

Designing Adverggames For Awareness Campaigns: An Engaging Tool

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Abstract

Awareness campaigns lack the interactivity and engagement factors, especially when the target audience are children. Gaming provides an engagement tool that may help change attitudes, behaviors and ideas of the audience. "Adverggames" could be used to integrate information and awareness messages in a more engaging and effective manner. This paper suggests creating an adverggame as part of an awareness campaign to engage children and make them aware of a serious social issue. The effectiveness of the adverggame in achieving the campaign objectives is tested using two questionnaires: the first was addressed to experts in different fields including Electronics and Communication Systems, Sociology, Mass Communication and Animation Design, and the second was distributed among Egyptian primary students to find out their preferences of the characters designed for this adverggame. The results indicate that an adverggame can be applied in awareness campaigns according to the suggested framework, taking in consideration that player prefers to play with members of the same gender and that there has been a little variation in preferring of a game character according to age variation.

Keywords

Adverggames; awareness campaigns; engagement; gaming; virtual reality

1. INTRODUCTION

Most children nowadays suffer from bullying all over the world. Egypt is currently cooperating with the UNICEF to design a bullying awareness campaign that targets school children by using celebrities to encourage them to face this problem. This awareness campaign is well designed in terms of choosing the right message, the suitable environment, and situations that children face at schools. However, it fails to use the right channels and the right time to air its messages. Although the target audience of the anti-bullying ads that are sponsored by UNICEF Egypt are children aging 6 to 12, these ads are only displayed on Egyptian entertainment or drama channels, and not on children channels that the target audience usually watch. According to Setaat website, which is a partner in the campaign, the number of consultations that children made after watching the ads on radio and television were only 150 consultations, while the number of children who viewed the same ads on social media reached 11 million. This shows that the largest number of the target audience used the internet and social media rather than radio and television.

This research is significant because it seeks to engage the target audience with the awareness campaign by choosing the right media, message, and design. Adverggames could be a new tool to engage the target audience with the advertising campaign in a way that can indirectly create

awareness of the problem. The advergame suggested in this paper tries to change attitude and behaviour by using appropriate messages, situations, levels, and awards.

There are three main points that will be investigated in the following review. The first will consider the bullying behavior, especially in the Arab region, to find out the gender differences underlying bullying and the stereotypes of the potential bullies and victims. The second point will consider gamification and innovation in advertising campaigns which can shed light on the way we can merge games to be used in awareness campaigns. The third and last point is concerned with advergames as a type of advertising and how it can be effective and powerful.

Previous research about bullying in school addressed primary school students and adolescent students. The following research studies provide a background on bullying reasons, cultures and stereotypes in the Arab world. The study of Khalil 2017 the research aimed to identify the personal and social characteristics and patterns of family relationships that contribute to the formation of the bullies' personalities. The results of the study found a positive correlation between bullying behaviour and both neuroticism and family conflict in the bullying group, and there was no significant difference between bullies and bullying victims.

Another study by Sufi 2012, investigated the relationship between bullying and parental treatment methods in children aged 11. The most important result was that the more the parents used the method of firmness and oscillation, the less bullying their children tended to be.

A study by Refaat 2012 aimed to find out the extent of the impact of family interactions on children's behaviour, especially in terms of the family climate and its impact on the aggressive behaviour of sixth grade 11-12-year-old children of different socio-economic levels. The results show that there were significant differences in the dimension of inhumanity and artificial love towards males, abnormal household climate towards females, and differences between the low and the high social levels towards the low social level.

In addition, according to Stroessner 2017 research stated that there was an unconscious role played by parents and teachers in anchoring categorization idea among children. This can lead to a stereotype threat that refers to being at risk and needing to engage in social groups.

International awareness campaigns nowadays use new ideas and untraditional media to achieve their aims. One such effective campaign is child poverty Guerrilla awareness campaign that was launched in India by Grey Agency in 2006 and was updated in 2011. The ads of the campaign feature cutouts of homeless children on the glass of a store window. The aim of the campaign is to help 20 million Indian children who beg in the streets (Gutsche 2011, 1). Another example is a campaign sponsored by "Volkswagen" to encourage the public to use the stairs instead of the escalator for health benefits. In this campaign, a piano is featured on the stairs so that the audience can play music while going upstairs. This experiment resulted in a 66% increase in people who choose to use the stairs over the escalator (Piano Staircase Initiative 2009, 1). Thus, using the concept of fun as an engagement tool has proven to encourage behaviour change.

Larson 2019 presents a literature review on games that serve two purposes: one is entertainment and the other is an intrinsic purpose. One of the important findings is that serious games can increase motivation and engagement of the players due to its cognitive, emotional and social influence.

Another research by Ofosu et al. 2019 studied the fundamentals of accepting using games in the education process. The researchers pointed at the success of teaching and learning using gamification integration in the education process.

Feng et al. 2019 declared the importance of gamification as a tool in marketing, especially in announcing or sharing new information or in the branding process. In addition, Silva, Rodrigues, and Ieal 2019 focused in their research on using gamification in the management field as an important tool to be applied to teaching and learning processes in general and to management in specific.

Also, Sreejesh et al. 2018 critically reviewed and analyzed research about gaming and advergames and the framework needed to affect the consumers' cognitive, affective and behavioral responses and help them in developing advergames.

Some researchers have compared between advertising on different types of media. Draganska et al. 2013 in their research "Internet versus Television Advertising: A Brand-Building Comparison" examined 20 advertising campaigns across a variety of industries on both T.V. and the internet. One of their results shows that the internet is as powerful as T.V. Another research by Yang et al. 2006 examined the effect of brand names placed in video games on college student's memory in terms of both implicit memory which represents word-fragment test, and explicit memory that denotes recognition test. The results showed that the students' levels of implicit memory for the brand names were higher than those of the explicit one. Other researches tried to use media in different ways. Goh 2014 in his study examined the use of gaming as an advertisement in campaigns such as the Redbull game. They explored how such a game has affected the attitude of the target audience towards the brand. They attempted to study three design factors: interactivity, fit, and expectancy in advergames through using engagement theory and the transportation theory. The results showed that the interactivity element is an important factor in advergame to change attitude towards the brand.

Farias 2018 in the research compared between advergames and banners effectiveness, and he concluded that both are equal in their efficiency to derive the audience attitude and purchase behavior towards brands.

Folkvord 2018 tried to examine the effect of advergames that promote unhealthy habits and junk food. The results showed that some of advergames promote unhealthy habits and encourage children to eat unhealthy food, and that these types of advergames must be developed and have their content reconsidered to become an effective marketing technique.

