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Editorial: Social media and Games

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Welcome to the second issue of the Journal of Digital Media & Interaction (JDMI). For this issue we've assembled a set of articles dedicated to discussions of the uses and impacts of social media in youth, and another group discussing game design and methodologies. We continue our mission to address digital communication technologies and its interactive impacts, methodologies and possibilities.

Thus, we open this issue with the article "*A Model for the Quantitative Assessment of Freedom of Choice in Adventure Digital Games*", from Sotiris Kirginas and Dimitris Gouscos which is focused on the concept of freedom in player interaction with digital games, aiming at contributing to the formalization of the concept of freedom of choice and to use this concept in the evaluation of different adventure digital games.

To follow, we have the article "Interactive Media as a socialization agent: Influence of WhatsApp among Adolescents in Nairobi", from Denish Ouko Otieno and Alfred Akwala, examining the influence of WhatsApp mobile application on adolescents, namely, the parental control of teenagers' use of WhatsApp and motivations. The findings show that using WhatsApp interferes negatively with school outcomes, sleep levels, and that parents are not able to control their teen's using the app.

Continuing in the African continent, we move to Nigeria, with the results of a research on the "Increased Consumerism in a Networked-Nigeria: A Study on the Effect of E-Malls and Social Media on Youth Spending", from Ayodeji Olalekan Awobamise. The study is focused on the relationship between electronic shopping malls and ads in social media and the consumption by Nigerian youths; the results of this research show the existence of a relationship between online shopping malls and youth spending patterns.

The article "*E-mail marketing:* caso de estudo InnovAction", by Marta Gomes, Dora Simões and Arnaldo Santos present the main results from the evaluation of an e-mail marketing communication campaign making use of the "InnovAction" magazine. The authors show that although email is not a new communication tool, in fact, it continues to be important in marketing campaigns. The main result of the research is that the size of the campaign and adding events associated with the release of products are major factors on the email marketing campaign results.

The last article is about "Designing a Pervasive Adventure Gamescape: Avoiding the Pitfalls in Creating Augmented LBGs for Playful Learning", from Katriina Heljakka and Pirita Ihamäki, reporting on an urban game adventure built for harnessing the potential of location-based games for school-aged children. It puts forward important pedagogical dimensions that should be thought of when proposing an urban gaming experience for formal educational contexts. However, more important than the things that push this project apart is their main concern. And, from different perspectives they all see games

and gamification as ways of empowering individuals, helping people develop their competences and increase their engagement throughout their learning endeavours.

A Model for the Quantitative Assessment of Freedom of Choice in Adventure Digital Games

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Abstract

 The concept of freedom in player interaction with digital games, the nature of the choices that make it up and the subjective assessment as to whether a game is considered free-form or structured are at the heart of the interest of this paper. Free-form games that give room to many different player-generated gameplay paths may amuse a player, while structured games that constrain players to follow a single path to one objective may bore them, thus resulting in different styles of interaction with this specific type of digital media. The aim of this study is to contribute to formalizing a concept of freedom of choice, and be able to evaluate its presence/absence in different adventure digital games; more specifically, the research aims at the formalization and, eventually, at the quantitative assessment of a concept of freedom of choice in free-form and structured adventure digital games, and attempts to arrive at a typology that allows different adventure digital games to be placed at various points on an axis between totally free-form activity and formally structured goal-driven activity. This effort, at the same time, is contextualized within a broader research plan for using adventure games as digital media-based learning frameworks, with a view to ultimately taking stock of player experience and interaction drivers, such as freedom of choice, as enablers for better player/learner engagement and more effective learning through these media.

 Keywords: adventure games, games for learning, freedom of choice, free-form gameplay, structured gameplay, digital media interaction

1. Introduction

An essential part of the quality of digital games that makes them successful, engaging, and enjoyable is player experience (PX) which is generated during a game play session. Player experience can be broadly defined as the experience of play, which includes elements such as how well the game supports and provides the type of fun players want to have, and what makes players having fun. Player experience describes the personal, transient and dynamic qualities an individual player experiences from interacting with a game (Wiemeyer et al., 2016). According to Roto (2007), there are 3 phases of player experience: (a) expected player experience (before a player starts to interact with a game), (b) player experience during interaction (experience that takes place while interacting with the game), and (c) overall player experience (experience after game ends). What Roto (2007) is emphasizing is that the interaction phase is definitely an important phase to affect player experience. Investigating the player experience during interaction is significant in order to improve a game, as it is in this phase that features and components which create positive experience and others which do not can be observed.

Furthermore, Hassenzahl and Tractinsky (2006) argued that an experience is a unique combination of various elements, such as the system (e.g. complexity, purpose, usability,

functionality, etc) and internal states of the user (e.g. mood, expectations, active goals), which extends over time with a definitive beginning and end. During a play session all these elements interact and modify each other. The outcome of this process is the actual player experience.

A digital game, as a system, has two sets of features which affect player experience and enhance interactivity. The first set of features is the mechanics of the game. The mechanics are methods invoked by players for interacting with the game world, including goals, rules and rewards (Almeida, 2013; Egenfeldt-Nielsen, Smith, & Tosca, 2008). Goals are what a player must do and accomplish in order to progress or win in the game. Rules are the laws that determine what can and cannot happen in the game (Salen & Zimmerman, 2004). Rewards are something a player receives in return for completing goals or specific objectives, tasks and challenges. The second set of features is the interface including visuals, audio and feedback. Visuals are related to how the game looks, in two or three dimensions. Audio is the game's sounds, sound effects and music, equally important when compared to visuals in creating atmosphere and for player feedback. Feedback is the game's response (visual or audio) to players' actions (Adams & Rollings, 2007).

As Ermi and Mayra (2005) and Newman (2008) argued, digital games were brought to life through the interaction between the player and the system. That said, our research interest focuses on the concept of freedom of choice as a factor that affect this interaction. Freedom of choice is such a significant component to games, that it has been argued by Domsch (2013), that part of the appeal of games lies in their promise of agency, which is dependent on player and her choice. It allows players to examine the different available choices and to enact new and sometimes unanticipated forms of gameplay that may emerge from the exploitation of unintended situations and the consequences of certain inputs, or combinations of gameplay operations (Ashton & Newman, 2010). The existence of freedom of choice, which imply differing outcomes, heightens the freeform gameplay by forcing the player to make differential evaluations of multiple options.

In the light of the above, this paper aims at the formalization and quantitative assessment of structural freedom of choice in a number of selected free-form and structured digital adventure games in order to arrive at a typology that allows different digital adventure games to be placed at various points on an axis between totally free-form activity and formally structured goal-driven activity, and (b) cross-examination of the indication that a high degree of structural freedom of choice ultimately leads to greater dynamic freedom.

2. Background concepts and research

2.1 Structural freedom of choice and dynamic freedom of agency

As there are games that have developed rules to limit the freedom of choice that players have (Arvidsson & Sandvik, 2007; Domsch, 2013; Sotaama, 2010) and games that allow players to act in order to develop and progress the game plot (Cardoso & Carvalhais, 2013) in which the number of choices is still indefinite (Domsch, 2013), the first differentiation that one needs to make is related to the ways in which the concept of freedom of choice is provided by the game system.

In this broadest sense, we speculate that there are two forms of freedom into games: (a) the structural freedom of choice, which is integrated into the structure of the games by the game designers and (b) the dynamic freedom of agency, which is activated or not by the players during the gameplay. It should be emphasized the importance of players' perspective, which affects the dynamic freedom of agency, as well as its differentiation from the structural freedom of choice that is offered by the game system. The dynamic freedom of agency, which is more rightly reflected by the concept of player agency, according to Eichner (2014), is neither a characteristic of the medium nor is it interactivity; it lies in the perception of the player. Janet Murray (1997), who is often quoted as the founder of agency in game studies, clearly expressed the importance of players' perspective by argued that digital games present ideal circumstances to enable this "feeling of freedom" in its different implementations, as on games we encounter a world that is dynamically altered by our participation.

Furthermore, the assessment of the structural freedom of choice is distinct from the way that players themselves evaluate, positively or negatively, the dynamic freedom of agency and our previous studies (Kirginas, S., & Gouscos, 2016a; Kirginas, S., & Gouscos, 2016b; Kirginas & Gouscos, 2017) have indicated that digital games with the greatest extent of dynamic freedom of agency led to better gaming experience than the digital games with lower extent of dynamic freedom of agency. Furthermore, the research findings showed that increases in the level of children's positive experience are correlated with increases in the children's willingness to play again the game. Therefore, freedom of choice is an important factor of positive gaming experience, and as such it should be optimized. The results of this studies show an important implication, that generally greater dynamic freedom of choice is, to a certain extent, evaluated more positively, and the dynamic freedom of agency that players activate during gameplay has dependence (and possibly barriers) on the structural freedom of choice that is offered by the game, so we are studying the latter.

2.2 Free-form and structured digital games: overview of current studies

Based on the work done by other scholars and ludologists in the past (Berger, Caillois, & Barash, 1963; Frasca, 2003; Mitgutsch, 2008; Salen & Zimmerman, 2004), we have thoroughly discussed in our previous studies (Kirginas, S., & Gouscos, 2016a; Kirginas, S., & Gouscos, 2016b; Kirginas & Gouscos, 2017) the theory that digital games categories can be considered to lie at various points on an axis between totally free-form activity and formally structured goal-driven activity:

(a) The formal end of the axis focuses on the game-dimension of game play, such as rules, goals and structures. These are "structured" digital games which are more strictly defined games: (a) they have an explicit set of winning and losing rules which force players to take specific paths to reach goals and ensure that all players take the same paths; (b) they have pre-determined and clear goals whether these are to beat players' high score, progress to the next level or complete the game in full, etc.; (c) they provide immediate feedback which lets players know immediately whether what they have done is positive or negative for them in the game, whether they are staying within or breaking the rules, moving closer to the goal or further away and how they are doing versus the competition; (d) they have structured designer-generated activities with linear gameplay which confront players

with a fixed sequence of challenges; and (e) they have a defined space and time which include any narrative or story elements in the game.

(b) The informal end of the axis focuses on the play-dimension of game play, such as unstructured, spontaneous and free act of play. These are "free-form" digital games that (a) have no set of rules pre-determined by the game designers or if there are rules they are informal and flexible and the player has freedom to use them or not; (b) exhibit no pre-defined goal but accommodate players' goals that are entirely intrinsic and personal; (c) have no "winning plot", as they are more open-ended; and (d) include nonlinear games which allow greater player freedom than linear games. In free-form games the players have more freedom to decide what to do, to set their own individual goals and determine their rules, path, scenario and plot. As there is no system of rules that defines a victory or a defeat, a gain or a loss, the players' aim is not to win but rather to learn the game through exploration and discovery play. The players are the authors of the play and goals in digital games of this category, and this is the only decision made for the players by game designers.

In fact, the two extreme ends of the axis hardly ever exist in their pure forms: there is a tendency to establish rules and goals for free-form activities, just as there is a tendency to soften the strictness of formally structured games with elements of free-form games. Full freedom of choice is an illusion (Charles, 2009; Krzywinska, 2003)and players are not active but reactive (Arsenault, & Perron, 2009), just as the most common place for agency to occur are the structured activities of games (Murray, 1997). Thus, most of the games can be placed mostly around the middle of the axis between totally free-form activity and formally structured goal-driven activity.

2.3. Adventure Games

2.3.1 Definition of Adventure games

The analysis of the existing studies in the current bibliography shows that there are many definitions of adventure games available. So, the aim of this subsection is to create a new definition capable of explaining better what adventure games are and which fundamental features they have. With this definition in mind we can then decide if any digital game can be classified into the adventure games category.

But what should the definition to look like? The method we are applying here is to go through six previous definitions of adventure games (Table 1) and choose their similarities in order to come to a new definition.

There are probably more commonalities than differences in these definitions. It is noteworthy to mention that often the same concept is expressed in different ways. For example, when researchers mention "objects", "items" or "tools" they all describe the same thing: The means that a player can use in order to solve puzzle and overcome obstacles. This allows us to gather all the points of the definitions under six game features:

Table 1. Existing Definitions of Adventure Games

Author(s)	Definition
(Crawford, 1982)	[…] **the adventurer** must move through a **complex world**, accumulating **tools and booty** adequate for overcoming each **obstacle**, until finally the adventurer reaches the **treasure or goal**
(Herz, 1997)	[…] adventure games are about accumulating an **inventory of items** that are then used to **solve puzzles**
(Prensky, 2007)	[…] **find your way** around the **unknown world**, pick up **objects** and **solve puzzles**
(Rollings & Adams, 2006)	An adventure game is a video game in which **the player** assumes the role of protagonist in an **interactive story** driven by **exploration** and **puzzle-solving**
(Gros, 2007)	**The player** solves a number of **tests** in order to progress through a **virtual world**.
(Van Eck & Hung, 2010)	[...] a broad category of fantasy games in which **the player** has to overcome a series of **obstacles** to reach the final **goal** or **destination**.

- The player moves through a virtual, complex and unknown world (Crawford, 1982; Gros, 2007; Prensky, 2007).

- The player assumes the role of protagonist – hero of the game (Adams & Rollings, 2007; Crawford, 1982; Gros, 2007; Herz, 1997; Prensky, 2007).

- The player tries to reach a goal.

- The games are often based on puzzle-solving or overcoming obstacles through the player's interaction with the game (Adams & Rollings, 2007; Crawford, 1982; Gros, 2007; Herz, 1997; Prensky, 2007).

- The player finds various objects, items or tools that help him to solve puzzles (Crawford, 1982; Herz, 1997; Prensky, 2007).

- Particular emphasis is placed on exploration (Adams & Rollings, 2007; Prensky, 2007).

2.3.2 Game structure in adventure games

While many kinds of digital games can be used in education, adventure games are probably one of the most efficient genres, because they are discourse- and story-driven. In fact, these games are not primarily based on reflex challenges, but rather on stories and problem-solving within a narrative framework. Good adventure games are all about getting into the story, asking the right questions, understanding characters and connecting plot points.

In this line of thought, our research focuses on exploring whether the concepts of freeform and structured games can be found in an interesting way in adventure games. A free-form adventure game is primarily driven by a story that is affected to some degree by the player and non-linear exploration and discovery. Adventure games that focus on the play dimension of gameplay allow

players to walk around and explore the world of the game at their own pace, to learn about the place and gather information, which will inform their decisions later. A free-form adventure game gives plenty of choices where things can happen in any order and players make decisions and live with the consequences. A feature that differentiates free-form games from structured ones is that the provided choices are of different kind. The consequences of these choices have significance, change the game considerably, as well as, have real impact on what happens next, implementing Sid Meier's idea (as is cited by Falstein (2005) that "a great game is a series of interesting and meaningful choices made by a player in pursuit of a clear and compelling goal". In an interesting choice, no single option is clearly better than the other options, the options are not equally attractive, and the player must be able to make an informed choice. On the contrary, a structured adventure game is also driven by a story but the plot is pre-determined by the game designers. Structured adventure games have structured designer-generated activities with linear gameplay which confront players with a fixed sequence of challenges. At the same time, they also exhibit strictly-defined space and time which frame all narrative and story elements in the game. Structured games also provide choices to players, but these choices lead to the same end without affecting considerably the game story and creating the illusion of freedom of choice.

Fundamental to this discussion is the concept of episodes in adventure games. Frequently, adventure games are split into episodes (or chapters or levels). In some adventure games these episodes need to be completed in a linear way, whereas in others one or more nonlinear episode completion patterns are possible. This type of non-linear gameplay gives to designers control over the game plot, but at the same time allows players to have non-linear freedom within each part of the game. It should be noted that there are games where all choices, although giving different items or points, essentially lead to the same narrative result. On the other side, there are games where the choices, even early on, can affect the sets of subsequent options. So simply adding the freedom of individual episodes doesn't capture this overall freedom.

In linear adventures the access of episodes (or chapters) is predetermined. Furthermore, although each of the episodes can be internally non-linear, the episode sequence is unfolded one step at a time. In contrast, non-linear adventures allow players to have an increased perception of freedom while playing the game, give them the feeling of being in control of the plot, and have the potential to result in a stronger sense of immersion in the game.

In our view, the above concepts add an interesting dimension for investigating freedom of choice with a focus on adventure games as the game genre of reference.

2.4 The concept of freedom of choice

The idea that freedom of choice is primary factor for leading a good life is not a new one. Given this it is easy to understand the significance of freedom of choice to evaluate the kind of gameplay.

In the literature review there are two different ways of viewing freedom each of which has been explored by scholars over a long time. According to the first approach (Rommeswinkel, 2014), there is a "positive" view of freedom, focus on what a person can choose to do or achieve, rather than on the

absence of any particular type of restraint that prevents him or her from doing one thing or another; according to the second approach, there is a "negative" view of freedom focuses precisely on the absence of a class of restraints that one person may exercise over another, or indeed the state may exercise over individuals. It is clear that both approaches have much to offer for assessing the freedom of gameplay.

A digital game with freedom of choice allows players to choose which challenges they want to overcome or not. Challenges have multiple ways for players to overcome them. In free-form games players have the ability to choose the order in which they face challenges. In contrast, structured games offer unique solutions to challenges and confront players with a fixed sequence of challenges, players have to follow a single path to one objective and there are no alternate paths or methods for accomplishing this objective.

3. Measures of freedom of choice

In social, political and especially economics science there are many scholars and researchers who have been engaged extensively with the concept of freedom of choice and they have suggested various measurement model of freedom of an individual to make choices. In the body of literature review there are two different views concerning the measurement of freedom: According to the first, freedom cannot be measured (Berlin, 1976; Taylor, 1991); according to the second view, freedom can be measured (Carter, 1999; Carter, 1992; Steiner, 1994). The scholars endorsing the latter view hold that freedom is a quantitative rather than merely a qualitative attribute; hence, extensive measurement of freedom is possible. The importance of such a view lies on the fact that if this position is valid, then these measurement models, with the appropriate adjustments, can be adopted for the field of digital games.

At the following subsection it is provided an overview of three measurement models of freedom of choice: (a) the cardinality measurement model of freedom of choice (Beavis & Rowley, 1983; Pattanaik & Xu, 1990), (b) the social measurement model of freedom of choice (Carter, 1992; Steiner, 1994) and (c) the Kramer's measurement model of freedom of choice (Kramer, 2005). Based on these models we measured the degree of freedom of the selected four adventure games. In many cases, these measurement models have various disadvantages due to the multidimensional nature of the concept of freedom of choice (D'Agata, 2009).

- Cardinality Freedom (F^{card})

The Cardinality measure is suggested by Beavis and Rowley (1983), Pattanaik and Xu (1990) and Arneson (1998). The cardinality conception of freedom of choice is very simple. A person's degree of freedom of choice depends on the number of options in his choice set. The options contribute equally to freedom of choice just in virtue of being different options. Cardinality Freedom takes into account only the set of all free choices that a player can perform in the game. Assuming that Ach is the set of all available choices and Cch (a subset of A) is the set of all free choices that the player can make in the game, the measure of choices that the player is free to carry out would be obtained as

$$F^{card} = |Cch| \geq 0 \qquad (1)$$

where |X| denotes the cardinal number of a set X.

The cardinality conception of freedom of choice has been criticised as too simplistic of a representation for the concept of freedom of choice. Two explanations were put forward as to why the cardinality conception fails: (a) it does not take into account the differences among the options; and (b) it does not take the values of the options into consideration.

- Social Freedom (F^{soc})

The concept of Social Freedom is suggested by Steiner (1983, 1994) and Carter (1999; 1992). According to them the freedom of choice cannot be quantified only by the level of cardinality freedom (number of available free actions), but it must also take into account also the actions that the agent is able to carry out. Following Steiner's and Carter's approach, the social freedom of a game would take into account not only the set of all free choices available in the game, but also the set of all choices (free and unfree) that the player is able to make. Assuming that Cch is the set of all available choices and Tch (a subset of Cch) is the set of all free choices that the player is able to make, the measure of choices that the player is free to carry out would be obtained as

$$F^{soc} = |Tch| / |Cch| \leq 1 \qquad (2)$$

where |X| denotes the cardinal number of a set X.

Unlike cardinality freedom, it is clear that social freedom is a "bi-dimensional" attribute, being determined not only by the number of free actions (cardinality freedom), but also by the number of feasible actions.

Still, this measure of freedom does not allow to distinguish between different cases. For instance, assuming that a game G1 exhibits 10 choices out of which 5 (50%) are feasible free, whereas game G2 exhibits 100 choices out of which 50 (50%) are feasible free, both games would have a social freedom of 0.50, whereas G2 is clearly able to offer the player a more important number (10x) of feasible free choices. Therefore, a notion of freedom would be needed which would incorporate the sheer number of feasible free choices that are finally available to the player.

- Kramer's Freedom (F^{kram})

Matthew Kramer (Kramer, 2005) introduces a new measure of freedom of choice which is a mixture of Cardinality and Social Freedom. Kramer points out that by multiplying the value of cardinality freedom with the value of social freedom "we lay paramount emphasis on each person of conjunctively exercisable freedoms [i.e. cardinality freedom]" (2005). Kramer's freedom, like social freedom, does not take into account only the set of all available free choices, but also the set of all choices that a player is able to make in the game. Assuming that Cch is the set of all available choices and Tch (a subset of Cch) is the set of all free choices that the player is able to make, the measure of choices that the player is free to carry out would be obtained as

$$F^{kram} = |Tch| \times |Tch| / |Cch| \geq 0 \qquad (3)$$

where |X| denotes the cardinal number of a set X.

Kramer's thought and his rejection of Steiner's and Carter's measure can be better understood through the previous example. Kramer's freedom of game G1 would be computed as

$$F^{kram}(G1) = 5 \times 5 / 10 = 2.50 \qquad (4)$$

whereas Kramer's freedom of game G2 would be computed as

$$F^{kram}(G2) = 50 \times 50 / 100 = 25.00 \qquad (5)$$

from which follows that

$$F^{kram}(G2) > F^{kram}(G1) \qquad (6)$$

in line with the fact that the second game (G2), presents the player with a much richer (10x) array of feasible free choices.

Since an adventure games is divided into episodes/levels from which the player is free to choose, we consider that the overall game is the sum of its episodes. Given that the measures Fcard, Fsoc and Fkram are used to adventure digital games, the set of all available choices (the set Ach in the above definitions), all free choices (the set Cch in the above definitions) and all feasible choices (the set Tch in the above definitions) are firstly measured for each episode/level and then they are added together to determine the final result.

4. Research Methodology

4.1 Relative Benchmarking Methodology

The evaluation process is based on the relative benchmarking methodology. Benchmarking is used to ensure the quality of a software or production in comparison to other (Said, Tikk, & Cremonesi, 2014). There are two types of benchmarking: the absolute and the relative benchmarking. Absolute Benchmarking is a quantitative method developed to understand how well a software is doing versus how well it could be doing. With absolute benchmarking we can quickly identify software's opportunities for improvement. On the other hand, relative benchmarking is a quantitative method developed to compare how well a software is doing versus other similar products in order to find the most suitable for a specific context (Said et al., 2014).

In an attempt to rank the games measured along the various metrics as below according to a cross-metric assessment of the freedom of choice that they offer, a relative benchmarking approach has been employed. The following steps were taken in order to proceed with this assessment method:

(a) for each metric, the game with the higher score assigned 3 points, the game with the immediately lower score 2, the game with the immediately lower score 1, and the game with the lowest score 0 points;

(b) the total relative benchmarking score for each game was calculated as a sum of all partial scores ranging from 0 to 12 (12 being the highest possible score in the case of comparing 4 games with relative scores from 0 to 3 along four different metrics).

4.2 Measures of freedom of choice used in the study

Firstly, based on the measures described above we conducted an assessment of a number of selected adventure games in order to place them on a continuum between free and structured form. This study has employed the three measures of freedom of choice described above, namely Cardinality Freedom (F^{card}), Social Freedom (F^{soc}) and Kramer's Freedom (F^{kram}).

