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3D TECHNOLOGIES, CONSUMER'S PSYCHOLOGY AND EFFICIENCY OF ADVERTISING

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Abstract: *The present-day is changing under our own eyes. From action movies to cartoons, to magazine pictorials, 3D technology has expanded to the TV set in front of our eyes and the three-dimensional commercials stimulate our creativity and define the infinity of our imagination by means of the 3D virtual stimuli. Therefore, we are living in the globalization age, where the new 3D revolution, advertising plays an important role in the world of competitive business. Many industries are based on the power of advertising to effectively attract or win its competitors's customers and the impact of advertising is so strong that it determines the purchase of goods most of us do not even want in the first place.*

Keywords: *consumer's psychology, ad psychology, efficiency of the advertising message, 3D technologies, three-dimensional advertising.*

I. 3D TECHNOLOGY – THE DAWN OF A NEW ERA IN THE MEDIA WORLD

*“If a picture is worth a thousand words...
3D animation is worth about two million words a minute.”*

In many ways, the development of visual media, just like television or cinema, contributes to the completeness of the image of our modern life style. Most of us are curious of how our life will look like in a few years from now and what kind of movies we will want to watch or on what criteria we will choose to watch a TV channel or another.

In time, film making and television have undergone considerable transformations; the movies were mute at first, sound was added later, the black-and-white cinema theaters and television channels added color, the computer images and special digital effects would be the last major element of novelty in this filed. Consequently, we may ask the following question: what will the new film making and television revolution consist of?

In 1920, almost a century ago, the well-known film director Sergei Eisenstein said that the future of film making is the moving 3D pictures. Even the Lumière brothers experimented 3D images in 2 films painted in red and blue (or green) simultaneously thrown on the screen. The spectators saw the stereoscopic images through the glasses painted in opposite colours. The resulted images were black-an-white, similar to the first stereoscopic film, « Power of love » (1922, USA, Dir. H. Fairhall). The best stereoscopic film which used the principle of light polarization was invented in 1930 and was released in the '50s, but was not such a success to the public. Based on this technology of film polarization the stereoscopic cinema was improved, which today has practically no future – these stereo-films need the use of polarized glasses which in time cause eyestrain. Semjon Ivanov, a talented Russian inventor tried to eliminate the need to use such special glasses and developed a system of moving 3D raster photos that could be visualized without glasses. The only 3D film theater in the world which is based on his system was built in Moscow in 1941, but it has a disadvantage: the spectators sat motionless in the stereo areas while they were watching those movies.

Holography – the procedure of obtaining relief images was ‘accidentally invented’ in 1947 by the scientist of Hungarian origin, Dennis Gabor; 24 years later, Dennis Gabor was awarded the Nobel prize for having invented holography. The holographic image can be seen from various angles without glasses. The 3D holograms, of remarkable quality became possible only after the invention of the laser and due to the research made by Denisjuk, E. Leith, S. Benton and other scientists in the 1960s, 1970s. The first holographic movie was made by M. Lehmann in the USA in 1966; unfortunately the movie would demonstrate its limits and less its potential because it could not be watched simultaneously, in its entirety, by more than two persons which demonstrated that it was improper for a movie meant for the public.

After a continuous research and development of the first two-minute hologram in the world meant for the public, a monochromatic film was made by Komar’s team in 1976 and was presented at the 12th Congress of the International Cinema Associations Union, in Moscow. The participants were charmed: the three-dimensional moving images could go out of a screen into any direction and even go around the screen. Bernard Happe, editor of the British Encyclopedia of Television, who attended this congress, wrote: "delegates who saw the actual results were left with the sense of having been present at a historic occasion, comparable with the classic demonstrations of past pioneers in film and television and having equally vast and perhaps unrecognized potentialities" [6].

