

Beyond Fun: An Assessment of Video Games as Emerging Educational Broadcasting Media in Nigeria

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Abstract

Video games are evolving media that have become more realistic, complex, broad and social in nature recently. This study assesses the positive effects of video games against the backdrop of their educational, social, emotional, cognitive and motivational value. The assessment is based on how video games use has evolved over the last two decades and the use of video games as broadcast education content in Nigeria. The study, hinged on the Social Learning Theory, argues that video games have the potential to educate and inform. The study was carried out using three online databases: Academic Search Complete, EBSCOhost and Science Direct. The conclusion is that video games actively shape the way we interact with each other and can be used in conjunction with other traditional broadcast media as an education medium in Nigeria. It is recommended that there should be an on-going research on the effects of video games in educational broadcasting in Nigeria.

Key words: Video Games, Broadcasting, Education and Nigeria

Introduction

Video games are pervasive aspect of the lives of many children and adolescents, particularly in the West. It is estimated that 97% of children and adolescents in the Western countries play at least one hour per day in the US alone (Granic, Lobel and Engel, 2013). The bulk of research (see Decker and Gay, 2011; Bushman and Anderson, 2002) done by psychologists have focused on the effects of ‘gaming’ viz the negative impacts and potential relation to depression, addiction and violence. In recent years however, many new research (Nic, Roush and Wheeler, 2010; Steinkuehler, 2007; Steinkuehler and Duncan, 2008) have come up with the need for a balanced outlook regarding gaming and the need for a focus on the potential benefits of gaming particularly in the last two decades.

This study assesses the evidence based on research on the nature of video games in the last two decades. We argue that video games have evolved to be a more complex media of entertainment, play and education. However, if video games are to be viewed as an emerging broadcast education content, it is important to understand the ways by which playing video games contribute to the learning process on the social, emotional, motivational, cognitive and behavioural levels. How have they evolved over the last two decades? Is video games market in existence in Nigeria? Lastly, what is the future of video games as broadcast education content in Nigeria?

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To address these questions, the study begins by examining the cognitive, motivational, emotional, social and behavioural benefits of video games in the first section. Next, the study contextualises video games as an experiential medium used in education. This is followed by a discussion of video games as an emerging medium based on the social learning theory. The application to Nigeria is discussed next followed by challenges, recommendations and conclusion.

Conceptualizing Video Games

It is essential to specify what is meant by the term video games and how it is different from other broadcast media (e.g. television, movies and radio). The key distinguishing feature of video games is in their interactivity (Granic, Lobel and Engel, 2013). Players have to be actively involved in a game's storyline. Basically, a video game is designed such that players can actively engage with their systems and these systems in turn react to the agentive behaviours of players (Granic, Lobel and Engel, 2013). There are countless types of video games with different themes and goals.

These video games can be played alone, cooperatively or competitively with other players that are physically present or with thousands of other players online. They are also usually played on various devices from consoles such as PlayStation and Nintendo Wii or computers and mobile phones (Granic, Lobel and Engel, 2013). Due to the diverse genres and dimensions in which video games exist, it is extremely difficult to develop a comprehensive taxonomy of contemporary games and gamers (Granic, Lobel and Engel, 2013). This means that gamers are heterogenous in nature - made up of both genders, diverse demographic, cultural and geographical audiences. Gamers in this context refer to individuals who regularly play video games for more than one hour daily.

Put differently, Juul (2005:36) explains, "a game is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable."

Broadcasting is the dissemination of information through mechanical means, simultaneously to a wide, diverse and heterogeneous audience made up of individuals within and outside a society (Akashoro, Okidu and Ajaga, 2013). Broadcasting is indispensable in any society, permeating and fulfilling all individuals, social, political and hedonic needs of people pivoted by the transfer of meaning – communication. As such, video games can be classified as a broadcast medium.