Apart from these, one more measure was used, wishing to take into account the episodes into which adventure games are split. As described earlier in this paper, in some adventure games episodes are completed in a linear and in others in nonlinear sequence, allowing players to have linear or nonlinear access to each segment. The additional measure used, therefore, is

- Episode Choice Freedom (F^{epi})

Adventure games are divided into episodes/levels from which the player is free to choose only one, more than one, or any, depending on the structured or free-form plot of the game. Assuming that Aepi is the set of all available episodes/levels and Cepi (a subset of Aepi) is the set of all episodes/levels that the player is free to choose, the measure of choices that the player is free to carry out would be obtained as

$$F^{epi} = |C^{epi}| \times |C^{epi}| / |A^{epi}| > 0 \qquad (7)$$

where |X| denotes the cardinal number of a set X.

4.3. Digital games used in the research

This study aims at formalizing a concept of game structure, and be able to evaluate its presence/absence in different digital games; more specifically, the research aims at the formalization and, eventually, at the quantitative assessment of a concept of game structure in free-form and structured digital games and trying to arrive at typologies so that different digital games can be placed at various points on an axis between totally free-form activity and formally structured goal-driven activity. The freedom of a games and the nature of the choices that make it up are at the heart of the interest of this paper and the subjective assessment as to whether a game is considered free-form or not. Games that give room to many different player-generated gameplay paths may engage a player, while games that constrain players to follow a single path to one objective may disorient them.

Since there are numerous free-form and structures digital games the following set of criteria, which are thoroughly analyzed in 5.1 subsection of this paper, four digital adventure games with different characteristics and gameplay types were selected and used in this research: games with pre-designated goals and pre-designed gameplay paths, which according to their structural characteristics they can be placed at "formally structured" end of the axis between free and structured form: "Journey in the Land of Letters"[1] and "Smarty and the Treasure of Rednose"[2]; and games that, having no pre-designated goals, neither a single "winning plot", give room to many different player-generated gameplay paths and which according to their structural characteristics they can be placed at "free-form" end of the axis between free and structured form: "Lure of the Labyrinth"[3] and "Magic Potion"[4] (Christou, et al., 2009).

Table 2 shows the comparison of selected digital games used in the study in relation to their structural characteristics.

Table 2: Comparison of Selected Digital Games

Games	Journey in the Land of Letters	Lure of the Labyrinth	Magic Potion	Smarty and the Treasure of Rednose
Non linear gameplay		✓	✓	
Multiple solutions to the challenges		✓		
Free sequence of challenges		✓	✓	
Selection of challenges		✓	✓	

5. Research findings

5.1 Measurements of structural freedom of choice along different metrics

In the context of this research, free choices are defined in terms of six key characteristics: (a) choices that impact on the path that player can take, (b) choices that lead to nonlinear gameplay, (c) choices that allow multiple solutions to the challenges, (d) choices that allow players to choose which challenge to overcome, (e) choices that allow players to follow their pace and (f) choices that give control over the game character. All quantitative evaluations were conducted by the two authors. Working independently, evaluators played the adventure games with two rounds. First, they browsed a game in the first round to know its main goal and its mechanics and to see which features it has. Then they played the game in much more detail, and each session was video recorded with screen recorder. Then the evaluators watched again the recordings and tried to represent the gameplay flow and states on diagrammatic formalisms such as State Transition Diagrams, trying to visualize how players interact with the game system. Based on this procedure, the measurements of the selected adventure games along the various freedom of choice metrics are shown at the following table (Table 3).

Subsequently, for each metric, the game with the higher score assigned 3 points, the game with the immediately lower score 2, the game with the immediately lower score 1, and the game with the lowest score 0 points.

Table 3. Measurements of Freedom of Choice along Different Metrics

Games	F^{card}	F^{soc}	F^{kram}	F^{epi}
Journey in the Land of Letters	32	10/47=21%	100/47=2.1	4.00
Lure of the Labyrinth	43	43/45=95.5%	1849/45=41.1	6.00
Magic Potion	50	50/82=61%	2500/82=30.5	3.20
Smarty and the Treasure of Rednose	1	1/21=4.7%	1/21=0.05	0.00

Finally, the total relative benchmarking score for each game was calculated as a sum of all partial scores ranging from 0 to 12 (12 being the highest possible score in the case of comparing 4 games with relative scores from 0 to 3 along four different metrics). The results are presented in Table 4.

Table 4. Relative Benchmarking Scores for the Freedom of Choice of the Games Measured

Games	F^{card}	F^{soc}	F^{kram}	F^{epi}	Total
Journey in the Land of Letters	1	1	1	2	5
Lure of the Labyrinth	2	3	3	3	11
Magic Potion	3	2	2	1	8
Smarty and the Treasure of Rednose	0	0	0	0	0

This quantitative assessment of freedom of choice revealed that Lure of the Labyrinth had a higher total relative score (11 points) compared to other three games studied, providing an indication that it can be considered as the game which offers the higher freedom of choice of all four. Magic Potion scored lower (8 points) than Lure of the Labyrinth and higher than the remaining two games, so that it can be considered as offering an amount of freedom of choice fair for this game sample. Finally, Smarty and the Treasure of Rednose scored (0 point) behind Journey in the Land of Letters (5 points), and can thus be considered as the game of this sample with the least free plot and interaction.

In this line of thought, based on the above findings, the adventure games studied could be placed on an axis between those offering the lowest and those offering the highest freedom of choice as shown in Figure 1.
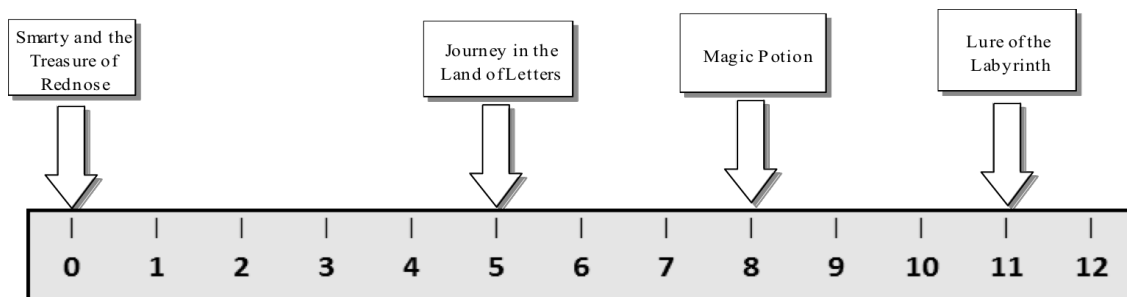
Figure 1. Ranking of Games According to Their Freedom of Choice Measurements

5.2 Impact of structural freedom of choice on dynamic freedom of agency

Finally, in order to cross-examine and appraise the indication that a high degree of structural freedom of choice ultimately leads to greater dynamic freedom of agency and, in general, gaming experience is positively valued by the players, we compared the quantitative assessment with a qualitative assessment of the same games based on the set of FoC heuristics in digital games based on the structural characteristics of digital games and the perceptions of students and/or teachers. The set of FoC heuristics, which is presented in Table 5, has been developed during the first steps of the project aiming at measurement of the concept of freedom of choice in adventure digital games and it is analytically presented in Kirginas & Gouscos (2016b).

Table 5: Set of Heuristics for the Assessment of Freedom of Choice in Digital Games

Number	Heuristic
Heuristic 1	The game gives players freedom of movement
Heuristic 2	The game allows players to follow different paths into the game
Heuristic 3	The game is paced in order to apply pressure but without frustrating the player
Heuristic4	The game gives the player control over the game character
Heuristic 5	The game has no winners or losers
Heuristic 6	The game story encourages immersion
Heuristic 7	The game supports multiple solutions to the challenges
Heuristic 8	The game allows players to choose the challenges that they want to overcome or not
Heuristic 9	The game allows players to choose the order in which they face challenges

In the context of this research heuristic evaluation was conducted by the two authors, without neglecting the benefit of an additional assessment based on the players' gaming experience. Working independently, evaluators took each heuristic one a time and rated the extent to which they agreed or disagreed with each of 9 items of FoC heuristics using a 5-point Likert scale (1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). To get a single score, the two evaluators averaged their scores for every game and every heuristic. The average ratings are shown in Table 6.

Table 6. Measurements of Freedom of Choice

Games	H1	H2	H3	H4	H5	H6	H7	H8	H9	Total qualitative assessment
Journey in the Land of Letters	2	2	5	1	2	1	1	2	3	19/45 = 0.42
Lure of the Labyrinth	3	4	5	1	1	2	3	4	4	27/45 = 0.60
Magic Potion	3	4	5	1	2	1	1	3	3	23/45 = 0.51
Smarty and the Treasure of Rednose	1	1	5	1	2	1	1	1	1	14/45 = 0.31

Such an evaluation constitutes a further research effort in order to establish a more integrated value-based approach for the evaluation of the concept of the freedom of choice. It should be noted that, in this pilot research, the proposed methodology is used as an assessment tool of selected adventure games, but at the same time the selected games (it is an indicative and not exhaustive selection of the available games) are used, indirectly, as a sample to test the appropriateness of the methodology itself.

To the extent that, as shown by the results below, the application of the methodology has led to the emergence of some important elements, is presumed the interest of the adopted methodological

approach, which can certainly be improved by involving more experts and/or players, further weighting of the results, as well as specialization in different categories of digital games.

This qualitative assessment of freedom of choice again revealed that Lure of the Labyrinth had a higher score (0.60) compared to other three games studied, indicating that it is the game which offers the higher freedom of choice of all four. Magic Potion scored lower (0.51) than Lure of the Labyrinth and higher than the remaining two games, so that it can be considered as offering an amount of freedom of choice fair for this game sample. Finally, Smarty and the Treasure of Rednose scored (0.31) behind Journey in the Land of Letters (0.42), and can thus be considered as the game of this sample with the least free plot and interaction.

Based on the above findings, the adventure games studied could be placed on an axis between those offering the lowest and those offering the highest freedom of choice as shown in Figure 2.
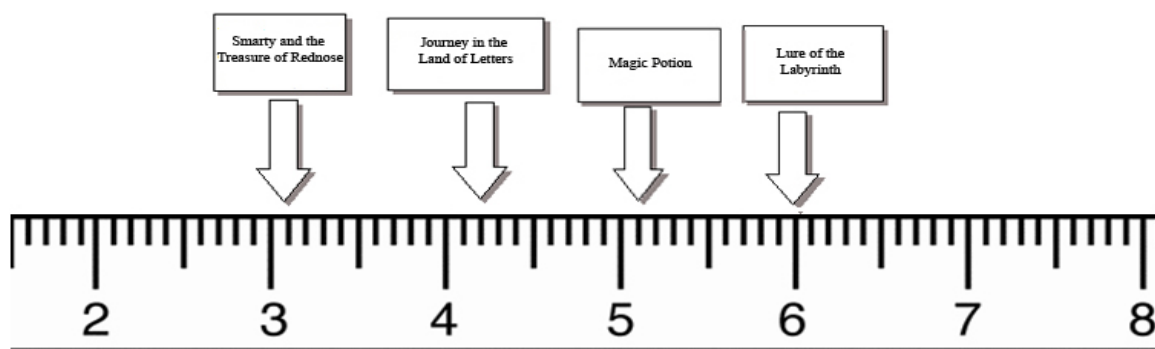
Figure 2. Ranking of Games According to Qualitative Assessment

The results from these quantitative assessments, as indicated in Figure 1, are in line with the qualitative assessment, as indicated in Figure 2, providing an indication that quantitative measurements of structural freedom of choice in adventure digital games can faithfully reflect their free-form or structured nature, as also reflected by qualitative structural characteristics-based assessments.

6. Concluding remarks and points for further research

Beginning with the assumption that freedom of choice can be measured (Carter, 1999; Carter, 1992; Steiner, 1994), we propose four models for the quantitative assessment of a concept of freedom of choice in free-form and structured digital games, in order to arrive at a typology that allows different digital games to be placed at various points on an axis between totally free-form activity and formally structured goal-driven activity The findings of this pilot approach, although covers only a part of the experience that emerges during Human – Computer Interaction (player – game interaction) which should be further investigated, strongly suggest that the measurement models described in this paper can be used to measure the structural freedom of choice in adventure games in order to characterize them as free-form or structured games.

In this respect, a quantitative approach, such as the one proposed in this paper, could be considered advantageous, in the sense that (a) it delivers assessments which are more clearly structured and can be better substantiated, (b) it is more objective than qualitative method based on data, and (c) needs little human resources in order to be implemented.

However, there are still issues that must be addressed, in order to fully measure the concept of freedom of choice:

Freedom of choice along games is not linear. That means that there are games where all choices, although giving different items or points, essentially lead to the same narrative result. On the other side, there are games where the choices, even early on, can affect the sets of subsequent options. So simply adding the freedom of individual episodes doesn't capture this overall freedom.

Mechanistic models for examining player experience are objective, low cost and can save time. However, there are some very complex and open-ended games with an enormous number of choices and hence it is difficult to be measured with qualitative methods.

The definition and interpretation of free choices in adventure digital games is a highly subjective issue, so it is important for all the involved game researchers to use a valid coding system, in order to map the concept of freedom of choice in their entirety.

The significance of the concept of structural freedom of choice is even greater, especially when we talk about digital games for learning purposes. Free-form digital adventure games, with their structural features, alter player experience and create a positive condition of attention and more receptivity for learning. Such games can lead to more engaging and more free-form learning processes and these latter processes may in turn be able to better support innovative approaches to learning and, more generally, to the acquisition of 21st century transferable skills (Kirginas, S., & Gouscos, 2016a; Kirginas, S., & Gouscos, 2016b; Kirginas & Gouscos, 2017). In the same line of thought, we speculate that digital games with freedom of play can be used across multiple learning subjects, put students at the centre and engage them actively in the learning process, promoting 21st century transferable skills such as discovery and experiential learning, collaboration, decision taking, active and critical thinking, creative thinking, problem solving skills. On these premises, school teachers and educators who want to encourage innovative learning processes could use free-form digital games in order to enrich their teaching methods and enhance students' learning.

On the other hand, the suggested measurement models face a couple of problems. The first difficulty concerns the measurement of "free" choices. Clearly, there is no guarantee that every choice in the game can be measured. The second problem concerns game with an enormous number of choices. There are games, like open-ended games, which have huge trees of moves that have never been mapped in their entirety. Of course, according to Wolf (2006), there is no need to map the entire tree of a game to get an overall sense of how its freedom of choice is structured.

Furthermore, the results are promising, but the study conducted has its limits: Firstly, a limited sample of four digital games had to be selected for this research from a large population of available free-form and structures adventure games. Secondly, the study was limited only to adventure games

and not to other genres of digital games. Thirdly, the characterization of choices with which students interact have be done by the authors of the paper based on the literature review, without considering students' perceptions and/or preferences. So does not allow for extensive generalization to be drawn from its results.

However, the work described in this paper is a good starting point for a larger project, including issues such as:

- a survey of selected games with the research question if there is a significant correlation between the level of freedom and students' preference, namely the more higher the level of freedom in a game, the more is students' preference about this game.

- a substantial direction of further research work has to do with the limits that freedom of choice has, as a factor for creating games that offer better experience and higher engagement. Should the objective of digital game design be to maximize freedom of choice at all costs? The exploration of the optimum level of freedom of choice seems, at this time, to be one of the most interesting directions of research that we would like to pursue.

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Interactive Media as a socialization Agent: Influence of WhatsApp among Adolescents in Nairobi

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Abstract

This study focused on interactive media as a socialization agent. The general study objective was to establish influence of WhatsApp mobile application on adolescents, while specific study objectives were; to establish the level of effectiveness of parents/guardians in monitoring adolescents WhatsApp use, assess motivations behind adolescents WhatsApp preference and establish how adolescents access WhatsApp mobile application. Qualitative research approach was used. Data was collected through; semi-structured interviews, participant observation, informal conversations, and focus group discussions. Convenient sampling was used to ease accessibility of target audience. Thematic analysis as qualitative data analysis strategy was used. Data was presented in form of narratives. It was established that parents do not monitor adolescents as they use WhatsApp application, reasons such as parents not being technological savvy, their negative attitude towards learning communication technologies and too much trust on adolescents contributed to lack of monitoring adolescents interactions on WhatsApp. WhatsApp influences were; addiction which resulted in irregular sleeping patterns among adolescents and interference on their studies. Erosion of family values and anti-social behaviour among adolescents were also noted as effect of WhatsApp addiction. The study established that, adolescents' preferences to use the application were; popularity of WhatsApp hence viewed as trendy and fashionable.

Keywords: *WhatsApp, Adolescents, Addiction, Smartphone, Interactive Media*

1. Introduction

Socialization is a process that involves individual learning to adjust in a manner that is approved by society. Socialization involves variety of outcomes such as; acquisition of rules, roles, standards and values across the social, emotional, cognitive and personal domains. Developments in digital media offer consumers more control, more choice and more opportunities for social interaction through control over what they watch, how they watch it and who they share the experience with. Digital technology has already changed the world and as more children go online, it is changing childhood. Children and adolescents under the age of 18 years account for an estimated one in three internet users around the world.

A growing body of evidence indicates that children are increasingly accessing the internet at younger age, and in some cases children under the age of 15 years are likely to use the internet as adults over the age of 25 years. As children grow, the capacity of digitalization to shape their life experiences grows with them, offering seemingly limitless opportunities to learn and socialize, to be counted and to be heard.

Although most children who are online view it as a positive experience, many parents argue and get worried that immersion in screens is making children depressed, creating internet dependency and even contributing to obesity.

Interactive media provide a rich and unprecedented environment for experiential communication campaigns geared to young people. These media such as smartphones and tablets is increasing among the adolescents rapidly. Nevertheless, research regarding the impact of interactive media on the youth's behaviour has lagged behind. Guidelines regarding interactive media use among adolescents have not yet been formulated. Interactive media is the integration of digital media including combinations of electronic text, graphics moving images and sound into a structured digital computerized environment that allows people to interact with the data for appropriate purposes.

1.1 Study background

There are several types of interactive media such as Facebook, WhatsApp, Twitter among others. WhatsApp is an instant messaging application for Smartphone. It helps users to create groups, send unlimited messages, share, pictures, videos, texts. WhatsApp is supported on iPhone, Android, Blackberry Windows Smartphone (Patel, 2014). The accessibility of internet provides vast opportunities for young people to learn research and interact with friends.

The Children's Act No.8 of 2001 of Kenya makes provision for parental responsibility, fostering, adoption, custody, maintenance, guardianship, care and protection of children. This provision extends to protecting children in the cyber space. Every child has a right to seek, receive and impart information. Children rights defenders therefore have a duty to ensure that children have access to information from national and international sources. The information should be available for the promotion of the child's physical and mental growth. The information should promote the child's social and moral well-being. However, the material and information that the child may be exposed to may be injurious to its social and moral well-being. In the recent past, websites and published materials have been developed targeted at the adult audience. Some of these materials are not appropriate for children. It is therefore the mandate of the parents, the government and other children rights defenders to ensure that children are shielded from such material that may be detrimental to their social and moral well-being. Parents have an obligation to the children's welfare, health and development. Parents also struggle with the limits of their children's privacy. Rights are usually interrelated. For instance, as much as a child has a right to privacy, it is also the duty of the parent to care for and prevent any form of abuse being meted on the child (Youth Alive Kenya, 2011, p. 6).

Children and young people as well as adults increasingly live out important parts of their lives with the assistance of new technologies brought about by interactive media and internet technologies and as a result the nature of risks they take have become inextricably entangled with wider aspects of their behavior. It is now no longer possible to draw neat lines between so called "internet issues" and "real world problems" (International Telecommunication Union, 2009).

Kenyan parents are increasingly getting wowed by their children ability to master with ease the working of electronic gadgets, and it is nowadays hard for youngsters to imagine that their parents

touched a computer or used a Smartphone very late in their lives. The latest government economic survey says it is getting easier for Kenyans to access the internet, pointing to tricky times ahead for youngsters who often take their naivety online (Daily Nation, October, 9th, 2016).

The availability of internet at homes, schools and in library has increased children use of mobile phones to access internet and other interactive applications such as Facebook, WhatsApp. Parents have been placed on the front line of protecting children from abuse on the internet. It has been observed that most of the children who are addicted to the internet have absentee parents. The parents leave home early to go to work and come home late at night and never have sufficient time to be with their children. Children use their free time to play computer games and browse on the internet. They are bombarded with huge loads of information that they are unable to manage, hence unable to identify asses and manage the potential risks (Youth Alive, Kenya, 2011).

1.2 Problem statement

The youth are best consumers of internet and technology, unfortunately parents are not able to move at the same pace in technology with their children hence may not be able to understand the things their children are doing over the internet and guide them accordingly (Youth Alive,Kenya,2011, p.3). Smartphone's are fuelling a bedroom culture with online access for many children becoming more personal, more private and less supervised (UNICEF, 2017).

One in every three internet users worldwide is a child and too little is done to protect them from the perils of the digital world and to increase their access to safe online content (UNICEF, 2017). Chege, (2018) posits that in Kenya local experts are already worried about the pervasiveness of mobile phone addiction among children and adolescents especially in urban youth. Parents are complaining that their children are becoming anti-social because of their mobile phones; they fight to make them eat, do homework, shower or even sleep (Daily Nation, January, 30th, 2018). This study envisages bringing to light the challenges parents face in keeping up with the ever changing communication technologies; with focus on WhatsApp mobile application.

1.3 Objectives

The study's general objective was to establish influence of WhatsApp mobile application on adolescents. The specific objectives were:

(i) Establish effectiveness of parents/guardians roles in monitoring adolescents WhatsApp use

(ii) Determine motivations behind adolescents WhatsApp preference

(iii) Establish how adolescents access WhatsApp mobile application

2. Literature review and theoretical framework

Creswell (2014) posits that one component of reviewing the literature is to determine what theories might be used to explore the questions in a scholarly study.

Rapid change in technology has led to development of several interactive media applications such as WhatsApp which has tools that support instant messaging and chats. Instant messaging (IM) tools allow people to connect to others online directly and have conversation through texts or video call. People can add the names of individuals they know in their contact list and see if they are online. The conversations or charts can be held with one person (bilaterally) or with a group of people (multilaterally). The interactive media applications also allow peer-to-peer file exchange, where individuals can download or upload files from their storage disc. The exchange of charts, videos can sometimes contain child abuse material (ITU, 2009).

As media technology develops and as mass media continue to dominate our daily lives, media influence (interactive media included), continue to play an active role in changing our opinions, attitudes and behaviours (Kevin, 2003). This therefore means that online interaction platforms are likely to act as agencies of socialization especially among adolescents if not closely monitored by parents. However, for parents/guardians to be able to properly gate-keep on interactive media socialization, their understanding on the use of these applications becomes imperative so as to bridge the gap of technological divide between adolescents and parents/guardians.

2.1 Theoretical framework

Researchers increasingly use a theoretical perspective in qualitative research which provides an overall orienting lens for the study of questions of gender, class and race. Creswell (2014) posits that one component of reviewing the literature is to determine what theories might be used to explore the questions in a scholarly study.

Littlejohn and Foss (2009), posits that Uses Gratifications and Dependency theories arise from a line of work that focuses on the interdependent relationships among media systems, the larger social system and media audiences. Together, the two theories predict that audiences rely on media to gratify specific needs and in the process develop dependencies on the media. The more an individual depends on a specific medium to fulfill needs, the more that media will become important to that person. This can in turn lead to different patterns of media exposure and use. Ultimately, this can lead to cognitive, affective and behavior effects of media use. Urban adolescents rely more on WhatsApp so as to keep in touch with their friends during holiday seasons, get in touch with the outside world and get to know what is trending, this is motivated by the fact no one wants to be left out with information among their peers and they always want to be the first to break news on what is going on. The use of WhatsApp also makes them to fit into their peer groups, hence sense of identity. WhatsApp is therefore seen to gratify more the social needs of adolescents thereby creating dependency for the interactive media application. This is argument in support of a recent report in the Daily Nation Newspaper, January, 30th, 2018 where parents were complaining that their children are becoming anti-social because of their mobile phones; they fight to make them eat, do homework, shower or even sleep.