Agante and Pascoal 2019 in their research tried to explain the great concern of children preferences and attraction towards advergames and the relation of choosing unhealthy products and brands. One of the most important findings confirmed that the immediate and longer effects on a child's preferences occur in children exposed to that kind of advergames.

Sreejesh et al. 2018 tried through an experimental study to use a brand execution strategy by embedding brands in the advergame. This experiment proved the effectiveness and positive influences of brands and memorizing processes on gamers' attention.

Catalan et al. 2019 in their research tried to explain the effects of using mobile advergames on the branding and purchasing intentions as well as on the gained experience of the player. One of the important findings is that the game designers and developers have to know how to persuade players and gain their engagements by paying attention to the key game features and the flow of the mobile advergame.

Wanick et al. 2019 in their research studied advergame elements of design used and concluded that there is a cultural difference in the attitude towards advergames.

2. ADVERGAMES AND AWARENESS CAMPAIGN

The most common types of advertising nowadays include display advertisements, advertisements in social media, newspapers and magazines, outdoor advertisements, radio, podcast and video advertisements, mail advertisements, and advertisements displayed through product placement, event marketing and email marketing (LaMarco 2019, 2).

Since advertising is considered influential in awareness campaigns, advergame seems to be a technologically advanced tool that introduces marketing content into games to add to the effectiveness of the campaigns. Advergames can also be considered advertiser-sponsored games that introduce messages in a colourful and fun game form (Nairn 2007,36).

Designing awareness campaigns aims to attain exposure and awareness despite limited resources (Danaher 2010, 343). It also serves to educate the audience about a certain topic related to a certain community (Konrad 2018, 89). Similarly, social marketing campaigns aim to raise public awareness of a certain problem by providing convincing facts and highlighting the damage that may result from a certain undesirable behavior in order to direct the audience towards a more favourable one (Mohamed 2019, 40).

An advergame is a term that combines advertising and gaming in order to promote a certain product, service, or idea. There are three types of advergames: above the line, below the line, and through the line. The first type usually appears on company websites to attract visitors to remain longer on the web page. The second one is like a regular computer game that is designed and sold as a mere game. In the third type, the product is actually part of the game and the target audience get familiar with it through getting engaged in the advergame (Ismail 2018, 37).

Advergames have been used in the digital media to serve certain aims and change the role of the target audience from passive to active (Kim 2016, 159). Furthermore, advergame is a unique strategy used in marketing to highly engage brands with the audiences. Accordingly, one of this research assumptions is that an advergame can highly engage the target audience with ethical and moral issues.

Many people are attracted to games nowadays regardless of their age. This is probably because of the high engagement they offer to their audiences. Games are effective because they involve emotions and allow the audience to live a real experience (Tuten 2016, 245).

This research suggests using advergames as an effective tool that can engage the target audience and indirectly make them change their attitude and behavior. The advergame is proposed to be part of an anti-bullying campaign that is mainly intended to address primary school students. This study aims to create a strategy for the advergame and adopt a theoretical framework that helps designers create such a game, focusing on designing the storyboard and the flowchart, and sketching out the characters of the game. To enrich the research and provide better insights into the effectiveness of the suggested tool, two questionnaires were designed to test the suggested advergame and how it can achieve the aims and objectives of the anti-bullying campaign. In addition, personal interviews with specialized professors of psychology were conducted to take their opinion about the idea of the advergame.

The first questionnaire was distributed among experts in different fields such as Electronics and Communication Systems, Sociology, Mass Communication, Animation Design, and Advertising Design. The second one was distributed among primary students to know their preferences of the characters designed for this advergame taking in consideration age and gender as variables.

In addition, personal interviews with Prof Sanaa Mohamed Soliman, Prof. Mona Abou Tera, and Dr. Sara M. Ragab were conducted on 2,5,9/12/2019 asking them about the idea of the game, the procedures and all the details of the suggested advergame as they are Egyptian professors in Ain Shams University specialized in psychology, guidance of prisoners, behaviour modification and dealing with kids and bullying issues. They supported the idea of imbedding information about bullying in the game, adding that if a young person who has experienced bullying before plays the game, the game will help him/her vent out anger towards the bully and gain experience about how to behave in similar situations. In addition, if a player who has not been exposed to bullying in real life before plays the game, it will help him to face bullying in an ideal way as it will be as an experience to guide him on how to deal with bullying. Finally, they found it suitable as an anti-bullying game because it promotes suitable and scientific reactions to face bullying hoping to resist and control the problem of bullying.

The paper aims to answer the following research questions and the hypotheses:

RQ1- How far can using advergames help awareness campaigns convey their messages in a way that engages the target audience?

RQ2- What are the major elements involved in designing an advergame for an awareness campaign?

RQ3- How can designers design advergames to fulfil the objectives of an awareness campaign?

H1- Girls exposed to designed game characters with a stereotypically male character will have a lower preference level while playing the advergame and vice versa.

H2- Boys exposed to designed game characters with a stereotypically female character will have a lower preference level while playing the advergame and vice versa.

H3- Age will not affect preferences of characters.

The originality of this research is that, to the best of the researcher knowledge, this is the first time that advergame is used in an awareness campaign in Egypt. As suggested, this research addresses the bullying among children issue by showing all kinds of bullying and how to face them in different situations. The player can select a friend from a given set of options to support and give instructions and good advice to throughout the game. Each level in the game has two options - each with a value score- whether to follow the friend's advice or to ignore it. A percentage of the score appears according to the player's choices. If "advice" is selected, points are added, while if "skip" is selected, no points are added. At the end of the advergame, the total score appears in words that explain the player situation with an advice and a certificate, medal, or a cup. This helps the player know his/her attitude towards bullying and what he/she can do to face it.

3. THEORETICAL FRAMEWORK

The theoretical framework used in designing the advergame proposed in this paper derives from two sources. The first is the social cognitive theory proposed by Albert Bandura 1986, which developed from the social learning theory introduced in the sixties of the twentieth century. This theory, which supports the premise that people learn by observing others, has been widely applied in the fields of psychology, education and communication (Vinney 2018, 1). The present research proposes the use of advergames to solve awareness campaigns problems through interaction among the audience's personal experience, environment and perceived behaviour, which are considered three main components of the above theory (LaMorte 2019, 1).

The social cognitive theory proposes certain terms which explain people's behaviour patterns in different situations. For example, *Behavioural Capability* refers to one's ability to perform a certain behavior using essential knowledge and skills. *Observational Learning* suggests that people can observe a certain behavior conducted by others and then reproduce it as a modeling technique. *Reinforcements* refer to the internal and external responses to an observed behavior which affect the likelihood of continuing or discontinuing it (Vinney 2018, 1). *Expectations* refer to the expected outcomes of a person's behavior, while *Self-Efficacy* refers to the level of confidence in one's ability to perform a certain behavior (LaMorte 2019, 1). All the above concepts proposed by the social cognitive theory can be applied in creating the virtual reality components of the advergames used in awareness campaigns.