Theoretical Framework: The Social Learning Theory

The social learning theory is a media effects theory. Postulated in 1977 and 1994 by Albert Bandura, the crux of this theory is that much learning takes place through the observation of the behaviour of others. One notable area in which this theory has proved valuable is in the analysis of the likely effects of television violence. Being a general learning theory, it can be applied to other areas of mass media effects. Reinforcement theory, one of the earlier aspects

of the learning theory suggests that when a particular behaviour is reinforced with some reward, learning takes place (Anaeto, Onabajo, and Osifeso, 2008). In the event that this is the only way by which learning could occur, people would, in essence, have to try out all kinds of behaviours out on their own and then stick with those ones that were rewarded and abandon those that led to punishment (Anaeto, Onabajo, and Osifeso, 2008).

Social learning theory focuses on the fact that people do not have to use the inefficient approach to learning and gain some behaviours through the act of observation and storing these observations as guidance for behaviour in the future (Anaeto, Onabajo, and Osifeso, 2008). Therefore, the social learning theory acknowledges the fact that human beings are born with the innate capability for thinking and cognition and find observation and experience beneficial. Much of human learning takes place through watching other people carrying out certain behaviours (Anaeto, Onabajo, and Osifeso, 2008).

Severin and Tankard (2001) talk about the effects of the mass media taking place through the process of social learning. Examples of such effects could include people getting lessons on how to interact in certain situations or how to adapt new styles or fashion. Social learning is particularly effective using a mass medium such as television in the traditional sense or a new broadcast medium such as video games which have the power to transmit new ways of thinking and acting to many people in different locations and contexts using as single model (Bandura, 1994).

Using the research by Harrison and Cantor (1977), whereby they applied the social learning theory in examination of the role of television in influencing the ideas of audience members about thinness and ideal body shape, it was noted that the mass media promote images of thinness and dieting as common themes and also give the impression that thin actors are always rewarded. It was further discovered that viewers that were more exposed to messages related to thinness and thinness promoting messages were more likely to have dissatisfaction with their bodies (Anaeto, Onabajo, and Osifeso, 2008).

By the same token, it can be argued that video games, being a part of our social culture and identity in the digital and internet age, have the ability to be used as an agent of communication and change based on Bandura's assertion that in a social environment, new knowledge can be attained through observation. The very nature of video games, therefore, means that they can be used to disseminate information, encourage the adoption of new behaviours and eventual changes.

Method of Study

The literature search was conducted using three databases: Academic Search Complete, EBSCOhost and Science Direct. The reference lists from initial articles were used to generate and identify further articles which would be useful. Search terms include video games, learning, and education, benefits of video games, broadcast media and trends. The initial search on these three databases using the search terms above resulted in over 2000 articles. Additional changes were made such as modifying search terms in title, full text available online, peer reviewed journals only, published from year 2000 to present and ended up with

62 articles. By making use of author supplied keywords and abstracts, articles were sorted into categories: cognitive benefits; motivational benefits; social benefits; emotional benefits; use of video games in education; and emergence of video games in Nigeria.

Results

This review examines research on the positive benefits of video games and the way it is being used in education. Next, it discusses how the use of video games has evolved with technology. It then examines possible challenges and barriers to the incorporation of video games in broadcasting. Lastly, the reviewed benefits and challenges serve as a framework for recommending the use of video games as emerging broadcast education content.

Cognitive Benefits of Gaming

It is popularly believed that playing video games is a sign of intellectual laziness (Granic, Lobel and Engel, 2013). However, recent research shows that playing these games helps develop a wide range of cognitive skills.

This is particularly true for shooter video games (often called “action” games by researchers), many of which are violent in nature (e.g., Halo 4, Grand Theft Auto IV). The most convincing evidence comes from the numerous training studies that recruit naive gamers (those who have hardly or never played shooter video games) and randomly assign them to play either a shooter video game or another type of video game for the same period of time. Compared to control participants, those in the shooter video game condition show faster and more accurate attention allocation, higher spatial resolution in visual processing, and enhanced mental rotation abilities. A recently published meta-analysis concluded that the spatial skills improvements derived from playing commercially available shooter video games are comparable to the effects of formal (high school and university-level) courses aimed at enhancing these same skills. Further, this recent meta-analysis showed that spatial skills can be trained with video games in a relatively brief period, that these training benefits last over an extended period of time, and crucially, that these skills transfer to other spatial tasks outside the video game context. (Granic, Lobel and Engel, 2013, p.68)

Consequently, these cognitive advantages show up in measurable changes in efficiency and neural processing (Granic, Lobel and Engel, 2013). Video games are also associated with enhanced creativity as an additional cognitive benefit. There is evidence to suggest that playing any kind of video game, whether violent or not enhances the creative capabilities of both children and adults and this, in turn, helps them to learn things at a quicker rate (Granic, Lobel and Engel, 2013; Dweck and Molden, 2005).