This process of reliance on media can be examined from either a macro- or a micro-level approach. A micro-level approach looks specifically at the role of media in the lives of an individual, examining how people use and depend on media to meet specific goals or needs. From a micro-perspective, a

person will become more dependent on the specific media that will satisfy a variety of needs over those that satisfy just a few needs. These increased dependencies, in turn, lead to an increased influence of the media in our lives (Littlejohn and Foss, 2009). For example at a micro-level, an urban adolescent knows that he can get news from television or radio at home, however this channels of information only gratify part of his/her needs. But the mobile phone through interactive platforms such as WhatsApp will gratify certain specific needs such as sharing information through video, texts with her peers, thereby gratifying his/her sense of belonging among the peers. In turn there will be an increased dependency on WhatsApp use more than watching television or listening to radio, therefore making WhatsApp to be influential more than any other media.

At macro-level approach to dependency involves examining the interdependence between audiences, the media system, and the larger social system. According to the theory, the media system, social institutions, and the audiences exist in a state of mutual interdependence. Each has goals they must accomplish and resources to offer the other. For example, the media system relies on the larger social system for structure and legitimacy and on audiences so they can create advertising revenue. In turn, the media offer information dissemination for the larger social system and entertainment and information for the mass audience. This highlights the power and the effects the media can have on our daily lives (Littlejohn and Foss, 2009).

3. Research methodology

Narrative as a technique in qualitative approach was used to generate data. Riessman, 2008 posit that narrative research is a design of inquiry from humanities in which the researcher studies lives of individuals and asks one or more individuals to provide stories about their lives.

3.1 Target population

The study targeted adolescents between the ages of 10 to 17 years in Nairobi and their parents/guardians. The target population were from four middle income estates in Nairobi which are; South B, South C, New Ngara and Imara Daima.

3.2 Sampling technique and sampling size

Convenient sampling was used. Convenient sampling eased accessibility of the target audience since adolescents in every household visited was interviewed. A sample of 25 participants from each four estates was obtained resulting to total number of participants at 100. The sampling took a period of 10 days where each day 10 households were interviewed.

Table 1. Sample Size

Nairobi Estates		
Estates	**No. of Participants**	**Obtained Sample**
South B	25	23
South C	25	15
Imara Daima	25	23

New Ngara	25	24
Total	**100**	**85**

3.3 Sample frame

Tables 2, 3, 4 & 5 show the various sampling frameworks used in each sampled area of study.

Table 2. Summary of the sampling frame used for South B Estate

South B Estate (Expected participants; n= 25)		
Adolescents	**No. of Participants**	**No. of Parents Participation**
Boys	10	5
Girls	8	
Total	**18**	**N = 23**

Table 3. Summary of Sampling Frame used for South C Estate

South C Estate (Expected participants; n= 25)		
Adolescents	**No. of Participants**	**No. of Parents Participation**
Boys	7	3
Girls	5	
Total	**12**	**N = 15**

Table 4. Summary of Sampling Frame Used for Imara Daima Estate

Imara Daima Estate (Expected participants; n = 25)		
Adolescents	**No. of Participants**	**No. of Parents Participation**
Boys	8	4
Girls	11	
Total	**19**	**N = 23**

Table 5. Summary of Sampling Frame Used for New Ngara Estate

New Ngara Estate (Expected participants; n= 25)		
Adolescents	**No. of Participants**	**No. of Parents Participation**
Boys	9	5
Girls	10	
Total	**19**	**N = 24**

3.4 Data collection tools and techniques

Qualitative data was collected through semi-structured interviews to collect views of parents/guardians and establish their efficacy in monitoring adolescents when using different interactive media applications more so WhatsApp. An audio recorder was used to capture all verbal explanations. During the interview open, check/reflect, follow-up, probe and questioning method was used. Informal conversations were employed so as to engage adolescents in their natural settings as far as possible.

Focus Group Discussions were also conducted with adolescents in the four middle class estates. Presence in the discussions were adolescents who were attending day secondary and primary schools, boarding secondary and primary schools. The mixed up helped to give interesting varied opinions why adolescents engage in interactive media platforms more WhatsApp.

3.5 Data analysis and presentation

Thematic analysis as qualitative data analysis strategy was used, hence an inductive approach where themes emerged from data. During data analysis, the following stages were followed: transcribing data, re-familiarising with the data, first phase coding, second phase coding, third phase coding and product report. Data was presented inform of narratives.

4. Results

The general information of the respondents was adolescents between the ages of 10 to 17 years. They were also asked about their gender, if they had Smartphone's and WhatsApp installed. It comprised of adolescents in primary and secondary day schools as well as those in primary and secondary boarding schools. Parents/Guardians who were involved in the study include; those who have college education, no college education, employed, self employed, their age were 30 years and above. During semi-structured interviews, parents were asked if they have home internet and if they use Smartphone's. Discussions from the study have been presented in relation to the research objectives as outlined below.

4.1 Effectiveness of parents/guardians roles in monitoring adolescents WhatsApp use

Semi-structured interviews with parents/guardians were to establish how they monitor daughters/sons use WhatsApp as they interact with friends. Among parents it was established that they don't monitor how their sons or daughters use WhatsApp, lack of technological know-how of how they can monitor WhatsApp use emerged. While parents themselves use WhatsApp and as shown in the study, 82 percent of those who participated in the study own a Smartphone and use WhatsApp, however, few were aware that through WhatsApp Web Client they can connect their son/daughter WhatsApp account to their personal computers, phones, ipads and laptops so as to monitor how adolescents use the application to chart with friends. This method though not technically sophisticated can help in monitoring of the application use without creating a lot of tension between the child and the parent. Fear of continuous tension between parents and adolescents is another bottle neck in monitoring adolescent WhatsApp use. The word monitoring and control of WhatsApp use was ambiguous to most parents, while monitoring involved being able to see charts, groups happening on the platform; control means deciding when the son /daughter should be in possession of the phone. Parents therefore only controlled when their children are in possession of the phone through means such as putting a curfew on when to use the phone.

Some parents also were found to worry much about phone calls and short message (sms), than WhatsApp charts, they pointed out that they go through their sons/daughters call logs and short

message folders to check their communication with their friends. This was more so in homes where there is no internet which according to the findings 35 percent of study households didn't have internet. In the homes where there is internet most parents were found to control children phone possession. Parents also noted that if they want to monitor their son/daughter phone; then they physically go through WhatsApp charts.

It was established that parents do not seek their children consent when they want to check their messages, call logs and WhatsApp charts. This causes tension between parents and children as most parents noted that their sons and daughters are never comfortable whenever they take their phones. However this was among adolescents of ages 16 and 17 years.

Among employed parents, other reason for not monitoring their sons/daughters WhatsApp use was because of lack of time. Parents among this category also noted that they trust their sons and daughters will be responsible in the use of the applications hence no need to keep monitoring them. They further posited that they also communicate with their sons and daughters through WhatsApp while at work hence they need not to worry so much about the application. Employed parents believe that WhatsApp is the communication trend among current generation and since all their sons/daughters friends are on the online space, then the son/daughter should be left to make use of the technology. While self employed parents noted that they physically take the phone from daughters to go through it. This method of monitoring was found not to be effective as most teenagers noted during focus group discussion that they immediately delete any communication on their WhatsApp that they believe will make them to be reprimanded by parents.

Despite most parents having college diploma qualification at 41 percent, undergraduate at 35 percent and postgraduate at 18 percent, they still don't have enough exposure in regards to interactive media tools (WhatsApp) that can enable them monitor their children in the online space. Some parents were interested in only knowing the basic aspects of WhatsApp and had no interest in knowing its monitoring tools. There is also assumption that learning communication technology tools is too difficult and demanding and should be left to teenagers who are willing to learn. In fact in some instances, parents admit that it is their son/daughter who introduced them to the WhatsApp and they are the ones who know how it works.

"My son who is 15 years installed the application in my Smartphone, and took me through how it works, in fact when I experience a problem with the application, he is the one who sort it out and I don't know how", One parent said. In such scenario the son has the monopoly of using the application and since the parent view the teenager as a super user; he will not try to monitor how a super user interact with others.

4.2 Motivations behind adolescents WhatsApp preference

During Focused Group Discussions (FGD) and Informal Conversations adolescents gave varied reasons as to why they prefer WhatsApp application more than other interactive social media platforms. One reason was on the popularity of the application among their friends; hence it is easy to locate their friends provided they have their phone numbers. Another reason was that the application has got

interesting interactive media tools such as video calls that allow them to interact with friends, the application also provide room for creating many groups hence they stay in contact with many friends as possible. Also so long as you have enough memory space in your phone the application does not limit the number of videos, pictures and texts on can share.

Among adolescents from households with home internet, which form 65 percent of the study, adolescents prefer WhatsApp because of free WiFi at home hence they don't need to spend on the bundles. Adolescents also viewed the interactive media application as *"trendy and fashionable"* hence the need to use it. This further gives them a sense of belonging.

The virtue that most parents are not technological savvy to be able to instantaneously monitor their charts is also another motivation for adolescents. Some adolescents noted during informal discussion that he can easily interact with his girlfriend who has strict parents and after the chart they delete the messages hence parents cannot find anything on the phone. In fact many teenagers are aware of the function of WhatsApp Web Client than parents. Also owning a Smartphone which is the platform for WhatsApp is a motivational factor.

Also in households where there are older siblings, adolescents' are motivated to download the application because their older siblings communicate with friends through the application.

Other motivation for adolescents WhatsApp preference is that they are able to speak freely and share moments that matter.

4.3 Ways adolescents use to access Whatsapp application

According to WhatsApp Terms of Service, (2016), a person is eligible to use the application only if they are 13 years and above. However according to the study findings during informal conversation and focused group discussion; adolescents as young as 10 years are using the interactive media application. When asked how they managed to access the application majority said they used their father, mother, brother, and sister or aunty mobile line to register in the application. This was further facilitated by the fact that most people own two to three mobile phone numbers and are actively using only one or two. The dormant number may be in use by an adolescent as a WhatsApp number.

5. Summary of Findings, and Conclusions

From the findings, 80 percent of adolescents participated in the study, while 20 percent of parents took part in the study. In regards to adolescents the study established that most respondents were aged between 14 to 16 years forming 85 percent of the study participants. This further indicate that most adolescents WhatsApp concentration use lies within the age group. Most of the respondents were adolescents in boarding secondary schools which were at 44 percent. The findings also indicate that 88 percent of adolescents in the study had Smartphone's and WhatsApp application installed. Therefore WhatsApp use is also high among students in secondary boarding schools during the holiday period. This can be attributed to the fact that they have been away from home and the high urge to connect with estate friends, keep in touch with classmates during holiday, participate in WhatsApp church youth

groups. Unlike their counterparts in day secondary schools who often meet their friends hence low urge to keep in touch.

Study findings also indicate that 65 percent women participated in the study. This shows that it was easy to locate women at home more than men hence women form strong pillars in the socialization process. The men who participated at 35 percent were mostly found during weekends, more on Sundays. Most parents in middle class estates were established to have college diploma qualification and above. 41 percent of parents had diploma qualification,35 percent had undergraduate .Also most parents were employed which was at 59 percent. Also a reason why adolescents WhatsApp use monitoring is low among employed parents because of lack of time to be at home with the child. Households with home internet in the study were at 65 percent. This shows that internet penetration within Kenyan urban areas is on the increase more so in middle class estates. It also shows that most adolescents from households with internet exhibit high online presence more so WhatsApp use. When parents were asked about who has the custody of WiFi, they said that the adolescents know the passwords and can log on the internet anytime. Some parents also said that it keeps them indoors more so the girls, however what they overlook were that still the girls maintain active interaction with male and female friends online through WhatsApp and the influence of face to face interaction had been blurred with WhatsApp as an interactive media application.

Also most parents in the study owned Smartphone, this was at 82 percent. Every parent who owned a Smartphone was using WhatsApp to communicate with friends and check on affairs at home while in the office.

5.1 Influence of WhatsApp on Adolescents

The study sought to establish the influence of WhatsApp mobile application on adolescents in Nairobi. The study concentrated on four middle class estates in Nairobi, that is South B, South C, Imara Daima,and New Ngara Estate. The study established that parents complained that the young adolescents were mostly glued on their Smartphones charting, sharing videos, pictures, emojis with their friends, an act which make them to lose concentration in their studies. Parents from households with WiFi noted a concern that their daughters and sons can stay the whole day in the house just on WhatsApp, hence they don't mingle with their peers on face to face as they used to. It even makes them to forget doing some house chores at home. A mother complaint bitterly that her daughter has grown lazy since she started WhatsApp interaction with friends. She has to remind her of everything she needs to do, an act which is causing tension between her and the daughter. The addiction in regards to WhatsApp use is worrying where other adolescents carry the phones even to churches making them not to concentrate on sermons. To respond to this, churches have banned use of phones and access of interactive media application such as WhatsApp among adolescents during sermons.

Parents say that their sons/daughters no longer open up to them and keep too much to themselves. Parents further complain on type of communications that happen on WhatsApp platforms. A lot of vulgar talk and obscene pictures exchange occurs on the WhatsApp groups without parents ever

noticing. During a semi structured interview, a parent said that she doesn't know how to protect her young daughter to the outside world because of kind of influence that happen on WhatsApp groups.

WhastApp application has also opened-up avenues for adolescents to meet and chart with strangers who can lure them to inappropriate acts. In other word some culture of disorder among adolescents is natured from WhatsApp influence.

The study also established that WhatApp addiction has led to unhealthy sleeping patterns among adolescents. Children chart with their friends until later into the night when parents are a sleep. This is further confirmed during an informal conversation with an adolescent who said that most of his friends are online at night when people are asleep hence the best time to chart since during the day there are a lot of activities going on and the fear of being scolded at by the parents. This means that most adolescents WhatsApp group are active at night. WhatsApp addiction was so much that during informal conversations most adolescents especially those from households with home internet admitted that a day cannot pass without charting on WhatsApp.

Because of WhatsApp influence among adolescents, the study established that most parents prefer their sons/daughters to start using the application at 18 years when they are responsible enough and are now at legal age of adult. However, the terms and service of WhatsApp, 2016 that allows 13 years and above to use WhatsApp poses a great challenge.

5.2 Establish effectiveness of parents/guardians roles in monitoring adolescents WhatsApp Use

The study established the efficacy of parents in monitoring WhatsApp use by adolescents. It was found out that parents do not monitor how their adolescents use WhatsApp. Part of this is attributed to not being technological savvy so as to keep up with trends of interactive technology applications such as WhatsApp. In the study no parent admitted to have tried the use of WhatsApp Web Based Client to sync their daughter/sons WhatsApp with their Personal Computer, laptop or ipad so as to be able to monitor how their daughter use WhatsApp. Even the fact that most homes in middle class estates there is presence of a laptop, an ipad or desktop computer and presence of unlimited internet. In fact some parents said they do not know what WhatsApp Web Based Client is and could not even locate it when they opened their WhatsApp. In fact some adolescents, more so those at 16 and 17 years of age said that they are the ones who installed WhatsApp to their parents phones and showed them how to use the application and whenever the application doesn't work, parents call them to help them out. In such scenario a parent will not be able to monitor how a child uses the application.

Another reason pegged to parents not being able to monitor their adolescents WhatsApp use was attitude towards technology. While most parents in the study had college diploma and undergraduate qualification at 41 percent and 35 percent respectively, there was negative attitude towards learning in detail interactive media applications such as WhatsApp, hence once a person has known basic functions then he/she is not bothered with knowing the rest. Also the notion that learning how an application works is a technical thing that only a person who has done engineering or Information Technology can understands the monitoring tools is a big challenge in monitoring adolescent WhatsApp use.

The term control WhatsApp use and monitor WhatsApp use was ambiguous among respondents. Parents mostly controlled adolescent's phone use through confiscating and keeping the phones away from the children then giving them back later. This does not play monitoring role because they still do not the kind of conversations the child is immense in when they have their phone back. Adolescents have also adopted a pattern towards use of WhatsApp whereby during the period that a parent has confiscated the phone then they can borrowed from a friend and still being able to chart.

Parents who said to be monitoring their son or daughter WhatsApp use were using the method of physically going through the charts. This was not found to be effective since adolescents are aware of this and could immediately delete a text, obscene graphic or video after watching so that the parent cannot find. It therefore leaves the use of technology as the best methodology to offer instantaneous WhatsApp monitoring among adolescents.

5.3 Motivations behind adolescents WhatsApp preference

The study established that WhatsApp was a popular interactive application among adolescents. The fact that most of their friends are using the application to communicate makes it "*trendy, fashionable and the in thing*", this therefore was a motivation factor for its preference. Also WhatsApp makes it easy for them to locate their friends. Once they are in possession of a friend's mobile number, there can easily locate him or her and start interacting. Another reason was that the application has got interesting interactive media tools such as video calls, emojis, and ability to record voice, videos, pictures and share. The application also provides room for creating many groups hence they stay in contact with many friends as possible; this further gave them a sense of belonging among their peers. Also so long as you have enough memory space in your phone the application does not limit the number of videos, pictures and texts one can share.

Presence of home internet in many households was also a motivating factor for WhatsApp preference hence no daily bundle cost is incurred while using WhatsApp. During the study 65 percent of households were found to have home internet. Adolescents from these households had high interactions on WhatsApp than those from household without internet.

The study also established that the virtue that most parents are not technological savvy to be able to instantaneously monitor their charts is also another motivation for adolescents. Adolescents also view WhatsApp as a platform where they are able to speak freely and share their concerns. This motivates them towards opening up without fear hence preference for the application.

5.4 Ways adolescents use to access WhatsApp application

The study established during informal conversation and focused group discussion that adolescents as young as 10 years are using the interactive media application, even though WhatsApp Terms of Service, (2016) states that only a person who is 13 years and above is permitted to use the application. When asked how they managed to access the application majority said they used their parents, sisters, brothers or aunty mobile line to register in the application. This was further facilitated by the fact that most people own two to three mobile phone numbers and are actively using only one or two. The dormant number may be in use by an adolescent as a WhatsApp number.

6. Conclusion

This study concludes that WhatsApp as an interactive media application causes addiction among adolescents if there is no proper monitoring and control on how adolescents engage with the application. Some of the notable effects among adolescents in Nairobi's South B, South C, Imara Daima and New Ngara estates include; disruption from studies which leads to lack of concentration, thereby poor performance in school, irregular sleeping patterns among adolescents; it was established that adolescents actively chart during the night when they are in their bedrooms and away from the *'hawk'* eyes of parents hence sleep very late in the night. Another effect of WhatsApp was tagged on erosion of values among adolescents; sharing of inappropriate videos, texts and pictures among friends and WhatsApp groups, plus being exposed to talk to strangers on the platform was noted by parents to erode good values which they have installed in them.

In regards to parent's efficacy in monitoring how adolescents are interacting on WhatsApp platform, it was established that parents are unable to effectively monitor adolescents WhatsApp use because of reasons such as; not being able to keep up with the ever changing communication technologies, more so the interactive media applications such as WhatsApp. This means that parents are not technological savvy which is pegged to their negative attitude towards learning WhatsApp application tools in detail, also the notion that the application belong to young people and they see no need in getting actively involved. Among the employed parents too much trust on their adolescents that they are able to make right decisions and lack of time to spend with adolescents led to lack of active/no monitoring of adolescents WhtasApp use.

Factors such use WhatsApp being popular communication tool among adolescents in urban areas, made the interactive media application to be viewed as trend hence its preference and motivation towards its use among most adolescents. It was also established that adolescents have banked on lack of technological know-how among parents hence they are convinced that their parents cannot monitor the remotely but can only physically check their charts, a methodology which they bypass by immediately deleting any inappropriate chart that they believe might be viewed inappropriate by parents. Among middle class, the penetration of home internet also fueled the use of WhatsApp as a communication tool among adolescents.

While there is evidence of negative effects among adolescents, parents also viewed the application as a positive thing if its use can be monitored well. Adolescents can reading and share learning materials through the application especially the e-books every child gets an equal access to learning materials, it can be used to encourage teacher-adolescent interaction during holiday periods, such interactions can include sharing of class assignments.

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Increased Consumerism in a Networked-Nigeria: A Study on the Effect of E-Malls and Social Media on Youth Spending

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Abstract

This research focuses on identifying how electronic shopping malls and their adverts on social networking sites might be affecting consumer spending with particular reference to Nigerian youths. The study made use of the quantitative methodology - 1,600 questionnaires were distributed and 1,349 were considered suitable for use in this study after discarding damaged or incorrectly filled questionnaires. This study adopted a multi-disciplinary approach when selecting the relevant theories to serve as the backdrop for the study; shopping preference theory and technological determinism were used as the theoretical background to the thesis. At the end of this study it was proven that there is indeed a relationship between online shopping malls and youth spending patterns. It was proven that exposure to social media and online shopping malls via social media has increased spending among Nigerian youths

Keywords: social media, technological determinism, consumer behaviour, shopping preference theory, consumerism

1. Introduction

Consumerism is the oil through which society evolves and develops. This idea has been promoted through the centuries and was first properly critiqued by Veblen (1994). Dunn, Aknin and Norton (2008) describes consumerism as an ideology that binds people to a particular system most likely capitalist system. He goes on to explain that this ideology turns consumption from a means-to-an-end to the end itself thereby making our acquisition of goods and properties the basis for our existence, identity and sense of self. Different factors including the media have played a role in ensuring that society buys into the consumerist culture. One important medium now available to manufacturers, retailers and advertisers is social media or social networking sites. Social networking has often been described as a new brand of online media that allows people to form communities, interact with one another, share ideas and opinions, actively participate and create contents to be shared and enjoyed (Ellison, 2007). More recently, social networking has evolved to become a major player in the business and communication world with advertisers and businesses spending billions of dollars to advertise their products and services on this platform which also affords them the opportunity to interact with the end users (Stelzner, 2014). Customers are now bombarded with numerous advertisements on social media that are directed at them and are also encouraged to purchase such products and brands directly from their social media account.

Nigeria has been greatly influenced by the western culture and one of the greatest exports of the western and first world countries especially America, is their culture. The American society promotes a capitalist and by extension a consumerist culture which is vigorously promoted by their media which is

then enthusiastically consumed by their Nigerian audience. The effects of this cultural transference between first world countries and Nigeria can be clearly seen in our music industry and the general outlook of the youths and even the working class in Nigeria, which in turn influences the youth culture in Nigeria. Buhari, Ahmad & HadiAshara (2014) studied the use of social media among Nigerian youths and concluded that indeed social media has a positive influence on youth lifestyle and social behaviour. One direct impact of globalization and ubiquity of social media, and the internet is the growth of online shopping in Nigeria.

Online shopping or electronic shopping is simply the process of buying goods and services from a seller or vendor over the internet. The place where online shopping takes place are referred to as e-malls, online stores, online shops, online marketplace etc. The internet is the medium through which online shopping takes place. Online shopping has become a multibillion-dollar industry worldwide. According to Statista (2018), 1.66billion people purchased goods online with total sales of 2.3trillion US dollars in 2017 alone. This trend is only increasing as mobile technologies and internet access is becoming widespread and easily accessible even in remote African countries. According to Statista (2018), e-commerce or online shopping is driven by increasing use of mobile phones and tablets to purchase goods online. According to Dolliver (2018) purchases through mobile phones amounted to 58% of total sales in 2017 and estimates that by 2021 mobile phones would make up at least 72.9% of e-commerce sales. The same trend can be noticed in Africa, and the Middle East, though on a smaller scale; there were about 30 million online shoppers in Africa as at 2011 and by 2015 there were 65.8 million online shoppers (Dolliver, 2018). This shows a worldwide trend of increased acceptance of online shopping and the growing importance of this medium.