The second source draws largely on the approach suggested by Wanick et al. (2019) for designing advergames. Wanick et al. (2019) present a holistic framework that consists of four layers. The first layer is *Content* which refers to the elements of design, visual interface, game rules, the advertising message and the storyline. The second layer is the *Consumer* which is related to the interaction between the target audience and the advergame, including the values, behavior and experience. The third layer is *Culture* that denotes the culture and values representation from both the designer perspective and the audience perspective. Finally, the fourth layer is the *Context* which is about the theme of the advergame and the way it influences the target audience behavior.

The research considers the above framework as the base of designing an advergame that is intended to engage the target audience of the awareness campaign. Furthermore, the research suggests certain key elements to help design an awareness advergame. It is believed that these elements can be rearranged and merged with the framework presented by Wanick et al. (2019) to create a new model that integrates the edges of success of gaming and a hierarchy of effects to create a game that engages children, raises awareness of the issue addressed, changes attitudes towards that issue and effectively moves children towards the desired behavior.

This paper adopts Wanick's framework with major modifications related to the division and labeling of the four layers that their framework embed. First of all, the two layers of *Content* and *Context* are merged together under the label of "Gaming". This new layer is related to the gaming outline and the elements used to design the advergame in a way that can influence the target audience. The second layer *Consumer* is named "Engagement" in the new modified version of the approach to highlight the importance of engaging the target audience with the advergame to achieve the awareness campaign objectives. This layer refers to the interaction

between the audience and the advergame. The third layer *Culture* is renamed “virtual reality”. This layer aims to stimulate the target audience according to the ethical and cultural values. By merging the above two theoretical framework sources, the present advergame framework contains the following three layers:

3.1 Gaming

This is related to how an awareness campaign can be turned into a game to be more effective in delivering the campaign messages. It is necessary here to differentiate between two terms: *gaming* and *gamification*. Gaming, according to Merriam-Webster Dictionary (2019) refers to the playing that stimulates certain situations or the hobby of playing games using any device. Gamification, on the other hand, is a term that was suggested by Nick Pelling in 2002 to refer to the way of turning what is not a game into a game (Liu, Santhanam, and Webster 2017, 1021). In other words, it refers to the game design elements immersed in a non-game environment, and it is used in different fields such as medical health, education and training, marketing activities, etc. (Feng et al. 2019, 4). This research makes use of the two concepts. It intends to turn an awareness campaign (which is not a game) into a game that engages the target audience – namely children – in a fun way to deliver a message that influences the players’ mindset towards a certain attitude. In this research, an anti-bullying campaign is turned into an advergame to create an attitude that would push children not only to face bullying, but also to assist a friend who faces bullying. In this respect, the present research can apply the behavioral capability, observational learning, and reinforcements concepts derived from the social cognition theory, and the content and context derived from Vanessa Wanick’s four layers.

3.2 Engagement

This layer is related to how the audience can be further engaged with an awareness campaign through using advergames. This element goes beyond interactivity with the advergame to stress engagement as well. Here again, it is important to draw a distinction between the two terms *interact* and *engage*. The latter term is more inclusive than the former as it involves interaction, fun, and emotions. Recently, the expression digital engagement has been used to describe audience’s behaviors and attitudes and the way they interact with the internet (Rodgers and Thorson 2018, 2). Engagement in this research does not only mean delivering an advertising message or interacting with the advergame, but it also means getting the audience merged with the game so as to make them live the experience, and consequently, change their behavior. This behavior change can be achieved by using the factors of impact model that can help set the awareness goals and enhance the effectiveness of the advergame on the target audience. These factors include:

- Perception, which seeks attracting the attention of the target audience through curiosity, interest, and creating awareness through being exposed to the advergame by seeing and hearing.
- Emotion, which represents wants, excitement, feelings and the desire to play the advergame.
- Cognition, which represents the level of thinking and understanding through needs, cognitive learning, and recall.
- Association, which includes symbolism and conditioned learning that represent the level of connection with the advergame.

- Persuasion, which is the outcome of engagement and motivation.
- Behavior, which represents the mental readiness to act in a certain way (Moriarty et al. 2015, 223).

This layer can be used to apply the components of the social cognition theory, and the consumer term derived from Vanissa Wanick`s four layers.

3.3 Virtual Reality

This layer can be defined in terms of reflecting experiences and turning them into a reality (Kim and Werbach 2016, 159). Virtual reality is one of the advances of technology, and it can be used in 2D or 3D games. The main goal of virtual reality is to make players feel they are inside the game that is being played on the computer or the mobile phone. Now virtual reality is used in apps, social media, and games. Furthermore, to be part of virtual reality, there is a need to create an environment, situations, and achievements (Van 2017, 183). As with the two previously discussed layers, we need to distinguish here between the terms of *culture* and *ethics* in the context of the advergaming. According to Merriam-Webster Dictionary (2019), culture refers to the shared values and goals in a particular field or community, whereas ethics is a term that represents a set of morals that could be related to intrinsic values. Awareness campaigns mostly seek changing behavior and attitudes towards a given cultural or ethical issues. So, by using virtual reality, an advergaming can put the audience in the same situations that they are likely to face in real life. In addition, using games can help awareness campaigns convey their messages about the most desired behavior in each and every situation. Thus, one of the benefits of virtual reality is the highly engagement it helps achieve between the target audience and the advergaming (Wallace 2018, 1). This layer can be used in the research to apply the Expectations and Self-efficacy elements of the social cognition theory, and the culture term derived from Vanissa Wanick`s four layers.

Designing an advergaming within the framework of the three above-mentioned layers, putting into consideration the facets of impact, helps create a game that can educate children and push them to change their behaviour and attitude towards the issue being addressed in the advergaming (i.e. bullying). The suggested theoretical model is adopted to create the research questions and design the game. An integral part of this research is a survey distributed among experts in different disciplines to evaluate the effectiveness of the suggested advergaming.