The story behind a recent breakthrough in biology research provides a nice illustration of how gamers’ superior spatial and problem-solving skills, as well as their creativity, all came together to solve a real-world, previously insoluble problem. In 2008, researchers at the University of Washington created an online game called Foldit, allowing the public to play games in which they model the

genetic makeup of proteins. At the end of a three-week competition in 2010, top-scoring players had generated phase estimates that allowed researchers to identify a rapid solution of the crystal structure for a monkey virus related to AIDS. The structure had eluded researchers for over 10 years; however, the nonlinear, cooperative, and creative problem-solving techniques used by these gamers seemed to be precisely the skills needed to finally solve this elusive problem. (Granic, Lobel and Engel, 2013, p.69)

Motivational Benefits

Game designers have mastered the art of engagement perfectly. They are well adapted at pulling people of various ages into virtual environments, having them engage themselves in the achievement of meaningful goals (Granic, Lobel and Engel, 2013). Gamers keep trying even when faced with numerous failures and celebrate the times they triumph after successful completion of difficult or challenging tasks. Video games have been shown to have several characteristics that foster effective motivational styles both within and outside the context of gaming (Dweck and Molden, 2005; Granic, Lobel and Engel, 2013). After decades of research in developmental and educational psychology, it can be argued that there is an increase in motivational styles that are known by persistence and continuous effortful engagement among gamers and these are key contributors to achievement and success (Dweck and Molden, 2005).

To this effect, Ventura, Shute and Zhao (2013) suggest that those scheduled intermittent reinforcement given to video game players are very effective for ‘training’ new behaviours. It is therefore proposed that by being in these gaming environments, players learn an essential life lesson: when one is persistent in the face of failure, you reap valued rewards (Granic, Lobel and Engel, 2013). It is also important to note that although players feel negative emotions such as anger, frustration or sadness intermittently, they are highly motivated to try and win and are relentlessly optimistic about reaching their goals (McGonigal, 2011).

Emotional Benefits of Gaming

As can be explained by the uses and gratifications theory - one of the most notable theories in communication research, one of the top reasons why individuals use media is to enhance their emotional states and manage their moods (Ruggiero, 2000). Consequently, gaming has been shown to improve mood and increase positive emotions and feelings among children and youths (Russoniello, O’Brien and Parks, 2009). Some studies have shown that playing puzzle video games - those with short-term commitments, minimal interfaces and a high degree of accessibility (for example, Angry Birds) - can promote relaxation, improve moods and reduce anxiety among gamers (Russoniello, O’Brien and Parks, 2009). Feelings of intense pride have even been reported among gamers for succeeding against great adversity (McGonigal, 2011).

Social Benefits of Gaming

10 to 20 years ago, the major characteristics of video games were different from what it is today and that is their pervasive social nature (Granic, Lobel and Engel, 2013). As opposed to the usual stereotypes, the average gamer is not a dysfunctional, socially isolated nerd who spends his time alone on the couch (Granic, Lobel and Engel, 2013). According to Entertainment Software Association (2012), more than 70% of gamers play their games either cooperatively or competitively with a friend. To illustrate, Farmville - one of the most well-known social networking games on Facebook - had over 5 million daily users in 2012 and World of Warcraft - a multiplayer fantasy game set in a colossal virtual world - had over 12 million regular players (Gill, 2012).