Online shopping has become popular in Nigeria due to a combination of different factors including convenience of the medium, availability of cheap and reliable internet services as well as access to online stores that cater for Nigerian markets. Lagos for instance with an estimated 21 million residents is the most populated city in Nigeria and very few major shopping centers; Ikeja City Mall, SPAR Supermarket Lekki, City Mall Onikan, Maryland Mall, Adeniran Ogunsanya shopping mall, the palms shopping mall and a few others which are usually filled to capacity during peak periods. Coupled with the usual traffic situation in Lagos, where a 5-kilometre trip can take up to 3 hours during rush hour, one can imagine the anguish 'Lagosians' face when going for shopping. So, it comes as no surprise to find out that the online shopping business in Nigeria has grown to become a multibillion-dollar industry.

One important factor that has made this possible for Nigerians is the internet penetration in the country. According to a survey carried out in June 2014, there is a direct link between the growth of the online market business and increased internet access (Ayo, Adewoye, & Oni, 2011; Ibam, Boyinbode & Afolabi, 2017). The influx of cheap internet-enabled mobile gadgets and reduction in the price of mobile internet and other internet services in Nigeria has significantly impacted on the growth of internet usage in the country. In year 2000, only 200,000 people had access to the internet which represented 0.06% of the population, however, as at 2012, 57 million Nigerians had access to the internet, representing a whopping 32.88% of the population, by May 2017 that figure had risen to 91.5 million internet subscribers representing over 50% of the population (Ibam, Boyinbode & Afolabi, 2017)

Another major factor that has contributed to the growth of online shopping outlets is the increase in middle class in Nigeria and of course the high percentage of young adults in this population. Out of the estimated 170 million people in Nigeria, 84 million of these are people under the age of 20. This represents almost 50 percent of the population (Gabriel, Ogbuigwe & Ahiauzu, 2016). According to Ajuwon and Popoola (2014), Males, 34 years and below are the major users of internet services in the country, this goes to show that the youths represent the highest number of internet users in Nigeria and are therefore an important demographic for online business. There has also been a significant increase in the standard of living of Nigerians, GDP has been experiencing an average growth rate of 6.8 percent between 2005 and 2013. The middle class represent about 23% of the entire population and earn an average of about 100,000 naira monthly (Udeaja & Onyebuchi, 2015). This of course means a lot of Nigerians now have the spending power to make an impact on the growth of online shopping businesses.

To perhaps give a better insight into how big the online market has grown to be in Nigeria, a short review of one of the largest online stores in Africa with a strong presence in Nigeria might suffice. Jumia is arguably the largest online shopping mall, selling everything from fashion items to electronic gadgets and equipment in Nigeria and sees an average of 700,000 weekly visitors. The Nigerian branch started operations in 2012 and just two years later has grown to become the 19th most visited site in Nigeria and the 2nd most visited online shopping site just behind Konga another popular online shopping mall. Jumia sold goods worth about 74.5 million Euros in the first quarter of 2017 alone (Rocket Internet, 2017).

This study aims to find out how online shops with the help of social media, might be influencing or affecting consumer behavior. It shall focus on the spending patterns of Nigeria youths - Have they developed a more spontaneous attitude to spending? And how social media is affecting this are some of the pertinent questions that shall be answered. The study shall be carried out using quantitative method of data collection and shall briefly touch on the Shopping Preference Theory and the technological determinism as a backdrop for the research.

1.1 Leading online stores in Nigeria

As the penetration of internet services continues to grow at an exponential rate in Nigeria, so does the number of online store start-ups. A lot of these stores have closed down but some weathered the storm and have become quite successful. Some popular online stores in Nigeria are, Lamudi (focuses on real estate), Carmudi (automobile sales), Konga, Jumia, Gidimall, Webmall, Gloo, Egole, Kaymu, Payport (All and sundry), OLX, Dealdey (similar to eBay) amongst others. This section shall briefly discuss the three biggest online stores in Nigeria according to Philips Consulting (2014).

Jumia (www.jumia.com.ng): Jumia Nigeria is arguably the biggest online store in Nigeria. It was founded in June, 2012 by Tunde Kehinde, Leonard Stiegeler, Sacha Poignonnec, Jeremy Hodara and Raphael Afaedor. As at 2014, it was the 19th most visited site in Nigeria and the second most visited online store in the country and has expanded operations to 10 other countries including Egypt, Ghana, Uganda, Morocco, Kenya and Cameroon. Jumia currently has about 4 million visits per month to their

page according to Traffic estimate. It was financed by Rocket internet; a German owned commerce company, Millicom and MTN, both telecommunications companies.

Konga (www.konga.com): Konga is Jumia's major competitor, the 17th most visited site in Nigeria and the most visited online shopping site in the country. It receives approximately 4.5 million visits per month on it sites. Like Jumia, konga sells a very wide range of products, ranging from electronics to groceries. It was founded in July 2012 by Sim Shagaya with just 20 staff and by 2015 it now has well over 700 staff. Shagaya received an initial 3.5million dollars from Investor, AB Kinnevik. Konga started off as a Lagos only online store but quickly expanded to cover all cities in Nigeria by December of 2012. In 2013 and 2014, Konga received a series of funds from Investors, AB Kinnevik and Naspers amounting to about 75million US dollars.

DealDey (www.dealdey.com): Dealdey is one of the oldest online shops in Nigeria and launched in March 2011 and was founded by Sim Shagaya who incidentally is also the founder of Konga online Marketplace. The selling point for Dealdey is that it offers products/services at heavily discounted prices. These services or products include hotel, restaurant, and spa session deals. It currently offers its services to people residing in Lagos, Abuja or Port-Harcourt. It receives an average site visit of about 1.5million per month

From the foregoing it is clear that online shopping has grown significantly in recent years and it is in no small part due to a lot of factors discussed earlier which includes, internet penetration, improved standard of living and the convenience of shopping online.

1.2 Digital literacy and access to online stores in Nigeria

According to Buckingham (2006), Digital literacy can be described as a set of skills that allows individuals to effectively operate in a technological-oriented environment. The author goes on to explain that certain skills are required in order to be considered competent in the digital age. It is expected that a digital literate person should be able to evaluate and make use of information critically from various and relevant online sources. This definition is supported by Martin and Dunsworth (2007) who defined digital literacy as "an understanding of computer characteristics, capabilities, and applications, as well as an ability to implement this knowledge in the skilful, productive use of computers in a personalized manner ". From the foregoing, it is clear that for anyone to survive in the digital age, a certain level of digital understanding and literacy must be attained. Practically every sector of the economy requires some technical know-how in order to function effectively and efficiently. Shopping has also evolved past just simply identifying what you want, haggling the price and making payments, but today, shopping now requires some level of technical know-how, at the very least, one must learn to make online payments and pay using credit/debit cards. This is so in Nigeria, as the e-commerce industry is growing at an alarming rate and to participate and enjoy some of the benefits this new shopping medium has to offer, one must be digitally literate to some degree.

According to Gabriel, et al. (2016), Nigerians are only recently coming to terms and understanding the advantages and usefulness of online shopping and the inherent benefits. According to them, Nigerians make use of various online platforms for a variety of purposes such as online banking to pay

bills, transfer funds and carry out other transactions, but they are yet to fully appreciate the idea of shopping online. The reasons for this scepticism when shopping online can mainly be attributed to the fact that there is a lot of distrust and poverty in the country. People are generally distrustful of people/brands they do not know and cannot see. According to Gabriel et al (2016) Nigerians prefer to haggle prices, and make face-to-face transactions which has become part of the shopping culture in the country. However, things are fast changing, as online shopping has grown to become a multi-billion-dollar industry in the country, showing that the country is now embracing and is gradually understanding and appreciating online shopping.

2. Review of literature on the effect of social media on consumer behaviour

There is no denying the fact that the importance of understanding consumer behaviour for the success of any organisation cannot be overemphasised (Sheth & Mittal, 2004). The nature of the internet and its many offerings has allowed users to become more demanding and given them increased access to relevant information on virtually any things –from shopping, business information, to educational issues. The changing nature of the online consumer and generally consumers of the 21st century has created changes in their buying decision. One reason for this is, social media platforms that facilitate purchase transactions, information gathering and buying decision making (Raaij, 1998 cited in Ivanauskas, 2009).

Social media according to Westerman, et al. (2014) is facilitating increased trust and enhancing content credibility amongst social media users. Research conducted by Turcotte, York, Irving, Scholl, and Pingree (2015) found out that about 80% of online users trust the judgement/opinion of the social media friend/contact more than any other internet source. What this implies is that social media might be doing a little more than just being a platform for users and advertisers to meet and exchange opinions, but might also be actively influencing the buying decisions of internet users.

It is an established fact that social media is fast becoming the single most important medium of communication either between businesses and their consumers or between two people from across the globe. Businesses are today exploiting the many advantages social media has to offer and are therefore rigorously channelling a lot of their messages through social media to allow for bigger exposure (Odden, 2008; Ellison, 2007). According to Stelzner (2014), social media is going to change or is in fact changing the way marketers are conducting businesses as they now have access to direct feedback from consumers via social media which goes a long way.

Do social media really have the power to effect such a change and affect how consumers think and even their buying and spending patterns? According to a research conducted by Ramnarain & Govender (2013) on the effect of social media on the youth purchasing behaviour in South Africa, using the survey method. They found out that youths are deliberately turning away from traditional advertising and seeking out social media platforms. Also, they make frequent purchasing decision based on information gotten from social media because they consider this information legitimate enough to make their purchasing decision in most cases. The findings of this study though conducted on a smaller scale points to the idea that social media is indeed an important factor in buying decisions of young adults

today and plays a major role in their decision-making process. In their paper titled 'predicting Purchase Behaviours from Social Media', Zhang and Pennacchiotti (2014), stated that, by developing a system to predict user's purchase behaviours on e-commerce websites through social media, they found out that there is a significant correlation between social media profiles and purchase behaviours on e-commerce. Barhemmati and Ahmad (2015) in their research on Social Network Marketing and how it might influence consumer purchase behaviour among people that use social media often. They found out that there is indeed a significant and positive correlation between consumer buying behaviour and social networks. This finding is supported by Martinka (2012) on her research on Social media communities (Facebook in particular) and their impact on consumer behaviour, using survey methods found out that Facebook communities significantly influences consumers purchasing behaviour.

A more elaborate research conducted by Hayta (2013) on the effects of social media on young consumer's buying behaviour. Using Face to face interview of 688 young consumers between the ages of 18-24 who regularly make us of social media was conducted. The study found out that there was significant difference in purchasing behaviour of consumers that make use of social media. The study concludes that students generally are significantly influenced by social media when making a buying decision.

From the foregoing, it is clear that social media plays an important role in changing consumer behaviour. Social media is fast growing to become the go to media for opinion leaders, businesses and government because they recognise the great power this medium yields as regards to audience and consumer behaviour. We can however also conclude that no study has been carried out on the issue of social media, vis-à-vis online stores and how they might be influencing consumer behaviour of youths in sub-Sahara Africa.

3. Statement of the problem

Online shopping has become increasingly popular in Africa and with increased shopping options; both local and international, there is no stopping this growing trend. Online shopping has opened up new opportunities for businesses and also for potential customers to conduct business with one another. Goods that ordinarily might be beyond the reach of the average Nigerian is now a click away. Nigerians can now shop for goods from America using their debit card and, in a few days, they receive their packages. Youths – ages between 18 and 40 – make up the vast majority of internet users and online shoppers in the country and as such it is pertinent to understand this very dynamic demographic. Understanding the spending patterns of Nigerian youths and those factors that influences their decision to make online purchases is important if we are to grow the online marketing and e-commerce industry in Nigeria and in Africa generally.

This study therefore seeks to find out the relationship between online shops and how this might be influencing their buying decision thereby leading to changing spending patterns among Nigerian youths. Also, to identify those factors that might be influencing this change if any.

In a nutshell this study aims to:

1. To provide empirical evidence to prove that electronic shopping malls directly impacts on the spending patterns of youths

2. To contribute to knowledge in the field of integrated marketing communications and new media.

3. To identify a correlation between social media and consumer spending

4. Research questions and hypotheses

From the review of relevant literature, it is clear that there is indeed no conclusive research on the effects of e-malls on youth spending taking into account social media as the medium through which e-malls advertise their wares and services. Drawing from similar research in this field and the personal and educated opinions on the issue of media effects and consumer behaviour, the researcher came up with some Hypothetical Assumptions (HA). Hypothetical Assumptions here are statements made in the form of hypothesis that leads to proving the Main Hypothesis right or wrong. These assumptions shall also be tested to confirm or refute them as the case may be.

The main hypothesis are:

H_0: Online shopping malls with appreciable presence on social media have no direct effect on youths' spending patterns

H_1: There is a significant relationship between online shopping malls with appreciable social media presence and spending patterns among youths.

Based on similar studies on ways technology might be influencing spending, the researcher made some Hypothetical Assumptions (HA). These Hypothetical Assumptions shall direct this research and prove or disprove the main hypothesis. The following are some known advantages and features of online shopping:

HA1: Online shopping malls' advertisements on social networking sites directly affect the number of visitors to the e-mall sites.

HA2: Youths that spend a lot of time on social media spend more frequently online than those that do not.

HA3: Majority of online shoppers believe that items from online stores are more authentic than regular outlets

HA4: Youths spend more when they shop online than when the shop offline

HA5: Online shopping encourages impulsive spending more than the brick and mortar shops?

HA6: Sales and other shopping incentives lead online shoppers in Nigeria to overshoot their budget.

HA7: people have more access to shopping incentive online than in brick and mortar shops.

HA8: There a significant relationship between hours spent online and spending patterns

HA9: there is a significant relationship between the perceived coolness of the medium and the propensity for youths to shop on this platform.

5. Significance of Study

Consumerism is a prominent issue of discussion in the academic and business world. To different people it means different things. To the business man, it is a welcome development for obvious reasons. To the academic, environmentalist and sociologist it might be the catalyst that destroys human existence as we know it or it might just be the next phase of the human experience in this century. Whatever the situation, certain factors and technologies have caused the continued growth and spread of consumerism; one of such factors is the internet – social media to be precise which this study hopes to confirm. A lot of work has been done on consumerism and its effect on society, but there is a dearth of literature on online stores and how they encourage consumerism in developing nations like Nigeria.

This study will be relevant to both scholars of communication; new media in particular and business practitioners as it would give an insight into how youths choose their shopping options as well as how they manage their finances. By understanding the spending patterns of youths in Nigeria, media analyst, marketing and advertising professionals would be able to plan their marketing and distribution plans properly to ensure they reach their target audiences, thereby giving them a competitive advantage. Ultimately this study shall help clarify the issue of how social media is influencing our spending patterns and purchasing habits.

Furthermore, this study would act as bedrock for future studies in consumer behaviour and significantly contribute to the knowledge in the field of new media and consumer behaviour.

6. Theoretical Framework

Technological determinism is a reductionist theory which at its core posits that the development of any society and its cultural values are driven by that society's technological development and progression. The general consensus is that the term was coined by Thorstein Veblen (1857-1929), an American sociologist. Technological determinist believe that particular communications technology, media or even technology in general are the sole causes of change in society.

Veblen (1994) posits that "Indeed, technological determinism, effectively the opposite of social determinism, is a theory which points to technology as being *the* force which shapes society".

According to him technology determinist believes that:

- Like the weather, technology is autonomous

- It causes social change

From the foregoing it is clear that technology determinism theory holds that whatever change we might experience as a species, the most important factor that would lead to such a change or advancement would be technology.

Shopping Preference Theory According to Sheth (1983, as cited in Rajamma & Neeley, 2005) customers' choice of their preferred shopping outlets would be determined by a number of factors

including, shopping motives as well as shopping options available, amongst other factors. The shopping preference theory can be broken down into four basic constructs and their determinants. The four constructs are: *Shopping predisposition:* this refers to the preferred choice of shopping outlet by the consumer, considering all the alternatives available to him/her for a specific product or service. These preferences are usually limited to the outlets which a buyer deems acceptable to shop for the particular product he/she needs. *Choice calculus*: this refers to the choice rules utilized by customers in establishing the preferred shopping outlets also known as shopping predisposition. It involves matching shopping motives and shopping options. *Shopping motives*: this refers to a customer's needs and wants in relation to the shops and outlets for a particular product or service at their disposal. Shopping motives can be further broken down into two types, namely: Functional needs (related to time, place and possession needs), Non-functional wants (related to the choice of shopping outlets in relation to the buyer's social, emotional and epistemic values). *Shopping options*: this refers to a set of outlets available to customers to satisfy their shopping motives for a particular product or service.

The Shopping preference theory is relevant to this study in that it would help shape our understanding of what motivates consumers to choose their shopping choice – online or physical location.

These theories – Technological determinism and shopping preference theory are very relevant and together would help us understand how online shopping medium might be influencing our shopping and buying decisions.

7. Research Methodology

The researcher made use of descriptive research methodology and cross-sectional survey to retrieve data from students in selected universities in Nigeria. The reason for using this method is because the study targets a very large population and as such it is more expedient to make use of the survey method to collect data from such a large and diverse population. Cross-sectional survey involves collecting data from a study sample derived form a specific population at a particular time. It is mostly used to document the dominance of certain characteristics or behaviour in a population. This method is particular useful when carrying out any audience-based research. It also offers the opportunity to find or ascertain the relationships between variables. It is for this reason that the researcher opted to make use of the cross-sectional survey method for data collection. The data collected represented the respondents' perception on the use of social media, online shopping and how they interact with them. The sample size for this study was arrived at using Survey monkey software, computing the total number of student bodies in the selected schools and using a confidence level of 95% and a margin of error of 5%, the researcher arrived at a sample size of 1481 was arrived. However, 1600 questionnaires were distributed to account for damaged and unanswered questionnaires. A pilot study and pretesting of the questionnaire were conducted before being sent out to the main respondents.

The questionnaires shall be distributed as follows:

Table 1. Sample Size Distribution

S/N	Institution	Student Population	Calculated Sample Size*	Distributed Questionnaires
1	University of Lagos (UNILAG)	45,000	381	400
2	Federal University of Agriculture Abeokuta (UNAAB)	12,000	373	400
3	Bowen University, Iwo (BUI)	5,000	357	400
4	Babcock University (BU)	10,000	370	400
	TOTAL	**72,000**	**1,481**	**1,600**

*using survey monkey

Out of 1600 questionnaires sent out, 1349 where collated and analysed meaning that 84.3% of questionnaires sent out were retrieved and used for this study. The rest were unreturned, not properly answered or damaged. The reason for selecting the two public universities (UNILAG and UNAAB) is because they are arguably two of the most popular government owned universities and as such attract a lot of students from all parts of Nigeria. The selected private schools on the other hand are some of the top private universities in Nigeria and are quite expensive. Also these universities have a Large student body and rank very high on the universities ranking charts in Nigeria. The implication is that, this study has a healthy mix of respondents from different backgrounds and orientation which makes this study more holistic.

The questionnaire was made up of 49 questions broken down into 4 different sections. The questionnaire starts with a screening section which required the respondents to state whether or not they had ever shopped online before. This question was asked in order to ensure that the respondents represented the target audience of this study and anyone that responded negatively to this question was automatically disqualified. Other sections of the questionnaire aligned with the research objectives and questions.

The questionnaire was tested for validity using the Cronbach's Alpha test. It had a Cronbach's Alpha of .869 which means that the questionnaire has a high level of reliability and as such was suitable for this study.

8. Results

Below is a table summarizing the findings of this study.

Table 2: Summary of Findings

HYPOTHETICAL ASSUMPTIONS				
S/n	Statement	Test	Relevant question(s)	Findings*

1	online shopping malls advertisements on social networking sites directly affect the number of visitors to the e-mall sites	RA & FQD	Question 11 & 14 from section 3	RIGHT
2	University student that spend a lot of time on social media spend more frequently on E-malls than those that do not	FQD & PC	Question 3 of section 2 & 15 from section 3	RIGHT
3	Most online shoppers believe that items from online stores are more authentic than regular outlets	FQD	Statement 11 of section 4	RIGHT
4	Youths spend more when they shop online than when the shop offline	FQD	Statement 17 of section 4	RIGHT
5	online shopping encourages impulsive spending more than the brick and mortar shops	FQD	Statement 15 of section 4	RIGHT
6	Sales and other shopping incentives lead online shoppers in Nigeria to overshoot their budget	LRA	Statement 8 and 14 of section 4	RIGHT
7	People have more access to shopping incentive online than in brick and mortar shops	FQD	Statement 8 of section 4	RIGHT
8	There is a significant relationship between hours spent online and spending patterns	PC	Question 7 of section 2 & questions 15 and 18 of section 3	RIGHT
9	There is a significant relationship between the perceived coolness of the medium and the propensity for youths to shop on this platform.	PC	Question 15 of section 3 and statement 20 of section 4	RIGHT
MAIN HYPOTHESES				
H_0	Online shopping malls with appreciable presence on social media have no direct effect on university students' spending patterns	LRA	Question 11 and 15 of section 3	WRONG
H_1	There is a significant relationship between online shopping malls with appreciable social media presence and spending patterns among youths.	LRA		RIGHT
*if statement is proven right, then 'Right' is written in under the 'findings' cell and if proven wrong 'wrong' is written. RA= Regression Analysis, FQD= Frequency Distribution, PC= Pearson Correlation, LRA= Linear Regression Analysis				

Out of the 1349 respondents 26.4% were students of University of Lagos representing 356, 25.8% were students of Federal University of Agriculture, Abeokuta representing 348 students, 24% were from Babcock University representing 324 and 23.8% were from Bowen University representing 321. It should be noted that 400 questionnaires were distributed to each of these universities. The vast majority of the respondents were aged 20-24 with 695 respondents between these ages representing 51.5% of total respondents, followed by ages 15-19 with 503 respondents accounting for 37.3% of total respondents, 115 respondents were aged 25-29 representing 8.5% while 36 respondents were above the age of 30 and represented just 2.7% of the respondents. Of the total respondents 777 were male and 572 were female representing 57.6% and 42.4% respectively. 61% were Yorubas, 6.4% were Hausas, 27.3% were Igbos and 5% represented all the other minor ethnic groups. 1153 of the respondents identified as single representing 85.5%, 54 said they were married representing 4%, 140 stated that they were in a relationship accounting for 10.4%. 90.4% of the respondents were undergraduates, 3.3% were pre-degree and 6.3% were postgraduate. 76.4% were Christians and 21.3% were Muslims while the rest representing 2.2% identified as other. All of the respondents received some sort of monthly income or allowance. On the amount of allowance/income received, 2.7% said they received less than 5000 naira, 37.1% said they receive between 5000 and 10000 naira every month, 38.8% said they received between 10000 and 20000 monthly and 21.3% stated that they receive more than 20,000 monthly.