The Suggested Three-Layer Approach Can Be Shown In The Following Chart

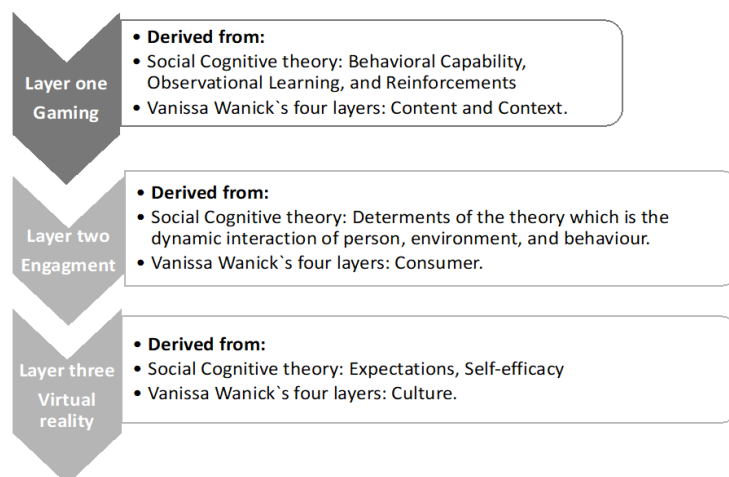


FIGURE 1

CONCEPTUAL AND OPERATIONAL DEFINITIONS

Term Variable	Conceptual definition	Operational definition
Advergame	Digital games that are designed to achieve advertiser's marketing goals (Mago 2018, 24).	The steps of designing an advergame such as design action type, game environment, storyboard, and characters.
Gamification	The way of turning what is not a game into a game (Liu, Santhanam, and Webster 2017, 1014).	Turning the objectives and goals of an advertising awareness campaign into a game that delivers certain messages to change the attitude of the target audience and make them gain experience while they are playing the game.
Virtual Reality	Merging between reality and fiction using the game design. (Peterson, Furuichi, and Ferris 2018,12).	Living the situations of bullying to gain experience of how to deal with bullies.
Engagement	Going beyond the level of interactivity of the target audience with the game (Rodgers and Thorson 2018, 2).	The challenge created by the game, measured by the points the player gets in each level, and willingness to move from one level to the next one.
Objectives of the Game	The purpose behind designing the game. It uses the awareness campaign cognitive, affective and behavioral objectives (Maibach 1993, 212).	Planning of advergame through applying the awareness campaign brief in designing the game outline and steps.

TABLE 1

4. METHODOLOGY

According to the research framework that was derived from the social cognitive theory and Vanessa Wanick's four layers, the methodology will be concerned only with the first layer of the framework due to the importance of the design edge that the research tries to apply and the funding difficulties facing the researcher. Consequently, the first layer "Gaming" will be split into two stages: The first stage includes creating the "Advergame outline" by deciding the topic of the awareness campaign, setting the game objectives, defining the target audiences, and selecting characters' names, genres, environment, and mechanics. The second stage is the "Advergame design", which includes designing the storyboard, flowchart, and the characters of the game. This design will be tested by a questionnaire directed towards gaming experts as well as experts from other specializations and another one distributed among the target audience to test character preferences in the advergame.

4.1 First Stage: Planning the advergame

4.1.1 Advergame Outline

Awareness Topic: This involves choosing a topic for the advergame that serves the aims of an awareness campaign. "Bullying" is one of the common problems that most societies face nowadays. It is defined as an intended, frequent aggressive behaviour towards others. This happens perhaps due to the imbalance of power between children (Canty et al. 2016, 50). Bullying was classified by researchers such as McClowry, Miller, and Mills 2017 as verbal, physical, psychological, social, and electronic abuse. Also, Smith 2001, Kobayashi 1999, and Sandra 2000, classified it as emotional, physical, sexual, and racial. Accordingly, the present research classifies bullying in to six types. The first one is the emotional bullying using verbal words such as offensive words (Smith 2001, 72). The second is the non-verbal bullying by gestures and body language (Khalil 2017, 34). The third is the physical bullying by hitting or by stealing the other stuff (Kobayashi 1999, 1). The fourth is the sexual bullying that concern with any undesirable sexual behaviors (Coy 2001, 1). The fifth is the racial bullying that contains gestures and hints (Smith 2001, 75). And finally, the sixth is technological bullying through the internet (Fawzy 2010, 24). Bullying has three participants which are bullies, victims, and bystanders (Khalil 2017, 32). Stereotypical bullies are pupils with physical strength and language skills, self-confident, impulsive and reckless, popular among their peers (Sean 2004, 9). Stereotypical victims are pupils who are very calm, very cautious (Lyznicki et al. 2004, 1725) but the most in risk of bullying are newcomers, those with special talent or benefits, ugly and/ or polite pupils (Matsova 2000, 58). Stereotypical bystanders are different according to the role played in bullying dynamics as follows: 1) Good friends who are close to the bully. 2) Reinforced persons who work as supporters to the bullies (Olweus 2004, 1). 3) Intruders who are trying not to draw attention to themselves, and this neutral appearance shows condone bullying. 4) Defenders who defend the victims (Sullivan 2004, 20). As a result of bullying, victims suffer from many negative consequences; some of them affect the health such as having an-illnesses, while others impact the psychological state such as suffering from depression. Still, other types of bullying may affect the way of thinking and beliefs such as the tendency to commit suicide, or to live in social isolation. Moreover, bullying can affect future achievements. It can have a long-term effect on the level of education, the type of job, and family or friends' relations (Arnarsson and Bjarnason 2018, 11).

There are three important variables that affect the portrayal of stereotypical bullies as mentioned before. The first is the sex variable as males are more bullying than females due to cultural issues and the physical composition of males, which tempts them to practice the bullying behaviour at a high rate, unlike females (Sullivan 2004, 26). The second is the age variable as the primary stage is the most common stage where bullying is prevalent, and bullying tends to decrease in older ages such as those in middle school followed by students in high school (Salmivali 1999, 457).

Most research on bullying and how to face it has tried to put laws for internet, indoor school, and outdoor school bullying. UNICIF official website lists some tips that help victims of bullying. Among these tips are: defend yourself, don't be afraid and look at the bullies in the eyes without fear, try not to be alone, don't provide the opportunity for anyone to start bullying and never do what they ask you to do, walk away and ask the help of adults, stop

bullies from hurting others, and do not hesitate to speak loudly if you are alone. It is to be mentioned that to create an effective advergame, the designer must have all the important information about the chosen topic.

4.1.2 Game Objective

An advergame designed for an awareness campaign must have more than one objective. For the game suggested in this paper, there are two main objectives: a declared objective and a hidden one. The declared objective is attracting the audience to play an advergame where the player is challenged to rescue an old school from bad students. The hidden message, on the other hand, is to help students face bullying by getting them exposed to different kinds of bullying and ways to face them.