These games and their virtual communities featured decisions on whom to trust, how to effectively lead a group and who to reject (Granic, Lobel and Engel, 2013). It is, therefore, argued that based on these immersive social contexts, gamers are quickly gaining immersive social skills and pro-social behaviour which extend to their peer and family social relations even outside the gaming environment (Gentile, Anderson, Yukawa, Ihori, Saleem, Ming and Sakamoto, 2009). Social skills are made manifest in forms of civic engagement - leading like-minded people in social causes and the ability to organise groups (Lenhart, Kahne, Middaugh, Macgill, Evans, and Vitak, 2008). These games allow players to gather important pro-social skills that are targeted at rewarding effective cooperation, support and helping behaviours (Granic, Lobel and Engel, 2013).

The Use of Games in Education

Video games promote knowledge retention and improve math performance (Arias, 2014). Not only that, it can improve the attitude of students towards the subject. To illustrate, Huang and Ke (2009) suggest that students playing a video game that had been set to teach math reported a better attitude to math than those in the control group. Similarly, researchers at Indiana University funded by the National Science Foundation created an educational video game, Quest Atlantis (QA) (Barab, Sadler, Heiselt, Hickey and Zuiker, 2007). The aim of the game is for students to navigate through different worlds while interacting with other players and non-player characters to complete Quests. In QA, some of the worlds focus on science content while others deal with different content areas (Arias, 2014). It was discovered that students in the 4th grade completing Quests in a science focused QA world “demonstrated rich insights in terms of their submitted work, were clearly engaged, and participated in rich scientific discourse.

Further, students developed a rich perceptual, cocneptual and ethical understanding of science” (Barab, Sadler, Heiselt, Hickey, and Zuiker, 2007, p.46). Other examples of games which have been used in education include Dr Friction, a game developed to teach forces and motion to fifth graders (Annetta, Magnum, Holmes, Collazo and Cheng, 2009). Video games have also been used to teach and learn language. An example is The Sims, which enables players to control a virtual family through day-to-day situations (Arias, 2014).

Video Games as Broadcast Media

With particular emphasis on live streaming, video games can be used as broadcast media. Video games can be referred to as relatively new media. Over the past few years, games have used new technologies to set the trend and change the shape of digital media (Granic, Lobel and Engel, 2013). Video games can be used to demonstrate how things happen, alongside videos and traditional broadcast media to show the public how effective something is or can be (Mark, 2013). In the developed world, there is an increasing rise for on demand content which is driving the growth of gaming content especially videos (Newzoo.com, 2018; Mark, 2013). Due to the fact that traditional broadcast media rarely broadcast gaming content, gaming creators, individuals as well as companies are now using video technology to broadcast video games for the purpose of entertainment and to educate their audience as well (Granic, Lobel and Engel, 2013).

An example of this technology is YouTuber which helps to reach people as the first choice among gamers. YouTuber is a trend whereby individuals called creators offer short edited gaming videos on the go which match the personality as well as interests of the fans (Newzoo.com, 2018). There are also streaming services such as Twitch - for all game titles and Mobcrush - for mobile titles which enable people to broadcast what they are playing on their devices without the use of sophisticated technology (Newzoo.com, 2018). This has made live broadcasting popular among millions of people and businesses the world over. It is instructive to mention that the reach of these live streams which are viewable on smart TVs, game consoles, PCs and mobile devices greatly exceeds television shows on a global level particularly when frequency and availability are considered (Newzoo, 2018; Mark, 2013). This has led to new channels which work outside the traditional environment of the media, particularly when it comes to the creation of broadcast education content. On their own and in conjunction with other media, video games can be used for social movements as part of new media to educate, communicate, share cultural products of movements, interact and as an alternative media source.

Video Games as Educational Broadcasting Media in Nigeria

Building up on the social learning theory, it can be argued that video games can be used by the broadcast media to achieve a variety of objectives and fulfil a lot of purposes. Video gaming is still in its infancy in Nigeria (Vourilas, 2014). There are only half a dozen companies such as Magic Carpet Studios, ChopUp and Gamesole which are into the creation of games. It can even be said that it is the rapid growth of the mobile market and an increase in the population of youths that has led to the rise in popularity of video games (Vourilas, 2014). Furthermore, one thing that have led to this is the fact that more than 60% of the population of Nigeria is under 25 years old and there is an increase in the penetration of smart phones across Nigeria and better mobile broadband access; developers have levered upon this opportunity and emerging market (Campbell, 2013).