The hypothetical assumptions were first proven before the main assumption. Using regression analysis, the first hypothetical assumption-Online shopping mall advertisements on social networking sites directly affect the number of visitors to the e-malls- was tested. Question 11 from section 3 and question 14 of the same section from the questionnaire were used for this analysis. From this test it was confirmed that indeed online shopping mall adverts on social media directly impacted on the number of e-mall visitors. Hypothetical Assumption 2- youth that spend a lot of time on social media spend more frequently on e-malls than those that spend less time on social media- was tested using Pearson Correlation. Question 3 of section 2 and question 15 of section 3 of the questionnaire were used for this test. An r value of 0.163 was gotten which implies that there is a positive linear relationship between spending a lot of time on social media and spending more on electronic shopping. HA3- Most online shoppers believe that items from online stores are more authentic than regular outlets- was analysed by using a frequency distribution table of the answers to the statement; "Most products on online stores are more authentic than in regular stores". It was found out the about 50% agree with this statement while 25% do not agree. Therefore, it can be deduced from the analysis that most shoppers feel that there is a higher tendency to buy original products online than in regular stores in Nigeria. HA4- Youths spend more when they shop online than when the shop offline - was analysed using the frequency distribution table to the statement "I generally spend more shopping online than in regular stores". It was found out that 52.8% of the total respondents agree to this statement and only 30.6% disagrees. Therefore, it can be concluded that most youths that shop online tend to spend more on a single shopping session than their offline counterpart. HA5-Online shopping encourages impulsive spending more than brick and mortar shops- was proven using frequency distribution table to the answers to the statement; "I tend to buy more compulsively online than in regular shops". 51.2% agrees

to the statement while 28.8% disagree implying that online shopping does encourage spontaneous and compulsive spending among youths. HA6-Sales and other shopping incentives lead online shoppers in Nigeria to overshoot their budget- was proven using linear regression analysis. And it was found out that 75% of people that overshot their budget did so as a result of shopping incentives and promotions online. It can therefore be concluded that sales and other shopping incentives such as discounts, free gifts and giveaways cause university students to overshoot their budgets when shopping online. HA7-People have more access to shopping incentive online than in brick and mortar shops- was proven using a frequency distribution table to responses to the statement "there are better deals in terms of discounts and promotions online than in regular shops". It was found out that 68.2% agree with the statement and 31.7% disagree which implies that most university students feel that they are more sales incentives online than offline. HA8-There is a significant relationship between the time spent online and spending patterns- was proven using Pearson correlation analysis. Question 7 of section 2, question 15 of section 3 and question 18 of section 3 were used for this analysis and it was found out that there is strong linear relationship between time spent online and the frequency of purchases made online and also a strong relationship between time spent online and approximate amount spent shopping online. It was therefore concluded that time spent online affects spending patterns of university students in Nigeria. HA9- there is a significant relationship between the perceived coolness of the medium and the propensity for youths to shop on this platform- was tested using Pearson Correlation analysis and it was found out that there is indeed a relationship between students' perception of online shopping as cool and their online shopping habits and that this perception or opinion about this medium greatly influences their decision to shop online.

The main hypothesis was tested using linear regression analysis. The following questions were analysed: Have you ever seen online shopping mall adverts on any social media platform before (Constant) and how often do you make purchases online (Dependent)? It was made clear that if the P value is less than 0.05 then the null hypothesis would be rejected and the alternate hypothesis accepted. From the analysis conducted the F test outcome was significant at 0.004 and since it was less than 0.05, the alternate hypothesis was accepted and the null hypothesis was rejected. It was therefore concluded that online shopping malls with appreciable presence on social media have a direct effect on the spending patterns of university students in Nigeria.

9. Conclusions

The findings of this study indicate that there is indeed a relationship between online shopping malls with appreciable social media presence and changing spending patterns amongst university students in Nigeria. It was found out that there is a correlation between online mall adverts on social media and the number of visitors to the site which implies that the more adverts are shown on social media targeted at youths the higher their chances of increased patronage from this demographic. Also, a link was ascertained between spending a lot of time on social media and spending more money on online malls. What this means to advertisers and marketers is that apart from getting people to notice and buy their products through conventional advertisement, they need to devise means of ensuring that they drive

traffic to their social media page because it is an important variable in the buying decision process of a lot of young consumers.

This study has clearly shown that there is indeed increased spending among Nigerian youths and have identified some of the responsible factors such as availability of cheap and accessible internet services, increasing "cool" factor of shopping online and a variety of reasons. Whether this is a good thing or a bad thing is left for future studies to ponder and given time, scholars, marketers and advertisers will be able to know the ling term effect of social media on Nigerian youths. One thing we do know from this study, is that, social media advertising and social media networking has significantly changed the way we shop and how our perception of quality is formed. People now seek validation on their purchases from their online friends, making it easy to be manipulated or pressured into making purchases on cannot justify financially.

Consumerism is not a bad thing in of itself, but if left unchecked, in a country where the majority of its citizens are living below the poverty line, there is a tendency that increasing consumerism and the attraction to the flamboyant lifestyles of home and foreign celebrities can lead to an increase in fraud and criminal activities in a bid to please our online and offline friends and to be part of the 'cool' crowd. It is based on this, that the researcher concludes that a willingness to spend and spend well is beneficial to the growth of the economy, but care must be taken to ensure that informed decisions are made while shopping, digital literacy is an important trait to be encouraged among Nigerians so they can sieve through the torrent of information they are bombarded with on social media and make informed decisions while shopping.

10. Recommendations

Based on the findings of this of this study which was aimed at finding out the relationship between online shopping malls with appreciable social media presence and youth spending in Nigeria, it is clear that there is indeed a relationship between these two variables. From the findings of this study, it is clear that the single most important factor for youths when deciding to shop online is social media, everything concerning their decision to buy or not to buy basically revolves around social media and as such it is important that care is taken to ensure that youths are consistently engaged online. It was also found out that ALL respondents preferred online stores that sell a wide variety of products from different manufacturers such as Jumia.com, Konga.com, ASOS, AlieExpress etc. as against stores that sell products of only one manufacturer like calvinKlein.com, Versace.com. It is therefore recommended that this should be taken into consideration when considering an e-commerce business in Nigeria.

Popular fears of potential online shoppers include fear of identity theft, not getting what they paid for, not getting the product at all, long delivery time, and damaged or substandard products. The fear of identity theft has been greatly reduced in Nigeria due to the fact that a lot of online shops local to Nigeria give shoppers the option of paying cash on delivery meaning they would not have to divulge any personal information or sensitive account details to shop. This has of course increased customer confidence in the medium and as attracted some otherwise sceptical shoppers.

It recommended that further research in this field and covering this demographic should cover a wider sample area. This study focused on the south-western part of Nigeria although using federal schools ensures a healthy mix of every major ethnic and social group in the country, it would still be better if a more elaborate study us conducted to cover the 6 geo-political zones in Nigeria.

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E-mail Marketing: Caso de Estudo InnovAction

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Abstract

E-mail marketing is a digital marketing channel that enables communication between companies and their customers or future/new customers. In a world where social media are more present than ever in our everyday lives, it was expected that e-mail marketing as a marketing tool would disappear. However, we observe just the opposite.This research presents the main results from the evaluation of an e-mail marketing communication campaign aimed at "InnovAction" magazine (an annual technological publication produced by Altice Labs). The target audience of this campaign includes the guests of the second-anniversary party of the company, universities, partners, customers, and subscribers, with a total of 1434 people.Based on the campaign evaluation results, it was concluded that the size of the e-mail marketing campaign and the fact that it had an event associated to the release of the product (e.g. company's anniversary) were major influence factors on the e-mail marketing campaign results. It was also concluded that the company is of great value to their customers and subscribers and that InnovAction contributed to this recognition as a vehicle to share the most relevant technological developments and knowledge throughout the group's operations all over the world.

Keywords: digital platforms, communication, customer engagement, social networking, e-mail marketing, rebranding, B2B

Resumo

O e-mail marketing é um canal de marketing digital que permite a comunicação entre as empresas e os seus clientes ou futuros clientes. Na nova era em que os social media encontra-se cada vez mais presentes no quotidiano, esperava-se que esta ferramenta acaba-se por desaparecer, mas o contrario veio-se a verificar.Este artigo apresenta os principais resultados da avaliação da comunicação feita por e-mail marketing, de um dos produtos da Altice Labs, a revista InnovAction. A campanha teve como público-alvo os convidados do segundo aniversário da empresa, universidades e clientes e subscritores, sendo enviada no total a 1434 pessoas. Perante os resultados obtidos concluiu-se que o tamanho do e-mail marketing e um evento associado ao produto são fatores influenciadores nos resultados da campanha de e-mail marketing. Conclui-se também que a Altice Labs tem valor para os seus clientes e subescritores, e que a revista InnovAction contribui para isso.

Palavras-chave: plataformas digitais, comunicação, customer engagement, redes sociais, e-mail marketing, rebranding, B2B

1. Introdução

Hoje em dia, parte das empresas e negócios do mundo são conduzidos por meios digitais. A internet, uma vasta rede pública de computadores, liga pessoas e empresas do mundo inteiro. Atualmente, elas utilizam a internet praticamente a qualquer hora e em qualquer lugar, através de computadores, smartphones, tablets ou até mesmo TV´s. A internet tem mudado fundamentalmente as noções que os clientes têm das funcionalidades, rapidez, preço e informações sobre os produtos e serviços (Kotler & Armstrong, 2014). Como resultado, ela proporciona às empresas uma forma completamente nova de criar valor para os clientes e de construir um relacionamento com eles. A massificação da internet

teve impacto em diversas áreas, sendo o marketing uma delas. Na sua obra, Gabriel (2010) considera que a internet mudou tudo, e dá enfase ao facto de os mercados terem voltado a comunicar. Na sua análise realça a importância das empresas terem de adquirir sentido de humor, humildade, honestidade, valores e outros pontos de vista, isto, para sobreviverem nesta nova era digital. A internet veio, pois, trazer ao marketing novas formas de comunicar. De forma a acompanhar esta tendência, também as empresas do mercado B2B (business to business) passaram a utilizar websites, microsites de produtos, e-mail marketing, redes sociais, aplicações e outros recursos on-line para atingir novos clientes e vender de uma forma mais eficaz e eficiente.

O e-mail marketing é considerado um canal de marketing digital, que permite a comunicação entre as empresas e os seus clientes, futuros clientes e subscritores (Waldow & Falls, 2013). Este canal disponibiliza diversas opções às empresas para potenciar customer engagement. De forma a obter melhores resultados nas campanhas de e-mail marketing, as empresas devem ter em conta outros fatores que podem influenciar esses resultados. O dia da semana em que se envia, o horário, a criação de personas para direcionar mais a campanha, os elementos de atenção visual utilizados e a adequação da estrutura/tamanho do e-mail marketing perante o produto, podem levar a uma campanha mais promissora.

Este artigo apresenta os principais resultados da avaliação da comunicação feita por e-mail marketing da InnovAction, uma revista científica produzida anualmente pela empresa Altice Labs. A campanha teve como público-alvo os convidados do segundo aniversário da empresa, universidades, e clientes e subscritores. No total foi enviada a 1434 pessoas.

Seguem-se o estado da arte sobre o conceito de e-mail marketing, atenção visual, personas, plataformas digitais (em particular, Mailchimp) e boas práticas para a realização de campanhas de e-mail marketing. Apresentam-se também a metodologia de investigação adotada, uma introdução ao produto estudado e as principais conclusões da análise dos resultados obtidos. Finalmente, tecem-se algumas considerações finais e indicam-se direções futuras de investigação.

2. E-mail marketing

No artigo "Porque é que o *e-mail* não tem mais poder", do Wall Street Journal, em 2009, é afirmado que o *e-mail* está em vias de extinção (Waldow & Falls, 2013). Surpreendentemente, foi dos artigos mais partilhados, via *e-mail*, no dia 12 de outubro de 2009 (curiosamente também, o artigo tinha a possibilidade de ser partilhado por *e-mail*). Em 2010, eram enviados perto de 56 milhões de *e-mails marketing*, sem ser *spam*, por dia. Em 2013, existiam cerca de 2,9 biliões de contas de *e-mail* por todo o mundo, em comparação com uma média de população de cerca de 7 biliões de pessoas.

Com o surgir do *social media*, alguns autores estimavam que o *e-mail marketing* iria acabar. No entanto, em 2012, o *e-mail marketing* era 40 vezes melhor na aquisição de novos clientes do que o Facebook e o Twitter juntos (Aufreiter, Boudet, & Weng, 2014). Uma realidade que muitos não esperavam pelo impacto cada vez mais significativo que os *social media* têm tido no nosso quotidiano.

2.1. Conceito

Para melhor compreendermos as potencialidades da plataforma digital *e-mail marketing* é importante começar por distingui-lo de *e-mail*. Assim, quando nos referimos a *e-mail*, falamos nas mensagens enviadas entre amigos ou colegas de trabalho. O *e-mail* é uma ferramenta de partilha e comunicação de ideias, permite colocar questões, pedir opiniões, informações, entre outros (Waldow & Falls, 2013). Por sua vez, o *e-mail marketing* é considerado um canal de *marketing* digital, que permite a comunicação entre as empresas e os seus clientes, futuros clientes e subscritores

O *e-mail marketing* teve início no fim da década de 1970, quando Gary Thuerk, gerente de *marketing* da Digital Equipment Corporation, enviou 400 *e-mails* com o intuito de publicitar os produtos da empresa. Esta campanha resultou em 13 milhões de dólares em vendas. Nos anos 90, a internet massificou o *e-mail marketing*, abrindo portas para uma nova forma de comunicação. Em 2000, tornou-se evidente que não bastava só enviar *e-mails marketing*, era necessário adequar o conteúdo ao seu destinatário, senão corria-se o risco de os *e-mails marketing* se tornarem *spam* (Resultados Digitais, n.d.).

O *e-mail marketing*, como canal de comunicação, disponibiliza diversas opções de estratégia de *marketing* digital (Resultados Digitais, n.d.). A saber:

- *Newsletter*: o uso das *newsletters* permite manter o relacionamento com os clientes. Por norma são enviados periodicamente, para todos os contactos da base de dados da empresa. A principal característica da *newsletter* é a variedade de conteúdo. Esta característica permite atingir os clientes ou futuros clientes em todo o ciclo de compra e venda de um produto.

- *E-mail* promocional: o facto de usar o termo "promocional" não implica que este tipo de *e-mail* seja usado apenas para a divulgação ou promoção de produtos. O *e-mail* promocional é usado com o intuito de "promover" uma oferta, tendo esta conteúdo gratuito ou mesmo um produto. O *e-mail* promocional pode ser de produtos físicos, produtos/serviços ou de produtos digitais. Tem como vantagem o foco, tem um único objetivo, uma única opção.

- *E-mail* sazonal: este tipo de *e-mail* é utilizado em datas especiais. A empresa a usar este tipo de *e-mail* deve personalizar a mensagem de acordo com o utilizador e as suas preferências. Exemplos deste *e-mail* são as mensagens de aniversário, datas comemorativas, felicitações em geral. Tem como principal objetivo, que o cliente sinta que a empresa está presente nos momentos importantes do seu público.

- *E-mail marketing* de boas-vindas: este tipo de *e-mail* é enviado ao utilizador, quando o mesmo solicita a receção de *e-mails marketing* por parte da entidade. Permite não só dar as boas-vindas ao cliente, mas também o induzir a uma compra ou informá-lo dos produtos da empresa. A Resultados Digitais fez um teste para avaliar o impacto deste tipo de *e-mails*, e chegaram a conclusão que após o envio do *e-mail marketing* de boas-vindas, 47,6% de novos utilizadores tiveram interesse no *e-mail* e em saber mais sobre a empresa e os seus produtos.

- *E-mail* para clientes inativos: com o intuito de aumentar a taxa de *engagement* das campanhas da empresa, é relevante a empresa não se esquecer dos clientes inativos. Para estes clientes é importante enviar *e-mails marketing* com ofertas adequadas ao cliente e com uma periodicidade adequada. O assunto deste tipo de *e-mails marketing* e a segmentação da lista para o qual serão enviados devem ser cuidadosamente estudados.

O *e-mail marketing* é uma ferramenta promissora para melhorar a fidelidade da marca (Merisavo & Raulas, 2004). Esta permite que os profissionais de *marketing* mantenham o contacto regular com os clientes, a baixo custo. O *e-mail marketing* vem assim auxiliar na comunicação contínua entre a empresa e o cliente. A comunicação contínua influência positivamente na perceção que o cliente tem de estar a consumir a marca certa e mantêm-no fiel.

No entanto, o aumento do número de *e-mails* não solicitados - *spam* – incitam o cliente a perder o interesse na receção de *e-mail marketing*. O cliente que mantém o interesse em receber *e-mail marketing* das entidades/empresas, é aquele que por norma, de alguma forma autorizou a receção de *e-mails* por parte da empresa, podendo ser estes considerados clientes fiéis. Os clientes fiéis gostam de receber uma grande diversidade de conteúdo por *e-mail*, como informações do produto e mesmo conteúdo sem qualquer tipo de oferta relativamente a um produto/preço (Brondmo, By-Moore, & Geoffrey, 2000). Contrariamente, os clientes não fiéis só dão relevância ao *e-mail marketing* que contenha ofertas (Merisavo & Raulas, 2004). Por sua vez, o envio sucessivo de *e-mails marketing*, sem qualquer variedade de conteúdo ou novidades, pode levar o cliente ao cancelamento da subscrição, diminuindo assim a fidelidade à marca (VONLINE, 2018). Ainda assim, os consumidores expostos ao *e-mail marketing* recomendam a marca a amigos, para além de terem vontade de visitar o *website,* o espaço físico da marca e adquirir produtos, podendo deduzir-se assim que o *e-mail marketing* tem efeitos positivos na fidelidade à marca (Brondmo et al., 2000).

2.2. Atenção visual

As palavras, geralmente, são menos eficazes na transmissão de pensamentos, sentimentos e atitudes, comparativamente ao uso de imagens ou a combinação de texto e imagens (Liu & Stout, 1987). Em consequência, a utilização de vídeos em estratégias de publicidade para influenciar os consumidores tem tornando-se muito comum (Appiah, 2006; Spalding, Cole, & Fayer, 2009). Raney et al. (2003) demonstraram o impacto positivo dos vídeos na avaliação de um *website*. A intenção de retorno ao *website* por parte do cliente revelou-se maior, e também houve um aumento da intenção de compra.

O cliente que recebe um *e-mail marketing* apenas com texto, processa a informação com o sistema verbal. Caso inclua um vídeo, o cliente também pode processar a mensagem com um subsistema não-verbal. As mensagens, geradas pelas empresas, no ambiente digital são importantes para uma marca, e podem ser melhoradas se incluírem elementos dinâmicos e conteúdo relevante para os clientes (Nam & Kannan, 2014). A incorporação de um vídeo no *e-mail marketing* aumenta a atenção e a atitude em relação ao meio de comunicação, a intenção de compra e a disposição dos consumidores para pagar mais por um produto (Scheinbaum, Hampel, & Kang, 2017).

2.3. Personas

A criação de *personas* ajuda a projetar qualquer coisa que vá ser utilizada ou testada por um ser humano, como produtos empresariais e de consumo, *websites*, serviços, processos internos de negócio, estruturas organizacionais, eventos, campanhas publicitárias, documentos, cursos e ambientes. As *personas* são úteis para a definição e *design* do produto, comunicação, criação de consensos entre equipas, comercialização de produtos, desenvolvimento de documentação, e mesmo para a correção de *bugs* (Goodwin, 2009). "A persona is a fictional, yet realistic, description of a typical or target user of the product. A persona is an archetype instead of an actual living human, but personas should be described as if they were real people." (Harley, 2015, n.d.).

A descrição das *personas* deve ser feita de forma minuciosa, incluindo detalhes sobre as necessidades, preocupações e objetivos da pessoa. Para além disso, deve também conter informações básicas, como idade, género, comportamentos e ocupação. Para esta descrição não é necessário documentar todos os pormenores de cada indivíduo, deve conter apenas os aspetos relevantes para o que está a ser projetado (Harley, 2015). As personas permitem que se façam projetos para utilizadores específicos, ajudando assim a não cair na tentação de projetar para vários utilizadores. Embora este conceito seja mais frequente em *design*, as *personas* podem ser utilizadas noutras áreas, como no *marketing* em estratégias de comunicação digital, no geral. Perceber as preferências dos clientes ajuda a adequar a mensagem, sendo mais fácil transmitir o valor do produto ou do serviço ao cliente.

Para além da importância da criação de *personas* para o *e-mail marketing*, também é relevante mencionar os testes A/B. Testes A/B são testes que permitem fazer comparações entre variáveis de *marketing*, com o objetivo de definir qual a variável que gera melhores resultados (Baxevanis, 2016). Estes testes eliminam a necessidade da empresa fazer suposições, e permitem tomar decisões baseadas em números, diminuindo assim a margem de erro (Borges, 2016). No *e-mail marketing*, os testes A/B devem ser feitos ao assunto, remetente e conteúdo (CampaignMonitor, n.d.).

2.4. Plataformas: MailChimp

A comunicação por *e-mail marketing* é uma estratégia do *marketing* digital que permite, de uma forma simples, promover, alertar e informar o cliente. Para otimizar esta estratégia existem ferramentas que auxiliam as empresas, não só na construção do *e-mail* em si, mas também na recolha e análise dos dados oriundos da expedição de *e-mails*.

O *MailChimp* é uma das ferramentas de envio e conceção de *e-mail marketing* mais conhecida a nível mundial. Esta ferramenta proporciona aos utilizadores diversos recursos (Figura 1), sendo que estes se encontram divididos em seis secções: criar, gerir, entregar, analisar, movél e partilhar ("Portal do MailChimp,", 2018).
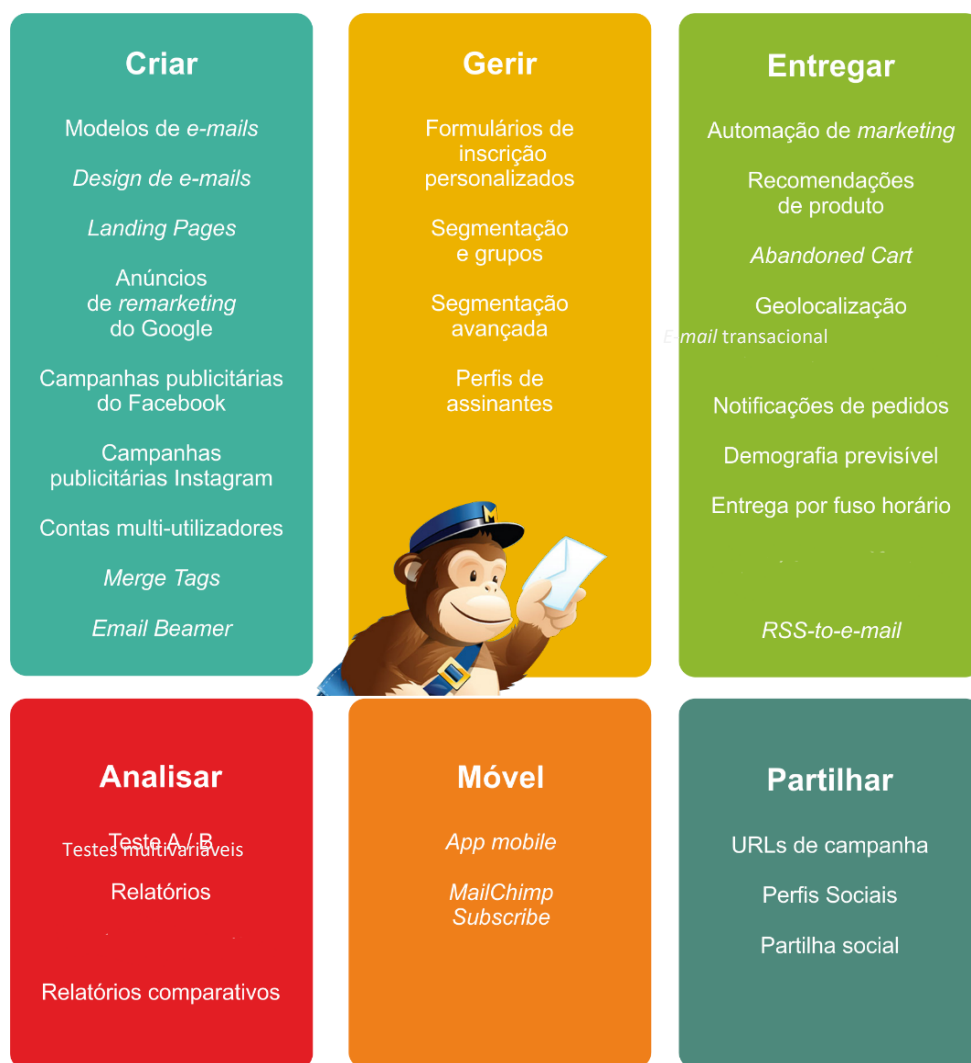
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Criar	Gerir	Entregar
Modelos de *e-mails*	Formulários de inscrição personalizados	Automação de *marketing*
Design de e-mails		Recomendações de produto
Landing Pages	Segmentação e grupos	*Abandoned Cart*
Anúncios de *remarketing* do Google	Segmentação avançada	Geolocalização
Campanhas publicitárias do Facebook	Perfis de assinantes	*E-mail* transacional
Campanhas publicitárias Instagram		Notificações de pedidos
Contas multi-utilizadores		Demografia previsível
Merge Tags		Entrega por fuso horário
Email Beamer		*RSS-to-e-mail*
Analisar	**Móvel**	**Partilhar**
Teste A / B Testes multivariáveis	*App mobile*	URLs de campanha
Relatórios	*MailChimp Subscribe*	Perfis Sociais
Relatórios comparativos		Partilha social

Figura 1. Recursos do MailChimp

Fonte: Adaptado de "Portal do MailChimp" (2018) [tradução própria]

No geral, as ferramentas de *e-mail marketing* oferecem diversos tipos de relatórios e métricas. Perceber cada umas das métricas é importante para se reconhecer o real retorno das campanhas e identificar possíveis melhorias (Siqueira, 2018). Para este estudo é fundamental perceber as métricas cedidas pela ferramenta utilizada: *MailChimp*. Assim:

- Taxa de abertura - número de pessoas que abriu a mensagem dividido pelo número de pessoas que recebeu o *e-mail*. No entanto, é importante ter presente que um *e-mail é* considerado como aberto quando o recetor autoriza a exibição das imagens, i.e., quando se analisa esta métrica tem de ter em conta o facto de não identificar se o recetor leu o *e-mail*.