4.1.3 Target Audience

Target audience can be determined according to “Jean Piaget’s” theory of cognitive development, which classifies children to four stages according to their ages, mental abilities, and intelligence. This research focuses on Piaget’s third stage named “Concrete Operational Stage”. This stage includes children from 7 to 11 years old who can understand concepts through situations, time, space and quantity (Šafhalter, Bakracevic and Glodež 2016, 401). It is believed that this is the age group that are most likely to play games using their own mobile phones or those of their parents. Furthermore, children at this age suffer the most from bullying especially in Egypt. According to the UNICEF official website statistics, students in the primary stage in Egypt are the group that mostly have bullying problem.

4.1.4 Name of the Game

According to the target audience and the objectives of the game, this advergame will be named B.F.G; which stands for “Best Friend Game”. It is believed that with this name, the advergame can gain popularity because of the significance of friendship for the target audience. The second hidden meaning for B.F.G is that these three letters also stand for “Bullying Facing Game”, which reflects the awareness campaign real objectives.

4.1.5 Game Genres

Any game must have a type or genre such as adventure, horror, action...etc. Some of these types are preferable by a certain gender and age group that they can spend a lot of time playing them (Lemmens and Hendriks 2016, 274). The game suggested here is an action one which puts the player in virtual reality situations imitating the real ones.

4.1.6 Game Environment

Environment plays an important role in designing any game as it carries indirect messages. There are two kinds of environments: static and dynamic (Černý et al. 2016, 682). Imagining the game environment helps inspire the sequence and the steps of the advergame. Accordingly, this game is played in and around an old school which requires the designer to create an environment with a cloudy mood, dust, and ruins of a school. Black and white colors and suspense music can help create this atmosphere. When the player starts rescuing the hiding students who are afraid of bullying, some of the ruins get fixed and colors start changing with triumph music being played.

4.1.7 Game Mechanics

Mechanics can motivate and attract the target audience to play the game and it can encourage positive behaviour (Klemm and Pieters 2017, 85). This game depends on the challenges that

the player faces during rescuing as many hiding students as possible by being exposed to certain bullying situations requiring a specific action. At the end of the game, players are rewarded with medals and provided with an advice that goes in line with their total score.

4.2 Second Stage: Game Design

4.2.1 Storyboard Design

Storyboard is considered the first step of design to create an advergame, right after the strategy and the game outline stage. It shows the sequences of the advergame and enables the transfer of all the details such as the concepts, knowledge, strategy, information, and so on (Balzotti 2016, 72). The suggested advergame starts by control options to choose the player character whether a male or a female and to choose their outfit. When the character enters the school, he/she faces the bullies. This phase is repeated by different kinds of bullying with each level. For example, bullies first use offensive words, then they use graffiti, then they annoy others, and at the end they use physical violence. Other control options also appear to choose a friend as a helper. The helper gives the player pieces of advice to confront the bullies throughout the game. After each phase, two options appear: a positive attitude to deal with bullying (10 points), or a negative attitude to run away (0 points). Give a straight face to the bullies is the positive attitude option, while skip is the negative attitude one.

The figure below shows the storyboard of the advergame representing the details of the game, its sequence, the available designs and the shape of the buttons. The storyboard begins with an old school in a dark place with frightening trees and surrounded with bullies and ends with a uniquely-shaped school surrounded with good students. The storyboard includes different situations that are the levels of the games. Through these situations, the target audience (the player) is exposed to different kinds of bullying that could take the form of offensive words, laughter, graffiti, and fight. An option in the first level appears to the players to choose a friend who can guide them to face bullies and to help them in the mission of releasing all the good students that are bullied. In each level when the player chooses to face the bully and pass the situation successfully, he/she gain power and self-confidence that can help them while facing the second level. In addition, one of the situations allows the player to bully one of the bullies, but the advice of the friend goes as “no bullying to anyone”. At the end of the game, comes the reward which depends on calculating the scores of the chosen decisions. If the player chooses the friend advice, he/she gains 10 points in each situation, and if not, he/she scores 0 point. The rewards in the game are as follows:

- From 0 up to 30%, a gift box appears with a written advice “Emergency”, you are a victim, you must tell somebody such as a family member or a friend and don’t hesitate.
- From 40 up to 50%, a bronze medal appears with a written advice “Watch out”, you are about to face bullying a lot. So, go ahead and talk to someone you trust.
- From 60 up to 80%, a silver medal appears with a written advice “Great”, keep on, no one can bully you again.
- From 90 up to 100%, a golden medal with a golden cup appears with a written advice “Super”, trust yourself no one can bully you.

Storyboard Design

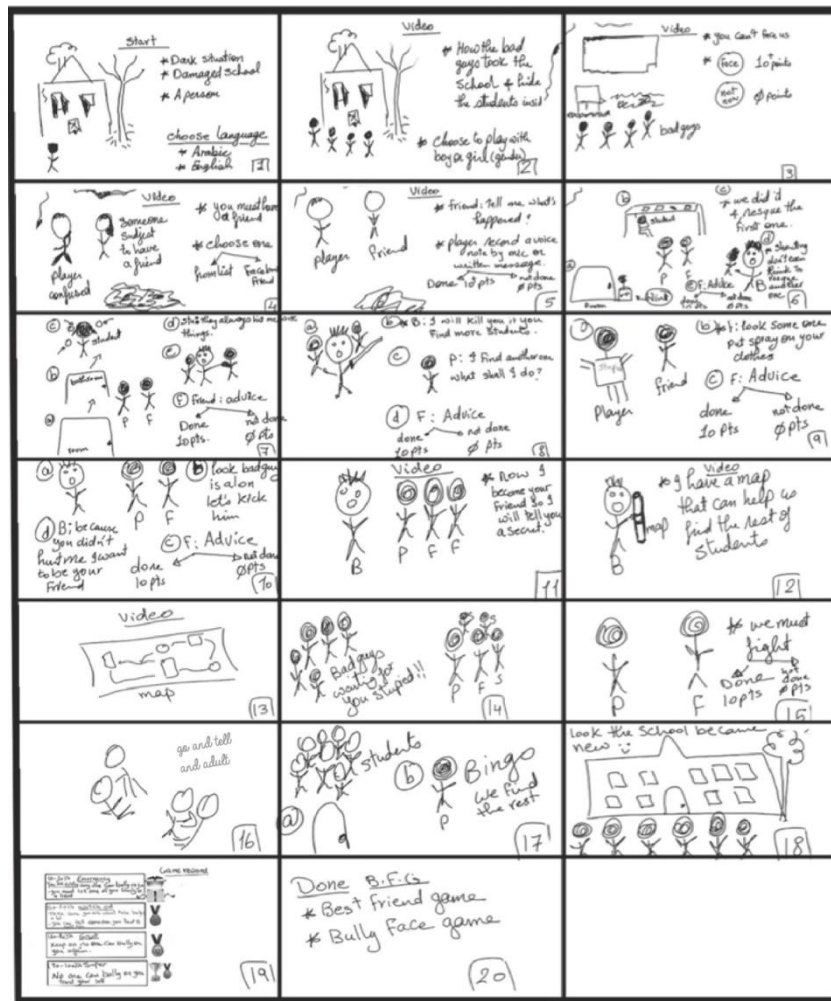


FIGURE 2

4.2.2 Flowchart Design

Flowchart is considered a way to represent software such as programs, applications and games. The flowchart is complex because it is a center of many edges such as the designer, the computer programmer, and communication with target audiences (Ensmenger 2016, 340). The flowchart below shows the flow of the game, such as when to start and what the options in each situation are. The second stage in the game is repeated with as many levels as needed with the same sequence, starting from the second level box till the score box. A video for rewards is played at the end of the game.

