The use of depth perception in advertising

Science

The Use of Depth Perception in Advertising: Local and International Scenario i The Use of Depth Perception in Advertising: Local and International Scenario Prepared for: Dr. Nasreen Wadud (Course Instructor) Course: Psychology(C103) Prepared by: GROUP-B Saleh Mohammad, ZR-04 Saba Hossain Khan, RQ-07 Sheikh Ashraful Abedin, ZR-11 Abdullah-Al-Azad, ZR-49 BBA 16th Batch Date of Submission: December 15, 2008 Institute of Business Administration (IBA) Dhaka University (DU) ii Institute of Business Administration Dhaka University December 15, 2008 Dr. Nasreen Wadud Course Instructor Introduction to Psychology

Dear Madam: Here is the report on the use of depth perception in advertising that you asked us to conduct on November 12, 2008 Our study of various advertisements reveal the use of Binocular Disparity and Monocular cues in advertising. The report shows that depth perception is a vital part of marketing a product and is used extensively in advertising a brand. Preparing this report has been an important experience for us, as we have learnt about an application of psychology in the real business world through it. We appreciate your teaching us such an important area of psychology. Sincerely yours, _____ Saleh Mohammad (ZR-04) _____ Saba Hossain Khan (RQ-07) _____ Sheikh Ashraful Abedin (ZR-11) _____ Abdullah- Al-Azad (ZR-49) iii Table of contents Section Title Page No. Executive Summary 1. Introduction 1. 1 Origin Of The Report 1. 2 Objective 1. 3 Limitations 1. 4 Methodology 2. Depth Perception 2. 1 Binocular Disparity: 2. 1. 1 Retinal Disparity 2. 1. 2 Convergence 2. 2 Monocular Cues: 2. 2. 1 Interposition 2. 2. 2 Texture

Gradient 2. 2. 3 Relative Size 2. 2. 4 Height Cues 2. 2. Peripheral Vision 3. Application InAdvertisement3. 1 Local Advertisements 3. 1. 1 Rangs Properties Limited 3. 1. 2 Djuice vi 01 01 01 01 01 02 02 02 03 03 03 03 04 04 05 06 06 06 07 iv 3. 1. 3 Bbc Bangla 3. 1. 4 Aktel Postpaid 1 Tk/Min 3. 1. 5 Aktel 30 Paisa/Min 3. 1. 6 Banglalink Gsm Yellow Pages 3. 1. 7 Aktel Care Line 3. 2 International Advertisements 3. 2. 1 Red Cross Disaster Relief Fund 3. 2. 2 Mtv System Upgrade 3. 2. 3 Evlan Mineral Water 4. Conclusion 08 09 10 10 11 12 12 13 13 14 v Executive Summary Our study revealed that depth perception is used extensively in the advertising world.

Depth Perception is what makes us perceive a two-dimensional picture into a threedimensional view. To perceive depth, we depend on two main sources of information: Binocular disparity, a depth cue that requires both eyes, and Monocular cues, which allow us to perceive depth with just one eye. Because human eyes are spaced about 7 cm (about 3 in) apart, the left and right retinas receive slightly different images. This difference in the left and right images is called binocular disparity. The brain integrates these two images into a single threedimensional image, allowing humans to perceive depth and distance.

Under Binocular Disparity falls Retinal disparity and Convergence. If we try to see the world with one eye closed, we can still perceive distance. The sense of depth remains rich. A sharp sense of depth does emerge from a single twodimensional image. This is known as monocular cues. Interposition, Texture gradient, Relative size, Height cues, Peripheral vision are included in Monocular Cues. Retinal disparity, Convergence, Interposition, Texture

gradient, Relative size, Height cues, Peripheral vision are used effectively on billboard to attract the general public and turn them into loyal customers. vi

Use of Depth Perception in Advertising 1. INTRODUCTION 1. 1 Origin of the report This report was assigned to Group B of BBA 16 th batch by Dr. Nasreen Wadud, course instructor of Introduction to Psychology. It has been prepared under the direct supervision of the course instructor and is submitted on December 15, 2008. 1. 2 Objective Depth perception, an important field of our study of psychology, is extensively used in advertising. Whether on billboards, in magazines, or in newspaper ads, the concept of depth perception is used everywhere. The purpose of this report is to find out and explain these uses. 1. 3 Limitations

Due to lack of experience, we were unable to take interviews of the business personnel of marketing department of various companies. The interviews could have given us more important information on the application of depth perception in advertising. 1. 4 Methodology Website-Information on the theoretical aspect of depth perception and pictures are all collected from various websites (websites provided within the report). Newspaper-Scanned in pictures are used in the report from paper cuttings. 1 2. DEPTH PERCEPTION Depth perception is the ability to see the world in three dimensions and to perceive distance.