Shortly after this success, Victor Komar’s team developed the technology of static holographic projection for multiple viewing zones, which allows new meanings for advertising. Now such a rather simple and inexpensive static holographic projector can be used for advertising, exhibitions, show making, education and so on – just as usual slide-projectors are used – but thus we receive a 3D color image.

In the mid - '90s professor Komar’s research group, together with the South-Korean Institute of Science and Technology, developed a new experimental 3D system with holographic screen, without the need for special glasses. This discovery would open remarkable horizons not only for the TV, but also for new ways of computer modeling 3D virtual reality, horizons for a new digital system off three-dimensional cinema. These horizons really mark a new era in the media world.

II. GENUINENESS, IMAGINATION, SHOW – 3D ADVERTISING

The newest 3-D technology has moved out of the theater and into the home, opening up a new world of possibilities for television content creators. This technology also opens up opportunities for advertisers to take their messages to the next level.

Let us imagine a showroom or window display that seem totally real, but that you may change in just a second, by the mere modification of the holographic slide in the 3D projector or pushing a button on the computer keyboard. Now, let us imagine a display of products the size of life, which intend to be presented instantly, to one or to several customers. Imagination becomes reality by merely using a holographic and digital 3D equipment; the element of uniqueness and magic – products floating in the air, without any support whatsoever – is convincing by the immersive effect, causing the customer feelings, emotions, from the point of view of one’s own involvement at the psychological level, in the projected three-dimensional setting. Thus, a major card of the efficiency of three-dimensional advertising may be noticed, the use of 3D technology in creating advertisements, by the captivating combination of 3D imagination with the genuineness of reality and of the word.

2.1 3D potential in the industry of advertising

Digital 3D simulates (imitates) the effects caused inside the human eye by perceiving the three-dimensional object. The process is generated when every eye of the viewers gets an image from a different point of view, making the brain to interpret the depth of the images merged together. In the traditional cinema and television formats, the viewers look around the whole screen, in two axes (X, Y), which limit the free eye movement to only one plan. With digital 3D the view depth appears adding a third axis (X, Y, Z).

When making a shot, its creators rely on a strong instrument: the closeness to objects. This kind of media needs the use of specific glasses. Their use causes the increase of the tendency of the

viewer to receive the message. The viewer is responsive when seeing the advertisement, due to the immersive format of its exposure. The effect of 3D images «gets out» of the screen inviting the viewer to live an experience of total immersion. This new type of media brings along a new way of telling a story, represents a new language which claims first the adaptation of the creators to the objective of the 3D creation – maximum benefits. A 2009 statistic report shows that the USA is in the top of the countries with a growing number of 3D cinema theaters, with 3.500 followed by the UK with 400, China 400, France 380, Germany 225, Italy 200, Russia 185, Mexico 180 and Japan 150. Movies like «Avatar», «Ice Age» or «Cloudy with a chance of meatballs» enjoyed great success thanks to the 3D technology.

One of the first 3D digital advertisements for cinema theaters in Europe was developed by Dygra Films. This advertisement was created for launching the promotion campaign of Telefonica Movistar between 2008–2009. Walt Disney Co.'s ESPN network convinced three important advertisers to produce expensive 3D advertisements for its new sports channel which started the day of broadcasting 2010World Cup. Procter & Gamble Co., Sony Corp. and Disney's Pixar, they all experimented the new challenge on the new 3D sports channel. It is quite difficult to convince the advertising industry to embrace the in-you-face technology. The executives in the line of advertising maintained that the 3D advertisements are expensive from the point of view of time and of money investment. The creation costs for 30 seconds of 3D advertising may attain amounts between \$500,000 and \$1 million, and the price may increase by 30, 40%, according to the top management of the advertising industry.