There is a growing trend in the creation of local themes by Nigerian video game developers. An example is a local developer Maliyo Games who builds games such as Okada Ride - a

game focused on delivery motorcycles in the busy streets of Lagos and Mosquito Smasher - a game focused on increasing the awareness of Malaria and killing malaria spreading mosquitoes (Campbell, 2013). The central themes here are African narratives, sounds, characters and backgrounds. This is something which broadcasting can leverage upon as broadcasting has education as one of its core components. By the same token, Kuluya, another game developer in Nigeria is merging its games with local stories and myths as a way to portray the rich and varied culture of the country to all and sundry (Campbell, 2013; Mark, 2013).

This is a novel way for video games as a broadcast medium to help create awareness about pertinent issues and trends in the immediate environment. There are several historical stories and sites which can be turned into games in Nigeria as a way to promote indigenous learning and cultural activities. Details or information from other countries and cultures can also be added to aid quick dissemination which cannot easily be achieved by other traditional broadcast media (Mark, 2013). It is important to build upon the desires and activities of the larger percentage of the Nigerian population and that is for the media to speak in a language they will understand.

To this effect, video games can be used in Nigeria for educational purposes. It can be designed by educational institutions, ministries and parastatals to create a sense of togetherness, increase organizational outcome and boost morale as some of the indigenous developers are doing (for example: Kidnapped and Ole by Kuluya Games; Sambisa Assault by ChopUp). To illustrate, Individuals can win coins or stars when they learn about their organization, behave in a desirable manner or vote for something they believe in which can be put towards getting an upgrade within the context of their work. They can even be actively involved in creating the design of what the office should be like in a virtual world using specially designed video games, trade ideas, solve problems and foster team spirit and bonding which may otherwise be impossible in a large multinational or multilevel institutional setting.

In educational institutions, students/pupils can use it to learn at their own pace, solve complex matters or issues and reduce the stress of learning when used properly (Okafor, 2017). This can be used in conjunction with the other media already used for these educational purposes. In the political sense, video games can be used by institutions and political parties to promote their interests and values and encourage participation especially among people who would otherwise not participate such as the younger population (Mark, 2013). This is bearing in mind and using the unique opportunities that come with media convergence. This new media convergence shapes the way we communicate and interact with “many to many” (Flew, 2005:101). Flew argues that “the global interactive games industry is large and growing, and is at the forefront of many of the most significant innovations in new media”. By using the traditional broadcast media to send specific messages and using print and new digital broadcast media like video games, more can be achieved in terms of reach and scope. This allows users to experience a sense of belonging that is much more than traditional temporal and spatial boundaries.

Challenges

Video games that are specially designed to achieve a particular purpose require specific codes and structures which only software developers can achieve. Good software developers are hard to come by (Anekwe, 2018). Games that are used by media professionals such as broadcasters in a contextual sense have to be developed specifically to suit the desired purpose of sharing educational content (Anekwe, 2018). As such, this will require a lot of investment and training by the media owners and professionals or the government as the case may be which may be difficult to come by at the moment in Nigeria (Aliyu and Idris, 2016). Not only is the right infrastructure for video games in the contextual sense necessary, it is important for the right hardware such as computers, networking systems and good internet facilities to be in place as well (Anekwe, 2018).

Conclusion

For broadcasting, video games can be used to create a novel way of education as video games perform a variety of functions for people of all ages and cut across gender, geographical and social barriers. It has been established that playing video games foster group cooperation, and helps practice of management skills but perhaps the most important fact is that video games are actively shaping the way we view and interact with the world as an emerging broadcast media. As such, the broadcast media can leverage on this in conjunction with traditional broadcast media to reach more audiences, particularly the younger Nigerian citizens as an educational medium.

Recommendation

Regardless of challenges, the video games industry in Nigeria holds many promises and as such, there is need for research into the effects of video games on education and broadcasting. Also, the use of video games in the broadcast media and as part of the trend of new media needs to be explored further. There is a dearth of research in these areas as shown by the paucity of journal articles in the subject area in Nigeria and the rest of the world (see Zheng et al, 2009; Squire et al, 2008; Anekwe, 2018).

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