- Taxa de cliques - número de *e-mails* clicados a dividir pelo número de *e-mails* entregues. Esta métrica identifica os recetores "engajados" pelo *e-mail* e que clicaram em alguma hiperligação ao longo do conteúdo.

- *Bounces* - corresponde ao número de *e-mails* inválidos para qual a campanha foi enviada. O número de *Bounces* pode ser gerado por motivos como: *e-mail* inválido, inativo, caixa do

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correio do recetor cheia, servidor de *e-mail* inativo ou pelos detetores de *spam*. O *Bounces* está dividido em dois tipos: *Hard Bounce*, quando o recetor não recebe permanentemente a mensagem (não deve ser superior a 3%), e *Soft Bouce*, quando o erro é temporário e não impede de o e-mail ser entregue com sucesso no futuro (não deve ser superior a 6%).

- *Unsubcribes* - número de recetores que optaram por sair da lista. Reflete problemas relativos à qualidade do conteúdo do *e-mail marketing* e/ou na frequência do seu envio.

Estas métricas devem ser analisadas em conjunto, sendo cruciais para o desenvolvimento de uma campanha de *e-mail marketing*. Em complemento às métricas, Coelho (2017) defende o uso dos testes A/B para uma melhor análise do desempenho do *e-mail marketing*.

2.5. Campanhas de marketing: boas práticas

Antes do envio de uma campanha de *e-mail marketing* e da consequente avaliação da mesma, é importante desenhá-la de forma a que posteriormente esta obtenha o melhor resultado possível. Ellis-Chadwick e Doherty (2012) organizaram um conjunto de diretrizes de *e-mail marketing* inspiradas no trabalho de Rossiter e Bellman (2005), que auxiliam o utilizador na conceção de uma campanha de *e-mail marketing* mais promissora (Tabela 1).

Tabela 1. Diretrizes de *e-mail marketing*.

Fonte: Adaptado de Ellis-Chadwick e Doherty (2012) [tradução própria]

Fator de execução	Predomínio	Recomendações
Comprimento do *e-mail*	O comprimento da página é a dimensão de todos os *e-mails*. A média de comprimento é de 2.4 páginas e apenas 18% têm menos que uma página de comprimento.	O objetivo da mensagem deve determinar o comprimento. O teste de variáveis deve ser usado para determinar o tamanho mais eficaz para um tipo específico de mensagem.
Frequência e tempo de *e-mail*	A frequência varia de 5% a 30% de *e-mails* enviados por trimestre; 35% dos *e-mails* enviados mostram a evidência do *targeted timing*.	A frequência de envio de *e-mails* é uma parte importante na construção de relações com o cliente: muitos podem irritar e poucos podem levar á perda de interesse.
		É importante considerar o *timing* da entrega do *e-mail* durante os dias da semana e a hora do dia quando é planeado uma campanha.
Imagens	Mais de 90% do *e-mail marketing* utiliza imagens.	As imagens envolvem os leitores e captam a sua atenção.
Linha de assunto	100% do *e-mail marketing* tem o campo assunto.	O conteúdo do campo assunto é crucial para captar a atenção. Deve-se fazer testes de variáveis para determinar qual das linhas de assunto é mais eficaz.
Título	Três quartos de *e-mails marketing* têm um assunto distinto ligado ao título.	O título do *e-mail* deve estar ligado ao corpo do *e-mail*.
Conteúdo da mensagem	Em mais de 75% de *e-mail marketing*, uma ligação bem definida pode ser traçada do assunto até ao conteúdo.	O corpo do *e-mail* deve estar alinhado com assunto.
Logótipo da marca	99% do *e-mail de marketing* têm o logótipo da marca no canto superior esquerdo.	Deve-se posicionar o logotipo da marca num lugar com destaque.
Hiperligações	99% de *e-mails marketing* contém pelo menos uma hiperligação para outra página da internet. O número de links varia de 1 a 50.	Demasiados links podem esconder a mensagem. O número de links deve ser adaptado aos objetivos da comunicação.

Recursos interativos	Nos *e-mails* analisados encontrou-se 26 diferentes tipos de recursos interativos.	A interatividade pode aumentar a informação processada e envolvência, mas existe um nível potencial e ótimo de interatividade baseado na natureza das mensagens a serem comunicadas
Animação	Apenas 2% de *e-mail marketing* usa animações.	A animação consegue atrair a atenção, mas a sua eficácia deve ser questionada, devido ao fato de não ser muito utilizada.
Personalização	35% de *e-mails marketing* são personalizados.	A personalização melhora a percentagem de cliques, mas existe um nível apropriado de customização que depende do estágio em que o cliente se encontra devido aos dados pessoais cedidos pelo cliente.

Das diretrizes de Ellis-Chadwick e Doherty (2012) podem ser retiradas boas práticas a ter em consideração na construção de *e-mail marketing*. Assim, no momento da sua construção deve ter-se em conta o tamanho do *e-mail* e adequar o mesmo ao tipo de produto que se pretende publicitar. Para se tornar mais apelativo, os autores aconselham que o *e-mail marketing* contenha ilustrações, recursos interativos, animações e hiperligações, salientando também a importância do conteúdo da mensagem. Tudo deve fluir do assunto para o título da mensagem e corpo criativo do *e-mail,* sendo o assunto fundamental para o *customer engagement*. Este deve ser testado através de testes A/B ou multivariáveis, de forma a perceber qual é o mais eficaz. Outra boa prática que se pode retirar das diretrizes, é colocar o logótipo da marca no canto superior esquerdo do *e-mail marketing*.

3. Metodologia: Caso de Estudo

O caso de estudo enquadra-se numa metodologia de abordagem qualitativa, uma vez que se pretende compreender uma realidade e não explicá-la (Pardal & Lopes, 2011). Em conformidade com Pardal e Lopes (2011), o objetivo deste caso de estudo é perceber o impacto do *e-mail marketing* num produto informativo - a revista científica InnovAction, da Altice Labs.

Denscombe (2010) admite que nos casos de estudo é fundamental a utilização de várias fontes de dados. Yin (1994) afirma também que os casos de estudo que utilizam uma quantidade superior de fontes de evidência, tornam-se mais credíveis. Neste sentido, Yin (2001) enumera seis fontes de evidência: documentação, registos em arquivos, entrevistas, observação direta, observação participante e artefactos físicos. De acordo com os autores referidos acima, esta investigação é composta por múltiplas técnicas de recolha de dados como: questionário, análise de documentos facultados pela empresa e os dados oriundos das campanhas de produtos através da plataforma MailChimp, utilizada pela empresa em estudo.

A fonte primária deste caso de estudo é o questionário - instrumento de recolha de informação, preenchido pelo informado (Pardal & Lopes, 2011). Nesta investigação, o questionário é utilizado com o intuito de perceber qual a imagem que os clientes e subscritores detêm da marca. O questionário foi aplicado posteriormente ao envio da campanha de *e-mail marketing* da InnovAction. Este, permitiu ainda recolher informações específicas da interação gerada entre a InnovAction e o cliente/subscritor.

O *e-mail marketing* da InnovAction foi enviado aos clientes e subscritores da marca, onde se incluem os participantes no evento de comemoração do seu segundo aniversário e as universidades. No entanto, no âmbito desta investigação, para se obterem dados mais concretos, o questionário foi apenas aplicado aos recetores da campanha InnovAction que clicaram no CTA (*Call-To-Action*) de acesso ao *microsite* da revista. Esta segmentação permitiu recolher informações específicas sobre quem realmente entrou em contacto com a revista.

Atendendo ao público a quem se dirigia o questionário (clientes do mercado B2B e subscritores), a mensagem do *e-mail* caracterizou-se por ser curta, clara e direta. Respondendo a estas indicações, este começa com uma pequena descrição do estudo e só depois são apresentadas as questões. O questionário é composto por 4 perguntas de opinião, 1 questão aberta e 2 questões de escolha múltipla. Este apresenta a seguinte estrutura: começa por inquirir os destinatários de forma a perceber se estes sabiam o objetivo da revista e se a associavam corretamente à empresa promotora, bem como compreender a perceção do inquirido sobre a influência da mesma na imagem que detém da marca. Solicitava-se, ainda, a indicação dos temas que despertaram mais interesse, sugerindo-se a possibilidade de indicar temas que gostariam de ver abordados na próxima edição da revista. Foi também requerido ao destinatário que este avaliasse a InnovAction relativamente à diversidade de temas, qualidade dos artigos e relevância que a mesma possa ter para o trabalho do destinatário. O questionário, teve também questões de escolha múltipla, com o intuito perceber a imagem que os destinatários detêm da Altice Labs, como marca, a nível de confiança, qualidade, prestígio, inovação, experiência e atualidade. Para a resposta a estas questões optou-se por uma escala par - 1) Discordo plenamente a 6) Concordo plenamente. Esta escolha conduziu à obtenção de maior precisão na opinião do inquirido. Não havendo termo intermédio, este teve de ser objetivo, ou concorda ou discorda.

Como fontes secundárias, esta investigação teve os documentos internos cedidos pela empresa (apresentações, documentos e vídeos institucionais) e resultados de campanhas *de e-mail marketing* do MailChimp (KPIs - Key Performance Indicator).

O acesso às campanhas realizadas no MailChimp possibilitou a análise comparativa dos resultados das campanhas da InnovAction entre a edição de 2016 e a de 2017 e das campanhas de outros produtos da empresa.

4. InnovAction

A InnovAction é, atualmente, a revista institucional da Altice Labs. Em 2003 surgiu como "Saber e Fazer", revista institucional da PT Inovação (Figura 2). A revista é lançada anualmente, tendo como intuito dar a conhecer as novidades no mundo tecnológico, e também mostrar aos clientes que a empresa se mantém na linha da frente, na sua área de atuação.

A revista atua como um veículo de partilha e comunicação dos desenvolvimentos tecnológicos, e outros conhecimentos, em todas as operações do grupo. Além disso, é também uma forma de reforçar o compromisso do Grupo Altice com a inovação tecnológica. Normalmente é formada por um conjunto

de artigos de índole mais tecnológico, com particular destaque para as novas abordagens sobre a tecnologia, as operações e as tendências de negócios.

Figura 2. Evolução / história da InnovAction.
Fonte: Elaboração própria

Com a transição para o Grupo Altice, a "Saber e Fazer", atual InnovAction, sofreu o *Rebranding* mudando de nome e acompanhando a imagem da nova marca. Uma vez que o Grupo tem uma estratégia de investimento em *Telecom* e *Media*, uma publicação tecnológica, como a InnovAction é fundamental. O *e-mail marketing* surgiu assim como uma das plataformas utilizada pela empresa para comunicar a revista.

4.1. Desenvolvimento da Campanha 2017

A campanha de *e-mail marketing* da InnovAction de 2017 foi desenhada suportando-se das principais orientações resultantes da revisão de literatura apresentada anteriormente. Esse trabalho deu origem às propostas A e B que podem ser visualizadas, respetivamente, na Figura 3 e na Figura 4. No essencial, as propostas foram pensadas e elaboradas tendo em conta algumas boas práticas retiradas das diretrizes sugeridas por Ellis-Chadwick & Doherty (2012), nomeadamente: (1) tamanho adequado ao objetivo e (2) menos CTAs que levem à ação do cliente. O texto do corpo do *e-mail marketing* foi o mesmo que empresa já tinha pensado para a campanha, e sendo este reduzido e apelativo à ação foi aproveitado para as propostas. Das duas propostas apresentadas, a proposta A (Figura 3) foi a utilizada como base para a construção do *e-mail marketing* enviado.

Figura 3. Proposta A - E-mail marketing InnovAction.
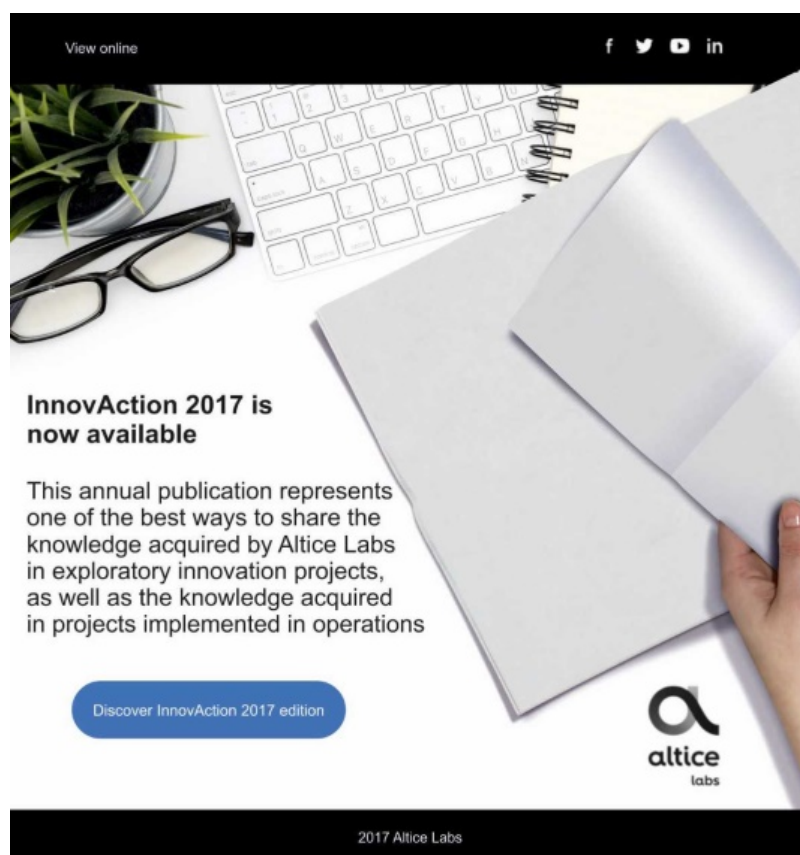**Fonte: Elaboração própria**

Figura 4. Proposta B - E-mail marketing InnovAction.
Fonte: Elaboração própria

A Figura 5 mostra a campanha enviada e nela podem ser visualizadas as semelhanças com a proposta A, no que diz respeito à posição e localização da ilustração da revista, da mensagem (lado esquerdo), no CTA abaixo do texto e no logótipo da marca no canto superior esquerdo.

Figura 5. Campanha de e-mail marketing da InnovAction 2017.
Fonte: MailChimp

Entende-se que as alterações feitas na estrutura do *e-mail marketing* da InnovAction foram fatores proeminentes para os resultados positivos da edição de 2017 (Tabela 2), expostos de seguida.

4.2 Evolução entre Campanhas

Nas edições enquanto "Saber e Fazer", a revista era apenas impressa e divulgada internamente através de um PDF (Portable Document Format). A mesma, ficava alojada num repositório interno e depois era feita a sua divulgação pela empresa com uma hiperligação associada ao PDF. Externamente, a revista era dada a conhecer em formato papel. Em 2016, a "Saber e Fazer" muda a designação para InnovAction e passa a ser comunicada através da plataforma digital de comunicação de e-mail marketing – MailChimp.

A Figura 6 ilustra a campanha da edição de 2016 da InnovAction, a primeira campanha da revista feita a partir de uma plataforma digital. Nesta edição, a empresa optou por no corpo da campanha identificar os temas abordados na revista - Uma visão para 2020; NG-PON2; M2M/IoT; TV; Big Data;

5G e NFV. Cada tema era acompanhado por um ícone alusivo ao mesmo e por um CTA que fazia ligação aos artigos correspondentes ao tema. A hiperligação em cada um dos temas foi colocada com o intuito de apurar os artigos que originaram mais cliques, e assim descobrir qual o tema que gerou mais interesse por parte de quem recebeu a campanha.

Figura 6. E-mail marketing da campanha da InnovAction de 2016. Fonte: MailChimp

Seguido da perceção da campanha da edição da revista de 2016 são apresentados, na Tabela 2, os resultados, oriundos do MailChimp, das respetivas edições da revista (2016 e 2017).

A campanha da InnovAction da edição de 2016 foi enviada a duas listas distintas: InnovAction e InnovAction Gestão PT, num total de 1169 pessoas. A lista InnovAction era composta pelos clientes e subscritores e a lista InnovAction Gestão PT pelos colaboradores da empresa. A edição de 2017 foi enviada a três listas diferentes: Convidados, Universidades e Clientes/Subscritores, num total de 1434 pessoas.

Os resultados entre as campanhas da edição de 2016 e da de 2017 podem ser observados na Tabela 2. Na mesma não se inclui a lista InnovAction Gestão PT de 2016, pelo facto de esta ser composta pelos colaboradores da empresa. Tendo sido um dos objetivos da investigação ter a perceção da imagem que os clientes e subscritores detêm da marca, os dados da lista InnovAction Gestão PT não são relevantes.

Tabela 1. Resultados das campanhas de 2016 e 2017 da InnovAction.
Fonte: Elaboração própria

Listas	2016	2017		
	InnovAction	**Clientes e subscritores**	**Convidados (2º Aniversário)**	**Universidades**
Subescritores	901	1025	300	107
Taxa de abertura	18,8%	27,3%	42,8%	61%
Taxa de Cliques	5,8%	11,9%	15,8%	30,5%

Como referido, a InnovAction de 2017 foi enviada a algumas Universidades. O envio foi feito aos diretores de departamentos, investigadores e reitores com o intuito de posteriormente os mesmos enviarem aos alunos interessados, pois as universidades por questões de privacidade não dão acesso às bases de dados dos *e-mails* dos estudantes. A nova lista Universidades surgiu da ideia dada numa reunião entre os membros da investigação. O objetivo era a possibilidade da revista chegar a alguns estudantes. Esta ideia foi dada após se perceber que o conteúdo da InnovAction se adequava a algumas áreas de formação, mais ligadas à tecnologia. Para além disso, ajudando a fundamentar a ideia, foram utilizados também excertos da obra de Kotler, Setiawan e Kartajaya (2017), onde estes afirmam que cada vez mais os *marketers* têm o objetivo de influenciar as mentes dos consumidores enquanto jovens, pois os jovens de hoje serão os consumidores do futuro. Como se pode observar na

Tabela 1, esta lista foi a que obteve melhores resultados, não só na taxa de abertura como também na taxa de cliques.

A edição da InnovAction de 2017 coincidiu com o segundo aniversário da empresa, sendo que a lista Convidados era composta por pessoas que estiveram envolvidas na ideação do evento. A revista foi dada a conhecer pela primeira vez, em formato papel, no segundo aniversário da empresa, que decorreu no dia 23 de fevereiro de 2018. A campanha de *e-mail marketing* foi enviado na semana seguinte, dia 27 de fevereiro.

Para uma melhor compreensão da comunicação da empresa por *e-mail marketing* e para tentar identificar algum outro fator influenciador de resultados, foram também analisados os resultados de campanhas de outros produtos. A análise foi feita a seis produtos da empresa, os que até à data foram publicitados através de *e-mail marketing,* pelo MailChimp.

No que respeita ao comprimento, verificou-se que algumas campanhas apresentam um comprimento extenso. Estas campanhas pertencem a produtos completamente distintos uns dos outros e com objetivos diferentes: uns com o objetivo de venda e outros com o objetivo de informar. Segundo Ellis-Chadwick e Doherty (2012), o comprimento do *e-mail marketing* tem de se adequar ao objetivo do mesmo.

Uma outra boa prática retirada das diretrizes de Ellis-Chadwick e Doherty (2012) é a presença do logótipo da empresa no canto superior esquerdo. Nas campanhas analisadas apenas uma campanha de produto não corresponde a esta boa prática, estando o logótipo da empresa no topo centrado.

As hiperligações e recursos interativos são outros elementos que devem estar presentes no *e-mail marketing*. Todas as campanhas de produto analisadas cumprem com esta boa prática. É de referir que é importante ter recursos interativos e hiperligações, mas não em excesso, para não induzir em erro ou confundir a ação do subscritor/cliente. Um exemplo de excesso de hiperligações é o *e-mail marketing* da InnovAction da edição de 2016, com 7 CTAs.

A personalização é uma das diretrizes também apontada por Ellis-Chadwick e Doherty (2012). Vivemos uma era em que o utilizador tem cada vez mais a opção de personalizar o que adquire, e, consequentemente, também procura e consome marcas que o "conheçam". Esta boa prática não foi evidenciada em nenhuma campanha da empresa.

Na análise das campanhas, há uma campanha de produto que se destaca. Os resultados mais expressivos da campanha parecem estar associados ao facto de ter havido um evento associado a esse produto. A empresa esteve presente num evento e no âmbito do mesmo lançou um microsite dedicado ao portefólio do produto. Este fator já foi identificado anteriormente na campanha da InnovAction como possível influenciador nos resultados das campanhas.

4.3. Reconhecimento e Valor da Marca

O questionário aos recetores da campanha InnovAction que clicaram no CTA de acesso ao microsite da revista e que nele entraram revela informações específicas sobre quem realmente entrou em contacto com a InnovAction. Das 168 pessoas às quais foi enviado o questionário, responderam 22.

A análise de resultados mostra que na resposta à questão: "Conhece o objetivo da InnovAction?", 16 pessoas afirmam conhecer o objetivo da revista contra apenas 6 que afirmam não conhecer. Na questão: "Que empresa da área das telecomunicações associa de imediato à revista InnovAction", todos confirmaram associar ao Grupo Altice. No entanto, revelam alguma confusão com a identificação da marca concreta, face às várias alternativas exibidas, 18 associaram à Altice Labs, mas 2 associarem à marca MEO e 2 à Altice Portugal.

Sobre os temas abordados na edição de 2017 da InnovAction que mais despertaram interesse aos inquiridos, houve uma clara evidência que o tema "Smart cities - the importance of sharing" foi o mais apelativo. O tema "Digital innovation labs and the digital CSP" foi o que suscitou menos interesse. Face à oportunidade, a generalidade dos respondentes indicou outros temas relevantes que gostaria de ver abordados na próxima edição da revista.