While the consumers become more and more acquainted with the three-dimensional technologies, its promoters put to test the imagination and the wish to know people, not only by the 3D cinema but also by the 3D television phenomenon at home (3D TV), the latter being nascent. A 3D in – home market research report made by Nielsen – Cable & Telecommunications Association shows that [7]:

- ❖ 48% of the respondents of the questionnaire asserted that they feel more involved in a show when they watch the 3D program;
- ❖ 42% answered that they would watch TV more if they had a 3D;
- ❖ 77% said that 3D TV is much more appropriate for sports and movies.



According to the same source, the 3D in-home system fails to cover the adoption barriers because of the costs imposed by the purchase of the 3D TV set, the special glasses – about which 89% of the consumers say that they prevent the multi-task ability while they watch TV – and the current lack of 3D programming. Consequently, we may point out the first findings related to the potential of 3D advertising:

- ❖ The 3D advertisements have a greater impact as compared to the 2D, by their immersive and captivating character of 3D programming, by the dimensions and scaling of cinema experience, which enhances the efficiency of 3D advertisements; 3D technologies require special glasses, which reduce the consumer's multi-task ability while he watches 3D advertising on TV, in favor of enhancing attention, which determines the improvement of the performance of the advertisement.
- ❖ The genre differences will increase the performance of the 3D advert. While the 3D TV consumers watch sports or movies, these genres will register higher scores as compared to the other genres, more so by attaining the performance of the 3D advertisement inserted during the program. 3D TV is able to amplify the psychological effects generated by 3D technology by catching the attention and attracting the spectator in the already created. 'scenario'.
- ❖ The emotion- and action-driven advertisements stand out. The neural research showed that TV is better in emotional communication than PC and mobile applications. 3D promises to step forward by its immersive nature. Brands with a strong emotional message, brands which offer action based on the benefits – cars, sporting goods, are probably the future leaders of advertising in a 3D world.

The potential of 3D technologies in the advertising industry and measurement of the efficiency of 3D advertising by catching attention, emotional involvement and persuasion, can be synthesized by

means of SWOT analysis, where the strong points are highlighted, the weak points, the opportunities and the threats, as shown by TABLE 1 below [8] :

TABLE 1. SOWT analysis of the potential of 3D technologies in the advertising industry

Strengths	Weaknesses
<ul style="list-style-type: none"> ✓ 3D advertising television catches attention by a cutting-edge technology ; ✓ an element of novelty in home entertainment; ✓ a challenge for traditional advertisements; ✓ very few advertisers use 3D technology, which gives them a competitive advantage with the traditional advertisers. 	<ul style="list-style-type: none"> ✓ very few households have a 3D TV set as compared with the number of those who watch TV channels at the traditional display ; ✓ this makes 3D advertising to become highly cost-inefficient, as most of the TV viewers have no possibility of watching the 3-D commercial ; ✓ there is no fundamental research showing that 3D technologies which need no special glasses to watch would ‘shake’ the commercial market and possibly become a standard ; in this case, the investment made in using 3D technology in creating advertisements may be a waste of time ; ✓ ‘the power’ of 3D technology to cause the act of purchase/consumption decision, is under a question mark. While 3D has the power to entertain and even amaze viewers, it is impossible to increase the relevance of the value of the proposition or the appeal to consumption.
Opportunities	Threats
<ul style="list-style-type: none"> ✓ since 3-D advertising has been a new concept to make advertising, technology creates the opportunity of being the first ‘engine’ in a new era, that of the 3D mania, may result in the standardization of such advertising in the future ; ✓ the real chance of the advertisers to imprint in the mind of the consumers by associating the 3D ads with their names; ✓ the possibility of improving the advertisers’ income by providing consulting and exchange with other companies interested in the 3D advertising industry. 	<ul style="list-style-type: none"> ✓ the new 3-D technology pays no special attention to the real situation caused by a growing number of TV viewers who ‘skip’ the commercials, changing the TV channel or watching other sources, such as digital video recordings (DVRs) ; ✓ unfortunately, at present, 3-D technology is compatible with the mobile devices and the PC which play the streaming video ; ✓ 3-D TV commercials are threatened by untimely obsolescence.