The images projected on each retina are two dimensional but we are able to see everything in three dimension. Brain merges the separate two-dimensional images to form a three-dimensional view of the world. To perceive depth, we depend on two main sources of information: Binocular disparity, a depth cue that requires both eyes, and Monocular cues, which

allow us to perceive depth with just one eye. 2. 1 Binocular Disparity: Because human eyes are spaced about 7 cm (about 3 in) apart, the left and right retinas receive slightly different images. This difference in the left nd right images is called binocular disparity. The brain integrates these two images into a single threedimensional image, allowing humans to perceive depth and distance. Although binocular disparity is a very useful depth cue, it is only effective over a fairly short range—less than 3 m (10 ft). As our distance from objects increases, the binocular disparity decreases—that is, the images received by each retina become more and more similar. Therefore, for distant objects, your perceptual system cannot rely on binocular disparity as a depth cue. 2. 1. 1 Retinal disparity

Animals that have their eyes placed frontally can also use information derived from the different projection of objects onto each retina to judge depth. By using two images of the same scene obtained from slightly different angles, it is possible to triangulate the distance to an object with a high degree of accuracy. If an object is far away, the disparity of that image falling on both retinas will be small. If the object is close or near, the disparity will be large. It is stereopsis that tricks people into thinking they perceive 2 depth when viewing Magic Eyes, Autostereograms, 3D movies and stereoscopic photos. . 1. 2 Convergence This is a binocular oculomotor cue for distance/depth perception. By virtue of stereopsis the two eye balls focus on the same object, in doing so they converge. The convergence will stretch the extraocular muscles. Kinesthetic sensations from these extraocular muscles also help in depth/distance perception. The angle of convergence is smaller when the eye is fixating on far away objects. 2. 2

Monocular cues: If we try to see the world with one eye closed, we can still perceive distance. The sense of depth remains rich. It is surprising that how a sharp ense of depth does emerge from a single two-dimensional image. The answer lies in monocular cues. An artist who wishes to realistically portray depth on a two-dimensional canvas faces the problem similar to encoding depth on the two-dimensional retina. Some artists are amazingly adroit at doing so, using a variety of monocular cues to give their works a sense of depth. While there are many kinds of monocular cues, the most important are interposition, atmospheric perspective, texture gradient, linear perspective, size cues, height cues, depth from focus, peripheral vision, and motion parallax. 2. 2. Interposition Probably the most important monocular cue is interposition, or overlap. When one object overlaps or partly blocks our view of another object, we judge the covered object as being farther away from us. 2. 2. 2 Texture gradient An influential American psychologist, James J. Gibson, was among the first people to recognize the importance of texture gradient in perceiving depth. When we view a 3 surface from a slant rather than from a position orthogonal to the surface, we employ the sense of texture gradient. Most surfaces—such as the ground, a road, or a field of flowers—have a texture.

The texture becomes denser and less detailed as the surface recedes into the background, and this information helps us to judge depth. For example, if a person looks at the floor or ground around him or her, he or she can notice that the apparent texture of the floor changes over distance. The texture of the floor near that person appears more detailed than the texture of the floor farther away. When objects are placed at different locations along a texture

gradient, judging their distance from you becomes fairly easy. 2. 2. 3 Relative size

Though the size of retinal image changes as an object moves closer to or farther from us, we perceive that the object is retaining its initial size. Taking into consideration the distance of the object enables us to sense that. Thus, if we assume that two objects are of the same size, we perceive the object that casts a smaller retinal image as farther away than the object that casts a larger retinal image. This depth cue is known as relative size, because we consider the size of an object? s retinal image relative to other objects when estimating its distance. Another depth cue involves the familiar size of objects.

Through experience, we become familiar with the standard size of certain objects, such as houses, cars, airplanes, people, animals, books, and chairs. Knowing the size of these objects helps us judge our distance from them and from objects around them. For example, an automobile that is close to us looks larger than one that is far away; our visual system exploits the relative size of similar or familiar objects to judge distance. 2. 2. 4 Height cues We perceive points nearer to the horizon as more distant than points that are farther away from the horizon. This means that below the horizon, objects higher in the visual 4 ield appear farther away than those that are lower. Above the horizon, objects lower in the visual field appear farther away than those that are higher. 2. 2. 5 Peripheral vision At the outer extremes of the visual field, parallel lines become curved, as in aphototaken through a fish-eye lens. This effect, although it's usually eliminated from both art and photos by the cropping or framing of a picture, greatly enhances the viewer's

sense of being positioned within a real, three dimensional spaces. 5 3. APPLICATION IN ADVERTISEMENT 3. 1 Local Advertisements 3. 1. Rangs Properties Limited Linear perspective: The two corners of the wall seem to join together in a distant point. It creates a sense of large space. The advertisement uses this cue to create an impression that the rooms are large and spacious. Interposition: Some objects are overlapping others blocking the viewer sight. It helps to determine the relative distance of the objects. The advertisement uses this cue to show the objects are kept at noticeable distance and it indicates there is space. Relative size: The sizes of the two guitars seem noticeably small compared to the table according to our experience.