FLOWSHART DESIGN

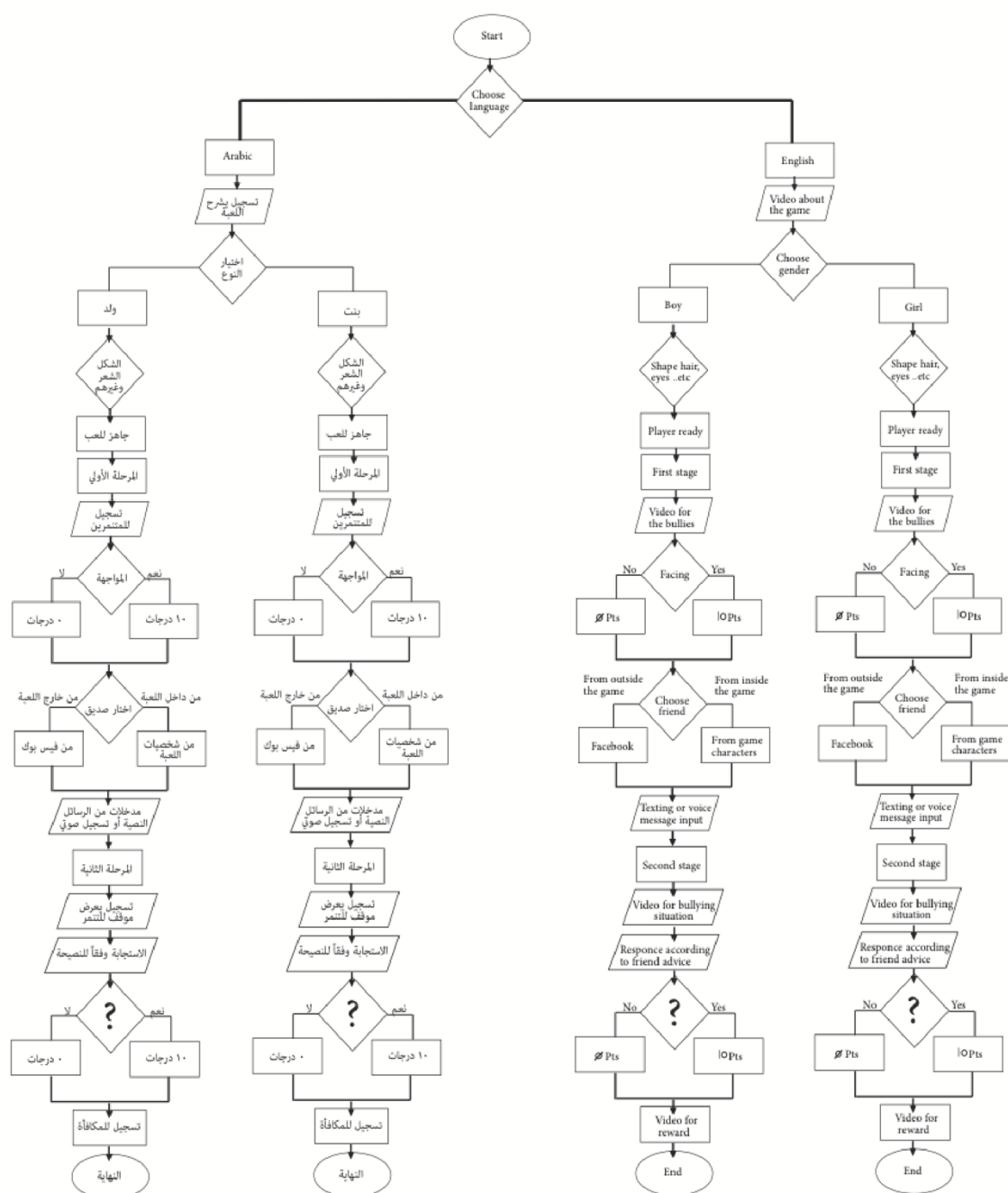


FIGURE 3

4.2.3 Characters Design

The game needs characters that represent the player, friends, bullies, and victims. The game characters have an influence on a player's mood and willingness to play, especially when used as a learning tool for school-aged children (Yucel 2019, 359). Consequently, character stereotypes become an important element to consider when designing advergaming. Stereotypes are defined as a form of social categorization and judgments based on a person's social group (Peguero 2013, 1). It follows that the one who breaks the common stereotype is the one who is most likely bullied by others (Peguero 2013, 1). Individuals may be bullied for visual features representing certain social characteristics such as race, ethnicity, displacement, cultural or religious minorities, special needs and poverty (Stroessner 2011, 1).

Accordingly, different skin color is used in character design to represent race and ethnicity; a variety of styles are applied in clothing and haircuts to represent discrimination; and extra items like eye glasses are used to signify a special need by those who need vision correction and a neckless as an odd habit for Egyptian boys to represent cultural values. In addition, body weight varies from skinny, moderate, fat, to a muscular boy. In addition, cute and aggressive features are used to reflect the main friends' and bullies' characters. Also, the designed characters were a trial to apply the three stages of the character design stated as follows:

- Determining the structural characteristics of the cartoon character; such as the mental and emotional aspects, and the reactions.
- Determining the personal dimensions of the cartoon character. This includes name, age, and the surrounding environment.
- Designing the cartoon character by using symbolic shapes, colors, styles, and expressions...etc. to reflect the details set in the previous stages (Latif 2016, 279).