Os resultados evidenciam que a imagem detida pelos inquiridos em relação à revista é bastante positiva. Ao lhes ser questionado como avaliam a relevância da InnovAction quanto à diversidade de temas e qualidade dos artigos, os 22 participantes (usando uma escala de 1) Discordo plenamente a 6) Concordo plenamente) avaliaram entre 4 a 6. Quanto à relevância para o trabalho, verificou-se que a maioria avaliou também entre 4 a 6. Ainda, com os resultados à questão "A revista InnovAction influência a imagem que tenho da marca Altice Labs", percebeu-se que a InnovAction é um produto que influencia positivamente na imagem da marca. Apenas 2 inquiridos assinalaram 2, os restantes 20 concordam que a revista tem influência na imagem da marca Altice Labs. Outro dos objetivos do questionário era perceber, dos inquiridos, qual a imagem que estes detêm da marca Altice Labs. Para responder a este objetivo, foi pedido aos inquiridos para assinalar o seu grau de concordância relativamente à classificação da marca Altice Labs, no que diz respeito à confiança, qualidade, prestígio, inovação, experiência e atualidade. Todos responderam igual ou superior a 4.

Assim, podemos constatar que do questionário recolheram-se dados relevantes para este estudo e positivos para a InnovAction e para a Altice Labs, como marca. Há um claro reconhecimento no valor que a marca tem nos seus clientes e subscritores, sendo a InnovAction um contributo importante.

5. Considerações Finais e Contributos para a Gestão

Os resultados desta investigação permitem corroborar algumas diretrizes de Ellis-Chadwick e Doherty (2012) como boas práticas para a construção de um *e-mail marketing*. Nomeadamente, o comprimento do *e-mail marketing* apresentou-se como a mais evidente na influência dos resultados da campanha do produto estudado – revista InnovAction da edição de 2017 da Altice Labs. Também, a redução do tamanho do *e-mail marketing* induziu a uma maior taxa de abertura e de cliques na campanha.

No estudo realizado foi possível apontar outro fator influenciador dos resultados das campanhas de *e-mail marketing*, no caso em concreto dos produtos da empresa. Após a análise detalhada da campanha da revista InnovAction e das campanhas de produto disponíveis no MailChimp, verificou-se

que as campanhas com melhores resultados tinham um fator em comum: um evento em que o produto foi apresentado.

A destacar também, e apesar do *rebranding* que a Altice Labs sofreu, os resultados evidenciam um claro reconhecimento no valor que a marca tem nos seus clientes e subscritores, sendo a InnovAction um contributo importante.

O *e-mail marketing* sendo utilizado pela empresa como meio de comunicação deve estar sempre presente no plano de comunicação. Não foi possível para a empresa ceder o seu plano, sendo este fator considerado uma limitação do estudo.

Como não foi possível à empresa dar acesso, considerando-se este facto uma limitação do estudo.

Esta investigação não conseguiu abranger outros tipos de produtos da empresa, pelo que seria interessante dar continuidade a este estudo de uma forma mais abrangente, de modo a verificar a reação do público ao *e-mail marketing* de outros produtos. Para além disso, e por forma a melhor confirmar os resultados apresentados, parece justificar-se explorar este tema noutros contextos, nomeadamente em mercados B2C, em instituições sem fins lucrativos, podendo assim também identificar outros benefícios que o *e-mail marketing* pode trazer para a comunicação.

Como sugestões para a comunicação de produto da empresa, o próximo passo para obtenção de melhores resultados acredita-se ser a personalização do *e-mail marketing* a cada cliente, de acordo com a configuração das *personas* criadas da marca e do produto/serviço. Conforme referido, a adequação do comprimento do *e-mail marketing* ao objetivo do *e-mail* é crucial para a obtenção de melhores resultados nas campanhas. Assim, recomenda-se que no momento do planeamento da campanha do produto se pondere adequar o objetivo ao tamanho do *e-mail marketing*. Face à evidência que os produtos que tiveram um evento associado tiveram melhores resultados na campanha de *e-mail marketing*, sugere-se a quando do lançamento dos produtos ponderar organizar uma palestra ou demonstração como primeiro contacto do cliente com o produto.

Os testes A/B estão disponíveis na versão gratuita do MailChimp. Estes permitem fazer comparações entre variáveis de *marketing,* com o objetivo de definir qual a variável que gera melhores resultados (Baxevanis, 2016). Para além disso, os testes A/B eliminam a necessidade da empresa fazer suposições, e permitem tomar decisões baseadas em números, diminuindo assim a margem de erro (Borges, 2016). Pelo referido anteriormente, seria positivo para a empresa proceder à aplicação dos testes A/B.

A empresa utiliza a versão gratuita do MailChimp. Para a obtenção de melhores resultados, era benéfico ponderar a contratação da versão paga desta plataforma. Recursos como Timewarp, segmentação avançada e Social Profiles são alguns exemplos de recursos pagos que poderão auxiliar a empresa a elevar a sua forma de comunicação. Ponderando que o público-alvo da empresa não é apenas nacional, o Timewarp permite à mesma programar as campanhas, de modo a estas serem enviadas de acordo com o fuso horário de cada subscritor, independentemente da sua localização geográfica. A segmentação avançada disponibiliza à empresa mais critérios de segmentação, fomentando uma maior precisão na segmentação de clientes. Os Social Profiles permitem ordenar a

lista de *e-mails*, com base nos dados sociais, disponíveis publicamente, dos clientes/subscritores. Estas informações permitirão à empresa saber, da sua lista, qual o cliente/subscritor mais influente, com base na sua atividade nas redes sociais e no número de amigos que tem.

Para finalizar, ainda a sugestão da criação de uma área no *website* institucional da empresa, com as últimas inovações da empresa. Empresas europeias de telecomunicações como a Orange e a Deutshe Telekom, adotaram esta estratégia, como comunicação de avanços tecnológicos. A Deutshe Telekom optou também por um blogue, onde publica algumas notícias do mundo digital e tecnológico. A empresa com o blogue, não só fomenta o debate entre os utilizadores através da possibilidade de os mesmos puderem comentar as notícias, como ao mesmo tempo, cria um elo de ligação e proximidade entre a empresa e os seus clientes e seguidores.

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Designing a Pervasive Adventure Gamescape: Avoiding the Pitfalls in Creating Augmented LBGs for Playful Learning

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Abstract

This article reports on the design and evaluation of player experiences in relation to a location-based game (LBG). LBGs seek to move gamified play into the "real world" of cities, parks, and other locations. These games are played in everyday places, where game information is tied to specific locations (Magerkurth et al, 2005). This connection to real-world physicality makes the game experience multidimensional and fun for players of different ages. Yet, to be able to envision and create an urban gamescape means that a set of criteria must be met. The unique challenge of creating and orchestrating LBG experiences requires a certain sensitivity from its designers to the multiple factors that must be considered. These may include—but are not limited to—factors such as the city's infrastructure, the flows of urban traffic, the maintenance of recreational areas, and human-related factors such as cooperation with the city administration. The game introduced in this article—Sigrid-Secrets— represents an urban game adventure built upon the platform of geocaching. We approach the game with a focus on its potential learning affordances. We ask how the pitfalls in creating opportunities for learning through LBGs could be avoided, especially when designing pedagogic aims into an urban gaming experience fit for school-aged children.

Keywords: Pervasive Gamescape, Location-based Game, Educational Game**,** Geocaching, Game-based Learning

1. Introduction: Location-based play in a gamified world

Location-based experiences aim to provide the user with a richer experience that extends across a series of locations. They build on three core technologies: mobile devices, wireless networking, and location sensing (Benford, 2005). Our research focuses on the design and study of a particular pervasive and location-based game (LBG), Sigrid-Secrets.

As presented by Thomas (2006), the characteristics of a pervasive game are as follows: 1) games that can be played anywhere; 2) games that can be played at any time; 3) games in which the player's location is relevant to and/or affects the gameplay; 4) games that do not have set states; 5) games that are always on, 24 hours a day (persistent world games); 6) games that take advantage of the available technology to simulate a pervasive state; 7) games that incorporate digital and traditional media; 8) games that emphasize communal (competitive and collaborative) gameplay; 9) games that contact players; In fact, some argue that Massive Multiplayer Role-Playing games are no longer "just games"; they are a monthly service provided indefinitely to highly committed paying subscribers (Stern, 2002). This means that MMOPRPGs do not have "on/off" switches, that reason games can contact players to attract players to join the game; 10) games in which the real world is the game arena, which means that the game-world is constructed based on the real world; 11) games that emphasize the journey rather than the end outcomes; and 12) games in which the game world and the real world influence each other (Thomas, 2006,

p. 43). The geocaching game belongs in the category of pervasive games implementing these elements of gameplay.

This article introduces the geocaching trail that is enhanced with visual artworks and playified further with a narrative structure and the implementation of mini-games of a semi-fictional nature. This article reports on the design and evaluation of the players' experiences of this urban game adventure. Our article[1] tells the story of Sigrid-Secrets, a geocaching[2] trail designed and created by the authors (as designers, content developers, and researchers), and which is situated in the cityscape of Pori, a coastal town in Western Finland. It combines the geographical location of a city park with a narrative-based structure. Sigrid-Secrets is designed to be an easily accessible, narratively engaging, and educational experience for players of all ages. The geocaching trail requires its players to move along in the central park areas of the city, visiting six photographic art works prior to the actual geocache. In this way, we have both enhanced the gaming platform of geocaching with art and have even gamified an art exhibition featuring six small artworks "hidden" within different areas of the park.

The game offers its players the short-term goal of completing the trail by walking from one hidden artwork to another until one finds the final cache. The activity requires the players to walk an approximately 1-km trail that stems from one end of the park to the other. There is no time limit to compete the trail. Instead, it is the narrative of the character of Sigrid that evolves upon arriving at each of the artworks, depicting Sigrid performing different activities such as dancing or drawing. Engaging tasks are given to the players at each artwork as they are asked to solve simple trivia questions or riddles—such as providing Sigrid's middle name. While solving these tasks does not give the players scores, they do become part of the narrative that intertwines Sigrid's story with the facts of the city. By finding the artworks one by one, the player advances on the trail to finally arrive at the actual cache—a hidden container that features the physical log in which geocachers are meant to write their entries.

The objective of this article is firstly to present the aims and designed affordances of our urban geocaching trail, enhanced with artworks, a game created for 'edutainment'—both entertainment and learning; and secondly, to offer a description of the execution of this trail and the playtests conducted with different age groups. A focus is maintained throughout on how the geocaching game relates to, and is structured based upon, its geographical location—a small cityscape. Moreover, we will concentrate on discussing the content-creation, and how it was built upon the historical and presently affirmed facts of the city, as well as discussing the creative components of the game in reference to how the content is communicated to the players through the game's design. We will then go on to suggest some guidelines regarding what to consider when designing for urban game adventures (with the potential learning goals of the players in mind) based upon our knowledge of the pitfalls we detected while conducting the playtests.

2. Design goals for Sigrid-Secrets

"Player engagement and immersion in games is essentially performative and participatory and occurs as a direct result of active involvement, attention and interaction" (Carrigy et al, 2010, p. 93). Sigrid-Secrets was originally launched as one part of an outdoor urban and interactive art exhibition, called Kätketty Taide (or "Hidden Art," in English), located in the city parks of Pori, Finland, in May 2016. The idea of the exhibition was to hide artworks in unobvious locations such as in and under the trees, stones, and permanent structures of the park—park benches, electric cabinets, etc.

We understand our game as a casual gaming experience that affords many forms of interaction. According to Kultima (2009), to design a casual game experience is to design an experience in a wider experiential context. Kultima stipulates four design values related to casual games according to the author's acceptance of the contents: acceptability, accessibility, simplicity, and flexibility. The first of our design goals was actually the simplest and most easily executed, both from the designer's and the players' perspectives; to use the platform of the internationally known and popular geocaching game, and to enhance it with six artworks telling the story of Little Sigrid—a contemporary doll dressed and accessorized to look like a historical character from the end of the 1800s, but depicted in scenarios that are known to the children and adults of the 21st century. The audience for this game would primarily be those with an interest in, and with previous experiences of, geocaching. The prerequisite for playing this game is to have access to the Geocaching.com app on one's smartphone.

2.1. Designing for casual play through pervasive learning games

What we had in mind for Sigrid-Secrets was to design an acceptable and accessible (and in this way casual) yet rewarding game adventure for players of differing ages, with different dimensions of gameplay. In our case, "casual" follows, in part, Kultima's suggestion that our game must be acceptable, accessible, simple, and flexible. Furthermore, we aimed at a pervasive gamescape that suits to serve different learning goals, both pervasive and playful.

Learning is not just for the classroom but for the world outside the classroom's doors: Pervasive learning is a social process that connects learners to communities and devices, people and situations, so that learners can construct relevant and meaningful learning experiences in locations and during times that they find meaningful and relevant. This also means players are given autonomy in terms of their learning experiences; they take control and direct their own learning processes. Players have power over their own learning and have the ability to perform actions and step in as they deem necessary. The players understand that there are many variations and possibilities and also that their learning feedback comes from a variety of sources (Thomas, 2006).

2.1.1. Acceptability

We strived for acceptability, especially in terms of the game being accepted as a tool for learning. For instance, the acceptability of our game withholds possible instrumental dimensions when the game is considered as a tool for learning, supporting light mental or physical exercises, or facilitating social interactions. These potential dimensions of the game adventure have been scrutinized in the earlier phases of our research (see e.g. Ihamäki & Heljakka, 2017; Heljakka & Ihamäki, 2018) and we will continue to develop our work regarding the opportunities for learning within the game in this article.

2.1.2. Accessibility

Our goal of achieving accessibility within the game meant that Sigrid-Secrets would have to be easily cognitively accessible: We connected the narrative of Little Sigrid with facts from the history of Pori by exploring the collections of the Satakunta Museum; then we gave the character a semi-fictional personality (her name is based on a real person who lived in the region in the 1800s) and designed her fictional narrative partly based on this information. In this way, the story of the game became relatable to local people as it had a direct connection to the city where the LBG was located. Other points regarding the accessibility of the game include the concise information given in the adoption phase: The Geocaching.com website dedicated to Sigrid-Secrets informs the players of the "backstory" of the central character[3].

2.1.3. Simplicity

Another design goal for our game was to keep it simple, considering both its acceptability and accessibility. Simplicity as a design guideline partly overlaps with the other design goals. However, it also refers in our case to the simplicity of the user interface of the mobile device, typically a smartphone, which through the use of the Geocaching app, unlocks the coordinates needed in order to find out the exact locations of the artworks along the geocaching trail[4]. Pervasive learning games can also be seen as simplistic from the perspective of locationality, because learning occurs in locations and at times that are meaningful and relevant to the learner (Thomas, 2006).

2.1.4. Flexibility

An additional design goal for our game was to keep it flexible, to maintain the fact that the game could be casually approached—for example, by searching only for a few of the artworks one day and then returning to the game adventure on a later occasion. In Kultima's (2009) definition, flexibility means that the game supports spatial, temporal, and social pervasiveness. We, as the designers of Sigrid-Secrets and from the perspective of Kultima, also aimed at an experience that would allow other parallel activities such as strolling in the park and admiring the city with its various structures. Pervasive learning offers constructed, meaningful, and relevant learning situations to which the players can relate. Because learners are internalizing concepts

within their own personal environments, they can better understand the implications of what they are learning and can construct ways to relate this knowledge to their own lives (Thomas, 2006).

Furthermore, we aimed at a leisurely game experience, which follows, on the one hand, a non-competitive vision of walking in the park and, at the same time, involves seeking the "secrets" that the hidden photographic artworks entail.

2.2. Augmenting the Game Experience

The second dimension and design goal (at the time of writing; this is still a work-in-progress feature) of our game was to implement an additional layer to the geocaching process: An application that brings the toy photographs (or, photoplay) "alive" by activating supplementary features such as infusing augmented reality (AR) animations with the photographs that allows the players to play mini-games—which include solving riddles and answering trivia questions. The third and final dimension of our game was ultimately to implement an AR feature that would present the player with further content in relation to the Sigrid character.

The ideation and design work for Sigrid-Secrets was carried out in fall 2015, well before the launch of PokémonGO (2016)—Niantic's immensely pervasive and popular AR-enhanced gaming experience. To our (the game designer's) surprise, PokémonGO featured many examples of similarities to what we had already planned for our game.

Within both our game and PokemonGO, AR systems combine and align real and virtual objects within a physical environment, simultaneously running interactively and in real time (Azuma et al, 2001). AR technology has shown us different affordances that are suitable for the purpose of learning. For instance, AR enables ubiquitous, contextual, collaborative, and situated learning, which may promote the learners' sense of immersion. At the same time, AR is able to enrich physical spaces with additional information (e.g., making visible the invisible), which can bridge formal and informal learning or indeed enable learning from multiple perspectives (Dunleavy et al, 2009; Sheehy et al, 2014; Wu et al, 2013). As a consequence of technological advances, there has been a renewed interest in researching the use of AR in education (Sheehy et al, 2014; Wu et al, 2013). For example, Muñoz-Cristóbal et al (2018) have studied how to help teachers facilitate learning situations involving AR technology that has shown different affordances in terms of learning. The research for their article was conducted based on Game of Blazons and was carried out in a learning situation that was overseen by two university teachers using GLUEPS_AR and framed, over two days of outdoor activities, in a village in Spain. The results of their study highlighted that the most important thing to consider when formulating such games is to manage the learning situations and AR through other activities from the existing educational practices (Muñoz-Cristóbal et al, 2018). Ultimately, the VR and AR features[5] of Sigrid-Secrets have remained a work-in-progress project up until the present day. Consequently, the "artified" game experience is built largely on static images and the narrative is delivered to the players who registered on the Geocaching.com website.

Once the "Hidden Art" exhibition ended in August 2016, the city authorities gave us permission (the authors/reserachers/game designers) to keep the six artworks and the final cache—a hidden container—in place. This has allowed us to investigate various aspects of the game in our case studies, where we are interested in, for example, the effects of the trail on the players' well-being (Ihamäki & Heljakka, 2017), as well as its possible educational implications (Heljakka & Ihamäki, 2018). To this day, some 336 geocachers are reported as having visited the trail (as per November 2018).
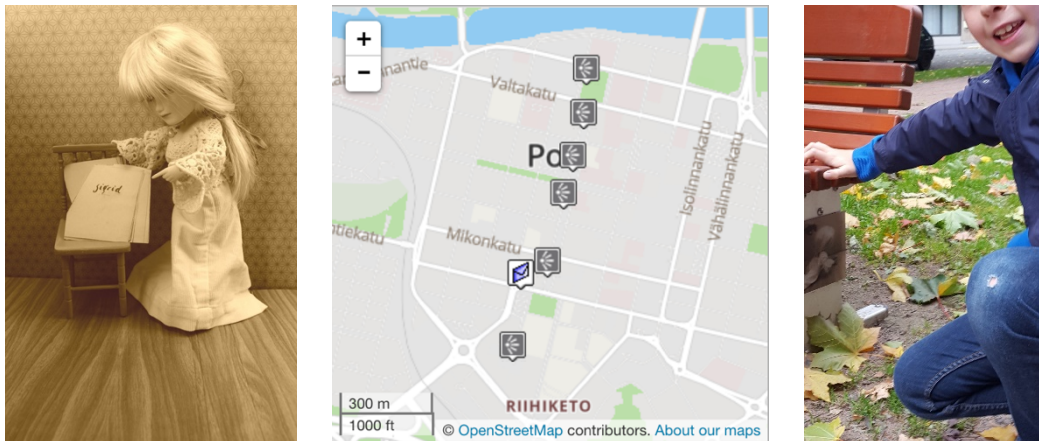
Figures 1, 2, and 3. Exhibition poster for Sigrid-Secrets as a part of the Kätketty Taide ("Hidden Art") exhibition and the Vihervuosi 2016 event; Map depicting locations of the artworks in the parks of Pori; An example of how the artworks are displayed on existing structures such as park benches.

3. Related research: Designing pervasive learning experiences and LBGs

One could say that every instance of a played game teaches its players something. Designing for pedagogical outcomes, however, presents game designers with challenges not necessarily associated with the design of casual games. With serious games, the primary goal is often that of education. "Since 2001, when the first pervasive game, THE BEAST, demonstrated how everyday spaces could be digitally enabled to provide opportunities for play, hundreds of pervasive games have emerged that demonstrate the motivational power of ad hoc networks of connected players. Pervasive learning games take advantage of this motivational power by building on the framework provided by pervasive and ubiquitous computing and the theoretical foundations (design and practice) offered by the field of games and education" (Thomas, 2006, p. 41). Plymale (2005 cf. in Thomas, 2006) suggests that pervasive and ubiquitous learning offers, among other benefits, improved capabilities for communication, coordination, collaboration, knowledge exchange, and the removal of time and space constraints when accessing information. One way of seeing pervasive learning through games, then, is to emphasize the playfulness of this mode of learning.

Kangas (2010) sees playful learning as a key competence in terms of teaching and learning. Educational games, therefore, can be seen as being in the category of serious games, or games

with a purpose—the purpose in this case being catering for playful learning. Kangas defines the goal of playful learning as follows: It is curriculum-based learning that is enriched with play, games, and technological affordances. In our understanding, a game suitable for education and used for facilitating a playful learning process can at the same time adhere to the values of a casual game.

Playful learning and pervasive games are not only about implementing future technologies but are also about seeing the "unbounded and often overlooked opportunities for play" (McGonigal, 2003, p. 21) that surround players. It is therefore useful to also remember McGonigal's (2003) core philosophy of pervasive games, "The best pervasive games do make you more suspicious, more inquisitive, of your everyday surroundings. A good immersive game will show you game patterns in non-game places; these patterns reveal opportunities for interaction and intervention" (McGonigal, 2003). That is why we see the geocaching game as presenting a potential platform for a pervasive learning game that is well-suited to playful learning. To be played, geocaching requires the use of digital and mobile technologies. Consequently, it represents a platform for 'M-learning' that enables moving learning out of the classroom and into other environments.

3.1. M-learning Takes Play Beyond the Classroom

In 2005, Chen and Michael predicted that "games and game technology are poised to transform the way we educate and train students at all levels" (Chen & Michael, 2005). Mobile devices enable 21st-century students to build on their knowledge anywhere and at any time. Mobile learning (or M-learning) is an educational interaction delivered through mobile technology and accessed by students from any location (Traxler, 2009). M-learning is characterized by physical mobility and its flexibility in terms of time, place, pace, and space, and by its utilization of mobile devices with an Internet connection for educational purposes (Kinash et al. 2012). According to Zimmerman and Howard, "mobile devices can situate and connect learners by supporting authentic, context-specific, immediate learning" (Zimmerman & Howard, 2013, p. 2). Consequently, learning is no longer constrained to the classroom, its integration of mobile technology enables teachers to customize student learning by creating authentic learning activities to engage students anytime and anywhere (Hess & Gunter, 2013). Several researchers refer to the ability of mobile learning to enhance collaborative learning (Barker et al, 2005; Cheon et al, 2012). Pervasive learning goes beyond the concept of the classroom. Pervasive learning is not a form of delivered instruction, instead it is a social process that happens at a time and place of the learners' choosing. By using the real world as a playground, learning can happen, for example, in local parks (as in this case study). Pervasive learning supports spontaneous, unscripted learning from the environment—as we describe later in this article.

3.2. Questions and Challenges for Designers of Pervasive Learning Games

As demonstrated, location-based learning experiences present us with a new area of research that potentially could move and mobilize learning, bringing us outside of the traditional educational context of the classroom. Benford (2005) discusses the relevance of LBGs in education. His report concludes that location-based experiences could introduce significant benefits for education in schools, but also that a number of challenges need to be considered and assessed in the process. When designing LBGs for this purpose (for example, designing geocaches with educational implications in mind), we need to take several issues into consideration. These include technical and organizational challenges: Questions regarding technological connectivity and matters related, for example, to the privacy concerns and the "culture clashes" that could stem from using telephones in an educational context. Thus, an increasingly important factor that needs assessment is the functionality of technology. The second one addresses the user of the technology, and the third one, the content provided by this technology.

