show improvement in their language level and attitude to serious games. However, unlike the results of the research on the use of the Goethe games by Alyaz and Genc (2016) and Alyaz et al. (2017) where age had an influence on some aspect of the learning process of the students, age played no role in the attitude of the students nor in their performance in our study. This is expected because the respondents in our study were mainly students from the same age group and were positively inclined to playing games. Studies involving older students or teachers may, like the other students which involved them, reflect a difference between the attitude and performance of older students or teachers and that of the younger students in our study.

This, however, can only be ascertained by further research involving the older groups and focusing on other interests than that carried out in the current study. However, what cannot be disputed so far from all studies is the positive effect the use of the serious games had on the language learning ability of the students (or teachers as in some of the studies reviewed in this paper).

6. Conclusion and recommendations

This research concludes that students of German at OAU have a very positive attitude to the use of serious games in the teaching of German, which suggests that there is a big opportunity for the successful introduction and adaptation of serious games in German studies in Nigeria. This will also give rise to the need for more research to be carried out in this area.

Based on the results of the analysis of the data collected from the study which corroborated previous studies on the use of serious games in language learning, it is recommended that serious games be introduced to the teaching of German in Nigerian universities, especially as there is a very high acceptance among the students. As suggested by Lombardi (2012), the games to be employed should possess the ability to entertain and at the same time educate with some aspects of fun and humour. Casan-Pitarch (2017) suggests gamified teaching materials based on storylines and played through tailor-based videogames.

There is, therefore, the need for the use of well-designed gamified materials that will motivate students and increase their interests to learn. In addition, an experienced teacher with a good lesson plan who is able to maintain class discipline in an atmosphere of fun will create a good balance when using serious games in the class. This will not only help to save time in the class, but also make sure that the students do not get carried away with the game and play the entire game when only an aspect is needed for the lesson to be learnt or emphasised.

Studies on the attitudes of teachers and their position on the use of serious games in language teaching (e.g., Hsu and Chiou, 2011; Noraddin and Tse Kian, 2014) show that even the teachers must be well motivated and educated about the necessary technical requirements for the use of the games before serious games could be effectively employed in teaching, which is to be considered when introducing digital games in German studies in Nigeria. This also suggests the need for further studies on the attitudes and education of teachers about the use of digitally based teaching of German in Nigeria.

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