Thus, each character in this advergame is designed by applying the above-mentioned three stages and taking into consideration the character's role in the game. In addition, the creation and design of the characters show their mental and emotional sides, names, and ages, through styles and reactions as follows:

(1) Male and female bullies:

- Perry: aggressive and only cares about herself, accordingly it designed as, her skinny body, beautiful face, rosy skin color, long brown straight hair style, the way of her fashionable dressed, and the bright colors (Pink and purple).
- Hayfa: uses offensive language, and likes fighting, accordingly it designed as, her chubby body, aggressive face, pale skin color, medium light orange hair style, the way of her vapid dressing, and the neutral colors (silver and light purple).
- Rana: very bad tempered, and throw things away, accordingly it designed as, her skinny body, aggressive face, light brown skin color, black straight long hair style, the way of her fashionable dressed, and the bright colors (purple and blue jeans).
- Souror: muscular, strong, and with limited thinking, accordingly it designed as, his muscles body, aggressive face, light gray skin color, strange hair cut style, the way of his skinny pants and blouse, and the dark colors (dark green and brown).
- Hazem: cruel, and arrogant, accordingly it designed as, his thin body, black skin, aggressive face, light brown skin color, strange hair cut style, the way of his hoody and accessories fashion style, and the neutral colors (silver and black).
- Bashar: tough, doesn't care about others, and clever, accordingly it designed as, his chubby body, baby face, dark brown skin color, strange hair cut style, the way of his hoody fashion style, and the colors (light green, brown and dark orange).
- Emad: Takes order from friends, and brainless, accordingly it designed as, his fit body, baby face, white skin color, neutral hair cut style, the way of his normal fashion style, and the colors contrast (white, black and dark red).




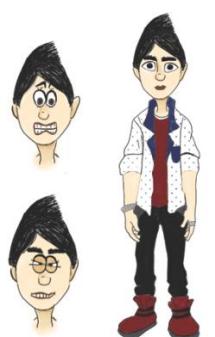
(2) Main Characters:




- Hesham: smart, kind-hearted, loves his friends, strong, and independent, accordingly it designed as, his chubby body, baby face, light brown skin color, neutral hair cut style, the way of his normal fashion style, and the bright colors (white, light blue jeans and red).
- Mariam: kind, independent, helpful, strong, and clever, accordingly it designed as, her skinny body, beautiful face, rosy skin color, short brown curly hair style, the way of her fashionable dressed, and the bright colors (Pink, white and silver).

(3) Friends:

- Samar: a loyal friend, gives brilliant pieces of advice, fast and intuitive accordingly it designed as, her skinny body, beautiful face, white skin color, long black straight hair with bun style, the way of her dressing and glasses, also the bright shades of green.
- Samir: a loyal friend, quick-witted, a good helper and advisor, accordingly it designed as, his chubby body, baby face, dark brown skin color, neutral curly hair cut style, the way of his normal fashion style, and the contrast colors (brown and light green).

CHARACTERS DESIGN

	Souror	Bashar	Hazem	Emad
Boys bullies				

	Perry	Hayfa	Rana
Girls bullies			





	Hesham	Mariam
Main characters		
	Samer	Samar
Friends		

FIGURE 4

4.2.4 Game Finalization

A painted storyboard is added as a finalized design for the adverggame to replace the screenshots of the storyboard. It represents one level as an example, with all the details and design components of the adverggame framework.

GAME FINALIZATION





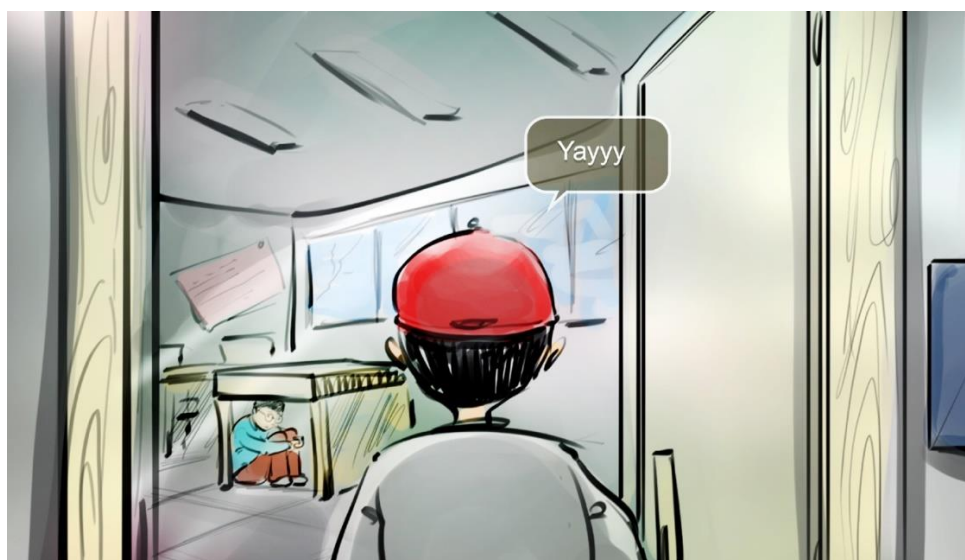




FIGURE 5

4.2.5 Icon Design

It refers to the graphic icon design that represents the meaning of an application such as the icon of google maps, Facebook, and games. It is a symbol that carries meanings through the use of shapes, colors, and text (Horton 1994, 1). The icon of this game uses a main character that can grab the attention of the audience, and the characters of the good student's vs bullies. Second, it uses the colors that represent both genders and their actions. Finally, it employs the font of BFG that is simple to reach to the target audience.

ICON DESIGN



FIGURE 6

4. FINDINGS AND DESCUSSION

4.1 Questionnaire addressed to experts

The first questionnaire was designed and sent using google forms application in March 2019 to fifteen experts in different fields, including Electronics and Communication Systems, Sociology, Mass Communication, Animation Design, and Advertising Design.

The questionnaire included the script of the game along with the flowchart to allow respondents to give their opinion on the components of the game. The purposive sample of the respondents were selected from different universities in Egypt. The total sample is as follows: 20% full professors, 40% associate professors, 33.3% PhD holders, and 6.7% experts.

The following table demonstrates the twelve statements that were used in the questionnaire. The statements have two dimensions: the first one is related to the design parts such as the explicit and implicit meaning of the game name, the type of action used, the environment design, the challenges provided by the game, the storyboard design, the flowchart, and the

characters design. The second dimension is about the idea of using games as an awareness tool in advertising campaigns. Questions related to the experience that players can gain from this game, whether or not it can change the target audience attitude and deliver the intended messages are included here to evaluate the effectiveness of the suggested approach.