In order not to design "chocolate-covered broccoli" (as famously stated by Bruckman at the Game Developer's Conference in 1999), designers must also recognize factors that predict the effectiveness of educational games. According to a review undertaken by Linehan et al (2011), these factors may include fun, flow, engagement, feedback, goals, problem solving, game balance, pacing, interesting choices, and fantasy narratives—these are just a few examples of the many other aspects that could possibly be considered.

Furthermore, Schadenbauer (2008) lists a number of useful questions to ask that are relevant when conducting research with young people as players of a (digital) game. These are user-oriented, technology-oriented, and content-oriented questions, all relevant when considering M-learning (mobile learning): How are mobile phones used by young people? Which media are consumed by teenagers? How often do young people play games? Which kinds of games are popular? How important is social interaction in games? Do teenagers accept mobile learning games? Do the test subjects like the game and the story? Are the tasks difficult/easy? Do the aids help to solve the tasks? Does the framework support the game progress? Which technical problems can occur? Which potential improvements are possible to implement? A well-designed app presumably provides an appealing platform for the learners of the 21st century; it is useful for the designers of LBGs to consider the questions above. In the 21st century, we can see that learning can generally be described as multimodal learning, which means that learning occurs through multiple modes and that communication happens through a synchronization of these modes. Examples of modes include movement, gesture, color, animation, music, sounds, and also the possibilities of AR and virtual reality.

Linehan et al (2011) claim in their article that studies that try to point out reasons why games can be understood as valuable learning tools often do not include a review of the empirical evidence. In our study, the aim is to tackle this challenge by turning to the potential users of our

urban game adventure, with a focus on preschool and primary school-aged children. The methodologic approach used for our study will be discussed in the following section.

4. Methodology

Our research investigates how to avoid the pitfalls when designing and using an LBG such as our Sigrid-Secrets geocaching trail. This article focuses on a case study conducted with preschool and primary school-aged children. The question that guided our research was to understand how preschool and primary-aged school children respond to our pervasive game adventure during simulated geocaching tours that were guided, narrated, and gamified by ourselves, using our own mobile devices for demonstrating and documenting the tours. In the context of this article, therefore, we asked these questions:

RQ1: What are the potential learning affordances of our urban game adventure, Sigrid-Secrets?

RQ2: How could the pitfalls in creating opportunities for learning through LBGs be avoided, especially when designing pedagogic aims into an urban gaming experience fit for school-aged children?

We have studied the pervasive geocaching game using material from four sources: Our earlier research, on which this study builds, employed 1) user generated data (comments) on the Geocaching.com website. The research reported here uses 2) documentation of the playtests, 3) surveys, and 4) children's drawings. In addition, our study includes active participation and observation during the playtest sessions.

The survey method for assessing the perceptions of our game is similar to what Davis et al (2005) refer to as "playtests." To surmise, our multimethod approach allowed us to target our case study from several perspectives, which were necessary when the implementation of new types of game designs were considered. By organizing three guided tours, we play-tested both the experiential and the educational capacity of the trail. This indicates that we were interested in how the game worked for the player audience—young children with no previous experience of geocaching. Moreover, what was of interest to us was the testing of the players' responses to the second dimension of our game—the animated features, which included mini-games such as riddles and trivia.

The orchestration of the game adventure included the game administrators (in our case the authors/researchers) walking the geocaching trail with the children and leading the players (the preschool, and primary school-aged children) by reading the story of the main character of the tale— Sigrid. Moreover, the orchestration involved actively monitoring the children to ensure they stayed out of harm's way and to ensure that each one participated actively in the geocaching game (Capra et al, 2005).

The case of Sigrid's Secrets: Studying simulated geocaching tours with school-aged children

According to Mäyrä (2007), any gameplay experience is intimately linked with the immediate personal contexts of digital play, which means that we need to know the players better: how they play, what motivates their play, and/or about their aversion toward certain game forms. Again, usability research may help in identifying problems that block users from experiencing the "fun" of a game (Davis et al, 2005). In terms of games, this means a careful assessment of their playability.
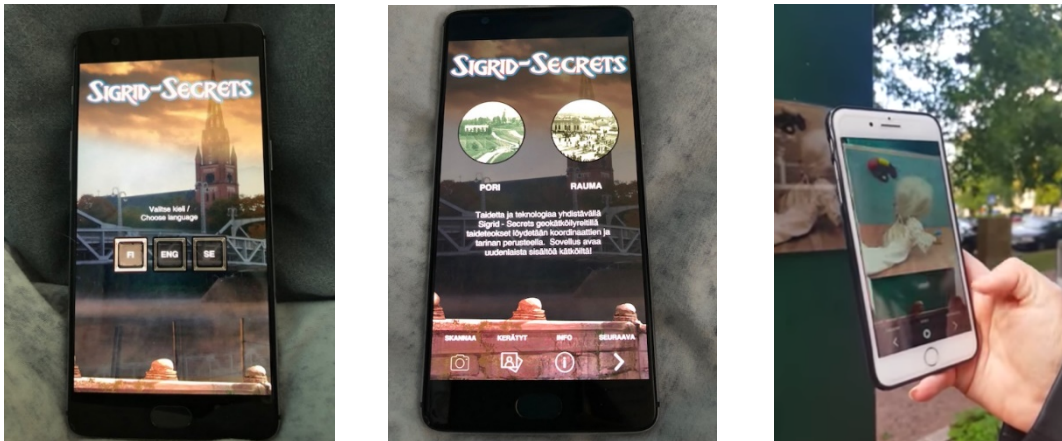
The study presented in this article centers around the evaluation of our urban game adventure and included observations of the children in action. Specifically, in the following, we will analyze the player experiences of our LBG, Sigrid-Secrets. The research reported uses documentation from the playtests, surveys, and children's drawings. In addition, our study includes the active participation and observations by the moderators during the playtest sessions. Surveys tap the players' perceptions of games and the usability tests may be employed to discover whether the experience the player has of a game matches the experience the designer intended the player to have. A combination of surveys and hands-on gameplay together form a method—the playtest that aimed to understand the players' initial experiences of the game (Davis et al, 2005). In our research, the playtests involved a simulated geocaching game of Sigrid-Secrets, which was guided, moderated, and documented by the authors. We also experimented with the additional method of asking the children who participated in the playtests to draw images of what they thought they learned by playing our game. The results of our multimethod study will be presented in the following section.

4.1 Guided Tours of the Sigrid-Secrets Geocaching Trail

The guided tours were organized over two days in October 2017. On the first day, the authors hosted the tours with the two groups that consisted of preschool children and their teachers (with n = 12 participants in the English group, n = 11 participants in the Finnish/English group, and two teachers in each group). Each guided test tour of the trail took between 45 minutes to 1 hour to complete. At the end of the tour, we asked each participant to fill in a survey and to draw a picture of what they had learned and remembered from the geocaching trail. Two children in the Swedish-speaking group (i.e. the third-graders, n = 12) were familiar with geocaching either because of having played the game elsewhere with their family, or because of them having toured the Sigrid-Secrets trail prior to our guided tour. Generally, the participating preschool children had not played geocaching before, nor had it been used by the preschool teachers either in informal or formal learning situations. However, many children reported, when asked, of having played PokémonGO in the Raatihuone Park; the starting point for the Sigrid-Secrets game experience and a hotspot for catching "Pokemonsters" since the summer of 2016.

During the tours we, as the researchers, narrated the experience by using the story of the character of Sigrid based on the text that was available on the game's website under Geocaching.com and we guided the groups by walking from artwork to artwork. As our "artified" game experience represented a work-in-progress project, not all of its designed features were available at that moment and indeed are still not available today. Each of the artworks that

represent the character of Sigrid undertaking different activities involved a mini-game such as a riddle, presented through, for example, a short animation, which in the future phases of the game's continuing development will be a part of its digital enhancement and available through an app. Consequently, these features were simulated for the groups by using mobile devices and by explaining that these features would be a part of the game in the future. In order to stimulate the children to play the mini-games, we played each animation from a tablet and asked the groups questions such as: "What is Sigrid's second name?" (The letters may be found both on the artwork and in the animation); "What do the colors in the animated film remind you of?" or "Which are the colors of the rainbow?"; "Which instrument does Sigrid play in the animation?"; "What is Sigrid doing in the animation?"; "What are they doing in this historical film?"; and "Where is this scenery from?"; or "What bird makes the kind of sound you are able to hear in the background?" Some of these questions could be solved by looking at the static image in the artwork alone, whereas some needed to be found in the animations (including sound) to be unlocked through the images by a mobile device and app (see figures 4-6).

Figures 4, 5, and 6. The Sigrid-Secrets AR-application in its current state: For a video presentation, see https://www.youtube.com/watch?v=mJZFneiVESY (Images from left to right): 4. Choosing the language; 5. Choosing the city; 6. Unleashing the AR features of the game experience.

4.1.1. Observations

According to our analysis, the educational affordances of Sigrid-Secrets may be grouped into the following categories: a) spatial design affordances, b) narrative design affordances, and c) interactive design affordances. Examples of these will be given in the following.

During the tours it became apparent that the children liked the idea of a "treasure hunt." Many of them enjoyed the competitive aspect of the "game within a game" they developed by themselves during our guided walk—that is, who will find the artworks first? Although this proves that children are innovative in terms of formulating their own rules for existing games, this possibility is an unintended design affordance. In geocaching, the question is not so much about how fast you find the caches, but rather, how many you find over a longer period of time[6].

1. Observation for the educational affordance of an LBG: Design features for the game that demand physical skills such as those relating to speed and dexterity

During the tour with the English preschool children, some participants asked about the number of artworks placed on the trail (altogether 6) and some were interested in how far they would need to walk during the tour. Both of these represent the game's spatial design affordances in terms of its layout. Some of the children jumped on the public artworks found in the park area (as in parkour), but which were not a part of the geocaching trail. The elements outside of the game belong to the city structures, which can be interpreted as intentional affordances of the park, but unintentional design affordances of the game.

2. Observation for the educational affordance of an LBG: Design features for the game that use the city's structures for teaching learners about measurable entities (e.g. geometry, architecture, physics, etc.)

Children in both groups paid attention to an unintended spatial design affordance at the end of the trail—a fly agaric mushroom (a poisonous mushroom). They took a relatively long time to inspect this. Based on our earlier research on geocaching (e.g. Ihamäki & Heljakka, 2017), we have come to understand that adults too become more interested in what can be found in the environment outside of the game when they are looking for caches in the name of geocaching.

3. Observation for the educational affordance of an LBG: Design features for the game that teach the learners about the city's flora and fauna (e.g. tasks related to biology)

Some of the children told us that they had been students at a local dance school that was a part of the information given in the Sigrid-Secrets story. They also enjoyed a historical short film that showed people rowing across the river Kokemäenjoki where presently there is a bridge. The possibility of interaction with the story of Sigrid-Secrets based on the previous knowledge and experiences of the local people is an intentional narrative design affordance. One of the children in the group considered the Sigrid character (a doll), as "creepy." This character also represents an intentionally designed feature of the game, or narrative design affordance, but its potential "creepiness" was not, and therefore it is classed as an unintentional design feature.

The participants in the study were enthusiastic about the short animations that were going to be made available as a part of the game (a part that has to be unlocked with an app). We simulated this for them by playing the short animations on a tablet. The participants were excited—for example, by the mini-game that asked them to find out Sigrid's second name by re-arranging the letters that floated around Sigrid within the animation. The children also liked the animation with the dancing Sigrid, which they considered to be "magical" (English group). This animation also provoked laughter with the second group (the Finnish-speaking group). The children were also enthusiastic about the sounds of the seagull featured in one of the animations where the task was to recognize the bird. This represents an interactive design affordance that from the viewpoint of the game designers was intentional and educational, as it required the employment of the cognitive skills of the players.

Our other observations made during the guided test tours are to do with the challenges and difficulties that we as the guides (and researchers) of the tour experienced during the walks. These include factors outside of the game, but that nevertheless affected the overall experience, and indeed which would impact any technologically-enhanced game that is played outdoors. These issues included: the functionality of the Wi-Fi connections; the workings of the mobile devices (i.e. running out of battery and space and the slow pace of the phone's functions, etc.); the weather conditions during gameplay; the risk of moving with groups of young children within the city center; and the maintenance of the geocaching trail, which may be affected by elements such as construction work that is being carried out in the area where the trail is located.

4.1.2. Survey

The preschool teacher in the English-speaking preschool group informed the researchers that the children had experienced filling in the survey as somewhat difficult. Again, the third-graders of the Swedish school had, according to their teacher, "filled the survey in the best way they could." Because of this, questions have been raised regarding the validity of the study.

Nevertheless, the surveys—in which we asked about the adventurous feeling of the trail, its length, about the learning that took place on the trail, and in which we also offered a chance for them to give freeform comments—were described by the children as "good" and "fun." In most cases, they graded their experience of the game's features as between 3–5 (3 = good, 4 = better than good, 5 = excellent).

4.1.3. Drawings

The children's drawings (for example, see Figure 8) of what they thought they had learned by touring the geocaching trail addressed several varying aspects. They varied from images of the trail itself, to descriptions of the park's surroundings, and even included depictions of the weather conditions. Roughly, the drawings could be divided into two categories—maps of the trail (that were based on the children's own observations, as maps of the trail were never shown to them) and those of the scenery surrounding the trail; mostly featuring trees and infrastructures within the park. Many of the children who we interviewed and videotaped, when they explained what they had drawn, mentioned the "treasures"—that is, the "secret" artworks on the trail and the actual geocache, which was located in a secret stash underneath some trees.

Figures 7 and 8. A mushroom at the end of the geocaching trail caught the children's attention; A drawing made of the geocaching trail by a 6-year-old girl. She explained the red object to be a park bench underneath which the children discovered an artwork.

5. Affording opportunities for playful learning through geocaching

Our assessment of the game adventure begins by comparing the design goals with the results of the playtests. The results of the first phase of our research—conducted with transgenerational users of the urban geocaching trail—illustrate that the users' experiences are multidimensional (Ihamäki & Heljakka, 2017). The general overview of the detected affordances show us that it is possible to categorize a set of different design affordances that relate to the game and are part of the environment—in our case, a park area in an urban center. These are either an intentional or an unintentional part of the geocaching trail's game-specific affordances. According to our analysis, the affordances of Sigrid-Secrets may be grouped into the following categories: a) spatial design affordances, b) narrative design affordances, and c) interactive design affordances. The intended designed affordances of an urban geocaching trail enhanced with artworks are controlled by its designers, whereas unintended design affordances emerge when users explore and interact with the game and are dependent upon the players, the changes in the environment (spatial surroundings), and the weather conditions. The tests revealed both intended and unintended design features that we describe herein as pitfalls. These are pitfalls that can be faced when school children are taken to experience an urban adventure gamescape with educational outcomes in mind. Challenges in designing for urban playscapes with educational intentions in mind include (according to our study): a) challenges in interaction within the gameplay, real-world interaction, and interaction with other players; b) challenges in the impact of the location (situational factors); and c) challenges in responses to the game's aesthetics and narrative. Based on these, we developed the following design guidelines:

General design guidelines: Suggestions for future designers of urban adventure gamescapes for learning:

- To avoid pitfalls when designing for interaction in gameplay: Design the LBG so that its goal, mechanics, and approximate length are easily understood by the players before they start to play (together) so that the players know what to expect.

- To avoid pitfalls in designing the location of the game: Design the LBG cooperatively with whoever is in charge of the location (e.g. the city officials in charge of maintaining your game's elements in the physical environment) to ensure that the game elements stay intact.
- To avoid pitfalls in designing the aesthetics and narrative of the game: Design the LBG to include approachable (in the case of young players, child-friendly) characters so that the players are not scared off by anything that could be considered "creepy."

6. Summing up the pitfalls in the park: Avoiding the unwanted outcomes of designing a LBG suited for playful learning

Two research questions guided our process. These were: 1) What are the potential learning affordances of our urban game adventure, Sigrid-Secrets? 2) How could the pitfalls in creating opportunities for learning through LBGs be avoided, especially when designing pedagogic aims into an urban gaming experience fit for school-aged children?

Regarding the important questions to ask when designing LBGs and that were stipulated by Benford (2005), the most relevant questions proved to be: How important is the social interaction in the games? Do the test subjects like the game and the story? Are the tasks difficult/easy? Do the aids help to solve the tasks? Does the framework support the game progress? Which technical problems can occur? Which potential improvements are possible?

Assessing perceptions of the game by conducting playtests with young children provided us with valuable feedback. We suggested possible educational ideas that interlinked with the affordances presented to us through our study and that stemmed from our observations. Again, a summary of the results of our case study points out how the unwanted outcomes of a designed LBG may relate to user-oriented, technology-oriented, and content-oriented issues that should be considered in design work. Our case issues (relating to interaction, location, and the aesthetics/narrative) proved to present the most prominent instances of unwanted design, which could be overcome via the implementation of an improved design process for the initial stages of development.

According to Lihehan et al (2011), the merging of the disparate goals of education and game design appears problematic: Ultimately, the design of any educational game will ensure that the game teaches in a way that has both been demonstrated as effective and is also appropriate to the medium of computer games. Therefore, game designers must work together with educational professionals when aiming to develop serious games as new teaching tools, as Lihehan et al (2005) remind us. When game-based learning is of interest to designers, it is appropriate to consider how to assess and test in order to determine that the participants can relate to the content of the game, understand the tasks provided, and make use of the game appropriately.

The findings of our study show that geocaching as a platform has the potential to be used for educational purposes of the pervasive, playful and innovative kind. Playing in the urban, outdoor environment, however, also brings possible challenges with it. In this case study, we understand geocaching as a gaming platform that, combined with the right content and educational context,

presents us with a pervasive learning experience, which relies on pervasive and ubiquitous technology. The technology commonly associated with pervasive computing includes mobile phones, smart phones, global positioning systems, and so on (i.e. anything that allows a learner to access and exchange information while on the move). The challenges that pervasive technology-based learning games can bring with them to the play experience are the challenges of using mobile and smartphones generally (their limited battery life or inconsistent network coverage). Also, we need to pay attention to social considerations such as the negative implications of how players interact with digital public spaces (users' privacy) and communications in public communities—such as the geocaching community (Thomas, 2006).

In general, when designing LBGs there needs to be awareness of the possible issues in order to avoid the pitfalls that players of different ages can face in the middle of urban environments. In our case study, these concerned the game itself (content- and technology-related challenges), the game presentation (its physical presence and the challenges of maintenance in the park's environment), the players (challenges in terms of the uncontrollable movement of young children), and seasonal constraints (weather conditions). The first three aforementioned elements can be avoided by facilitating thoughtful design, while the last issue may be avoided by organizing play sessions only at times where there are ideal weather conditions. To sum up, we have given some suggestions in the form of design guidelines for the future designers of urban (and pervasive) adventure gamescapes for learning.

Figure 9. Avoiding the pitfalls when playing urban adventure games with young learners.

7. Conclusion

In this article we have explored how the cityscape provides both a formal and an informal setting for learning when an LBG such as our Sigrid-Secrets is used for game-based learning in outdoor play. We found that the participants of the guided test tours interacted with our Sigrid-Secrets geocaching trail through three affordances, namely the affordances in relation to its spatiality and narrativity, and the reciprocal interaction between the game and the player.

As Hirsh-Pasek et al (2009) describe, both free play and playful learning should command a central role in high-quality education for preschoolers (Hirsh-Pasek et al, 2009). The tentative results demonstrate that children as young as the preschool and primary school children in our study can (by playing the game in teacher-supervised and guided situations) effectively learn about the urban infrastructure and information embedded in the game's narrative—in this case, the story of Sigrid-Secrets that links to the city's historical past and present. By turning to the participants of our case study, we were able to see how the children interacted creatively with the city park environment, how experiencing the game sparked their artistry when drawing images of the trail, how they immersed themselves in the story of Sigrid through their imagined "treasure hunt" for the artworks, how they innovated new uses of the parks structures, for example, by climbing and jumping from the park benches and concrete structures, and how they used their personal expression in explaining their meaningful memories of the trail, and what it, most prominently, taught them.

Finally, by letting the early learners show us how they interacted with our geocaching trail, we were able to see how collaborative learning may take place outside of the classroom when the game of geocaching is played in a social situation. Seeing how the children played, we were able to sense their excitement, their engagement, and even see the process of them discovering the fun of playful learning in the park, instead of the emotions that the usual school surroundings may stir in them. We propose that acceptability, accessibility, flexibility, and simplicity are useful design values to consider when designing LBGs as urban adventures in cityscapes. Furthermore, we add that game interaction, location, and the aesthetics/narrative should be carefully considered, mainly based on their acceptability and accessibility. Finally, we have suggested some guidelines that, according to our understanding, are central to designing similar multidimensional geocaching trails such as the urban Sigrid-Secrets game adventure presented in this article. Further research questions may include an analysis of the teacher's perspective. For example, what kind of content would educators see as relevant to employ in the narratives embedded into LBGs like Sigrid-Secrets? And: How would educators like to measure the outcomes of learning if such game-based learning experiences were used in the future?

Neustaedter et al (2012) have noted that what might be challenging in terms of designing "mixed-reality games" is ensuring the "scalability" of the games: In other words, perpetuating the possibility of duplicating these games in various locations, or sustaining long-term participation in them. In this research, our larger project (which is interested in LBG development and related research) now also includes the design and execution of another similar LBG adventure in the city of Rauma—a continuation and further development of the story of Sigrid. Our second urban game adventure is based some 50-km southwards from Pori in the UNESCO heritage site of Old Rauma on the West Coast of Finland. There, the story of Little Sigrid continues with new adventures, a work-in-progress app for players of different ages, and even gamer profiles outside of the geocaching community. The second phase of our research will reveal whether or not an urban game adventure is able to be continued in a second location and, perhaps, allow for the interaction between these two geographically separate, but virtually connected gamescapes. We hope to initiate a playful—entertaining and educational—dialogue, and in this way enrich the overall experience of playing with Sigrid.

Acknowledgements

Endnotes

[1] A first version of this article was published as a work-in-progress conference paper in the Proceedings of the Play2Learn Conference. In the revised version at hand, we expand the discussion on pervasive games and present further material on the digital augmentation of our game, such as the development of the game's AR features.

[2] Geocaching is a gaming platform and a form of digital treasure-hunting, in which players use GPS devices or geocaching applications on smartphones to search for geocaches in different environments. Currently, geocaching is practiced in 185 countries and there are over 10 million registered users on the Geocaching.com service online.

[3] It is important to note, however, that although the game is physically easy to access (the photographs are permanently exhibited in the surroundings of the city parks), the digital component needed for the game—the Geocaching app—is needed at this time to communicate the idea and content of the game. Our plan is to launch an app specifically designed for *Sigrid-Secrets* (a work-in-progress project), which enables users not familiar with the game of geocaching to be able to play it as well. Some steps have already been taken in designing this app: See figures 4-6.

[4] As the game is physically based in the public sphere in the context of the city park, it is also possible that it might be accessed by a non-participating audience, or approached by curious individuals, who would start to look out for and follow the path of artworks spread across the park. It is still unlikely that a spontaneous instance of game play would ultimately lead to finding the actual geocache, as it is well hidden in a secret spot that is not visible to passers-by.

[5] The future of pervasive, or, location-based experiences brings to the foreground many interesting research topics, one of them being what AR technologies will bring to these game experiences.

[6] However, for geocachers familiar with the Geocaching game logic, there is a special goal to consider: When a geocache is launched, whoever finds that first receives the "First to Find" title, a merit within the geocaching community.

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