2.2 Influence of the 3D visual stimuli on the consumer’s mind

We can study the influence of the 3D visual stimuli on the consumer’s mind whenever the consumer is deliberately ‘subject to’ a 3D show, either in a 3D cinema theater, in front of a 3D in – home TV, by watching the movie of a 3D commercial.

But few of us think of measuring the efficiency of a 3D commercial by the influence of the 3D visual stimuli on human mind outside the framework already presented in the contents of this paper.

What is our reaction when we are in an elevator the viewers of a lenticular poster (visibly 3D) and what do the creators of such a 3D elevator displayed ad propose to demonstrate?

It seems to me as much daring idea as it is challenging, by the very point of view of the SWOT analysis, already shown in table 1, and this the reason of my forthwith psycho-social behavior of man analysis in this space, as if caught in an elevator.

A relatively new media support, the elevator ad has come as a response of the growing need for communication in an unconventional way and of impact in the context of the growing congestion on the traditional media channels with advertisements.

A lot of advertisements overlap on the TV, radio, street billboards or in the mail boxes, most of the times of the direct competitors. But in the elevator there may be exclusiveness for a certain brand, which contributes considerably to the brand's differentiation. It proposes to the market a new **Very Close To Home** concept – as it is among the few places where a company or a brand may have an intimate communication with a potential customer.

An attempt of offering an alternative to the already known promotion media is made (VCTH), providing for an intimate space, away from the 'ad war' we meet and confront with everywhere.

The type of advertisements in this environment includes at present prints framed in a little larger than A3 format, special decorated mirror-like projects or lenticular posters (visibly 3D). It is true that this latest format is not so demanded because of the high costs, but can we actually talk about its efficiency which will compensate the high financial investment?

Specialists in psychology and sociology help us understand how a lenticular poster, visibly 3D may create a man-company interaction in a relatively short time interval.

The elevator is a small space where you are obliged to spend a few seconds alone or in the company of other people. The laws of interpersonal communication determine your trip partners to mutually avoid sights and to look on the walls, where the ad waits for them. The elevator provides for an intimate communication with a potential customer in a captive space and the reception of the ad is not disturbed by other advertisements, by noise or horns.

The sociologists say that it is absolutely normal, considering that it is a confined and pointless space, to catch with the eye something interesting to read or look at. The research in the field revealed the fact that in a confined space of small dimensions, where there is no visual or audio jamming an advertisement, be it three-dimensional, has an impact of over 95% from the point of view of reading and visualization, and of over 80% from the point of view of memorizing it through the very perspective of the uniqueness of its form of presentation, of the innovation and great closeness, both physical and emotional to the consumer.

The over 90% rate of those who read and look at the advert – the lack of other activities most of the times in a confined, captive space, makes the billboards, the lenticular posters become more attractive, cause a positive reaction to the people in the elevator.

Remarks such as 'it provides you with something to be done' have been heard in a 85%, from the subjects questioned after taking the elevator for minimum 30 seconds up to 1.2 minutes, the interval of a trip [9]. The time interval is ideal for being exposed to an advert, where magic and uniqueness, the 3D visual stimuli are added.

Advertising is based on a simple philosophy: if you want to be seen, heard, you go where people look and are ready to listen. A logo, a web address or a three – dimensional ad are easy to memorize, to look at when displayed, visualized inside the elevators. This method is not only unconventional but also efficient, challenging and interesting.

III. CONCLUSIONS

We are the creators but also the beneficiaries of our own inventions, as much ingenious as complex and scientific but also captivating.

The magic of words transposed in three-dimensional images, emotionally loaded with fairytale scenarios comes to complete the existential framework of the 3rd millennium mankind. Paradoxically nothing from what we have dreamt to achieve seems impossible today, everything depends on the quality of the idea and the extent in which the use of 3D technology sustains the message of the advertisement.

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