To begin with, 47% strongly supported the name of the advergame. Its implicit name was agreed upon by 93.3%, which means that it delivers the second layer of meaning which can affect the subconscious of the target audience as intended. The action type provided in the advergame was said to be adequate by 93.3%, and the opinions supporting the environment design provided to the advergame reached 80%, but the bigger number here goes to the “agree” choice and this can help the researcher suggest other environment options such as the club. The same percentage was obtained for the challenge provided to the advergame, and this encourages the researcher to put “extra benefits” such as gaining extra power while moving from one level to another. The storyboard design gained equal percentages between strongly agree, agree, and neutral with a total of 66.7%, which is a small percentage compared to other statements but still was over 50%. The flowchart design showed the same percentage of 66.7%. The character design got 86.7% which means that the designs are suitable for the target audience. 100% of the respondents agreed that the target audience can gain experience from this advergame, which is an indicator of the effectiveness of the advergame. However, only 66.8% agreed that this game can actually change the attitude of the target audience. This is still a satisfactory percentage as it is more than 50%. Moreover, 86.7% of the respondents agreed that advergame can deliver messages to the target audience. Finally, the advergame was considered a useful tool in awareness campaign by 93.3% of the respondents, which indicates the success of the idea of using advergames in awareness campaigns.

4.2 Questionnaire addressed to target audience

The second questionnaire was designed for primary students in December 2019, and it was distributed among students of both genders from age 7 to 11 years old which represented 1st to 6th primary stage. This sample was chosen from a national school in Egypt that has middle and upper middle social classes. The supervisor of the primary stage allowed the researcher to enter specific classes according to the availability of the free sessions in their schedule, which led the researcher to enter about 2 or 3 classes in each year with an average of 22-27 students in each class and with a total number of 14 classes. The researcher entered each chosen class and introduced the idea of designing a game and there was no mention about bullying, just explaining each question and how they could answer it, and then the researcher collected the questionnaire. The sample desired was 360 students but according to some answers that were incomplete and others with different ages as 6 and 12 years old which were not our target, the remained sample taken was 350 students. The aim of this questionnaire is to know the designed character preferences which will be analyzed according to age and gender. See the table of the sample chosen and the above table showing the selected sample.

The questionnaire included fifteen questions. The first one is: Are you a boy or girl? The second is: How old are you? The third is: Do you love to play games? Starting from the fourth question till the end of the questions are visual designs, including emojis, for the icon of the game and the game characters and beside them a five-point Likert scale response system from strongly agree to strongly disagree (Alismail 2018, 3371). An emoji is a two-dimensional pictographic form that expresses certain messages and attitudes (Curtain-Phillips 2016, 1).

Then the analysis and extracting statistical results are performed using the “SPSS Statistical Package for Social Science” program. The statistical variables varied between nominal, ordinal, and scale weight. Accordingly, the researcher applies the statistical coefficients that suit each of these variables through the use of the following tests and statistical treatments: simple repetition, frequency and percent, standard deviation, arithmetic mean deviation and the semantic study (Chi square test). The results of the statistical tests were accepted at a confidence score 95% or more, that is, at the level of significant 0.05 and below.

The results of the sample indicate that 75.7% of the students extremely love to play games, 35.7% of the students are extremely satisfied with the game icon. As for the bullying characters, Perry takes 36%, Bashar takes 38%, and Hayfa takes 38.6% as being extremely unsatisfactory, which indicates that the design of these characters is able to portray the bullying character for the target audiences. Souror takes 32.3% as extremely satisfactory and 33.4% as extremely unsatisfactory, which indicates that the stereotypes used for a bully are sometimes popular among one's colleagues. Emad takes 31.7% as extremely satisfactory although he is a bully boy, but that indicates that his role in the game is not a main bully but a friend of them that always takes orders. Rana takes 28.6% as extremely satisfactory and 26.6% as extremely unsatisfactory as she also plays a friend role to the bullies, not the main one. Mariam takes 45.1% and Samar 40% as extremely satisfactory, which reflects that the design of the characters is able to address the features of the main character that will represent the player and the friend character according to the stereotypes of cuteness that can be victim stereotypes to bullies. Hesham takes 26.6% as extremely satisfactory and 21.4% as extremely unsatisfactory although he plays the main character that will represent the player -victim to bullies- and Samer takes 28.9% as extremely satisfactory and 23.4% as extremely unsatisfactory although he is a good friend to victims, which shows that the design of the character uses stereotypes that bullies can bully at. The above percentages can be shown in the following table.

In addition, the following table titled “Gender Preferences” shows that boys are more likely to play games than girls and that girls accepted the game icon more than boys. Also, girls preferred girls' characters more than boys, and boys preferred boys' characters more than girls, according to “Sig” indicator number that average from 0.00 to 0.5. These percentages can be shown in the following table.

In the table below titled “Preferences according to Age”, “T” test indicates that four questions were preferred according to age which are related to Bashar, Souror, Hesham and Emad, so the older the age, the greater the preference, but the rest eight questions did not indicate any preferences. This indicator shows that the characters are suitable for the target audience age from 7 to 11 years old. These percentages can be shown in the following table.

5. CONCLUSION

Advergaming can be an effective tool in awareness campaigns, and it can be applied with any issue such as family planning, elections, and bullying with any target audience. This research suggested a theoretical framework to design advergames based on the approach of Wanick et al and the social cognitive theory. (2019). The framework consists of three layers: gaming, engagement, and virtual reality.

The planning of the advergame was split into two stages. The first stage answers the research question related to the major elements to design an advergame. Answering this question

needed to have some gaming steps to come up with the game outline. These elements include choosing a topic, setting objectives, deciding on the target audience, naming the game, determining the game genre, environment, and mechanics. In the questionnaire that addressed the experts, the results show that all of the above items were either strongly agreed or agreed upon with 80% to 93%.

Furthermore, the third research question, which was “How can designers design advergames applying the objectives of the awareness campaign?”, is answered by the suggested design steps related to the game storyboard, flowchart, characters, and finalization. According to the questionnaire results, all of the above items were either strongly agreed or agreed upon with 66.8% to 93.3%. This is considered a high percentage of agreement in this regard.

In addition, the following can be deduced from the rest of the questionnaire answers:

- An advergame can be an effective tool if used in awareness campaigns.
- Using the advergame framework in designing can help advertising awareness campaigns be more engaging and effective.
- Designing a detailed game outline can help in making the right choices for creating advergames.
- A good design for the advergame can be applied according to the suggested framework.

In addition, the first and second hypotheses, which were H1- Girls exposed to designed game characters with a stereotypically male characters will have a lower preference level while playing the advergame and vice versa, and H2- Boys exposed to designed game characters with a stereotypically female characters will have a lower preference level while playing the advergame and vice versa, were found to be true according to the results of the questionnaire addressed to the target audience which show that each gender prefers to play with members of the same gender.

Finally, the third hypothesis that states that age will not vary in preferences to characters is found to be true as there has been a little variation in preferring a game character according to age. The research questions and hypotheses are answered according to the methodology, framework, and the questionnaires results.

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