This cue makes us perceive a considerable distance between the table and the guitars to show the place is roomy. Texture gradient: The objects closer to the viewer have highly detailed texture where the farther objects and walls have vague textures. This cue also gives the feeling of considerable distance. Color vision: The guitars in the outlying side of the wall are dark in color where the closer objects like the top of the table and the closer curtain are light colored. The 6 curtain is orange colored (warm-pigment). This cue creates a sense of distance among the objects and enhances the spaciousness of the scenario. . 1. 2 Djuice Retinal disparity: The positions of the characters relative to the buildings give a sense of the whole picture being seen by the right eye. The viewer feels as if s/he were standing right to the closest model. „ Right? is traditionally analogous to positive things and therefore things seen by the right eye are likely to produce good impression. Linear perspective: The building at the left seems to expand toward one

single point in the horizon and the building in the front also touches that point. It looks as if the buildings were expanding to join together in one point of distant horizon.

The advertisement uses this cue to produce a sense of distance. Height cues: Buildings that stand high and look closer to the horizon seem farther and the clouds that are located lower to the ground and look closer to horizon seem to at greater distance. The advertisement uses this cue to create a sense of wide area. Texture gradient: The textures of closer objects, like the nearer models, are detailed but the objects far away are less detailed in texture. The models standing in remote buildings have no texture details. The advertisement uses texture gradient cue so that the viewers perceive a great distance. Linear perspective, height cues and texture gradients altogether creates a sense of a large space through which the advertisement expresses that no matter the distance, friends will always be together through the djuice network. Interposition: Some models and buildings are blocking view of other objects to give a sense that to viewer, they are closer than the objects they are covering. This cue helps to realize the relative distance of different objects. 3. 1. 3 BBC Bangla Retinal disparity: The child looks like standing left to the viewer. The whole scene looks like seen by the left eye.

The advertisement uses this cue to create a negative impression since „ Left? is traditionally taken as related to negative things. Relative size: The size of the child in the picture is small compared to the brick he is supposed to carry. This cue of relative size creates a sense of burden. It indicates that the burden of child labor is heavy for the kid. Interposition: The view of the

person putting the load is blocked by bricks. It shows that it is difficult to find out the presence of the person. This monocular cue indicates that people responsible for child labor are hidden and should be brought into light.

Texture gradient: The textures of the bricks kept in the front and floor are detailed but the objects farther away have less detailed texture and are hazy. It gives a feeling of distance. It depicts the person putting the burden usually stays at a distance. 8 3. 1. 4 AKTEL postpaid 1 TK/min Retinal disparity: The whole picture in this advertisement presents itself in a way that looks like all the objects are located right to the observer. Most parts of the picture, especially the nearer buildings and the big „ 1? , look like being seen by the right eye. Traditionally „ right? is considered parallel to good things.

The advertisement uses this cue to create a positive impression among consumers. Linear perspective: All the buildings on both sides of the river look like traveling toward one point in the horizon. It gives a sense of great distance to viewer. Peripheral vision: The horizon looks curved. It also produces a sense of distance. Height cues: Buildings that are taller and closer to the horizon seem to be at greater distance than those with reduced height. The clouds that are closer to the horizon and lower look like farther than those far-away from horizon. The height cues give a sense of a wide area.

Texture gradient: The objects (buildings and trees) closer to the viewers are highly detailed in texture where the remote objects have little detailed texture and their surface texture is dense. This cue gives sense of so many objects covered by the network. The linear perspective, peripheral vision,

height cues, and texture gradient cues together indicate that a wide area and huge population is covered by the company? s? network. Relative Size: The „ 1? is noticeably huge compared to all other objects. The other important words are big as well. The relative size cue is used to give the offer emphasis. 9

Interposition: The „ 1? is covering many other parts of the picture and is located among the buildings. It gives a sense that the company has intimate relationship with the people. 3. 1. 5 AKTEL 30 paisa/min Relative size: The size of the models is large compared to surroundings. The advertisement clearly emphasizes the intimacy of their relationship. This cue is used to indicate that relationships are more important. Texture gradient: The nearer models and the grass is highly detailed in texture but the grass and trees near the horizon have less detailed texture, this indicates a distance among the objects.

Peripheral visions: The horizon is curved and vague, indicates a distance. The texture gradient and peripheral visions cues are used to show that a large world of relationships is covered by the company? s network. Interposition: The girl is blocking our view of the boy; similarly the boy is blocking the view of the horizon. It enhances the sight of the models relative positions. This cue is used to show that the company cares more about the people. 3. 1. 6 Banglalink GSM Yellow Pages In the advertisement, there are examples of retinal disparity, interposition, relative size, texture gradient, and height cues. 0 The cover resembling a mobile phone is drawn in a way that it feels like being seen by the right eye. The right side indicates positive. Interposition is displayed as every page tag except the ones first inseries is

being partially covered by another tag. It shows their distance from viewer and relative distances. The number 2727 is relatively larger than other numbers because it is important. Relative size is used in this case. Height cues are displayed by using different heights for page numbers and the cover to show distance. 3. 1. AKTEL Care Line Retinal disparity: The headphones? position is rotated in such a way that it seems to be seen by the right eye. It indicates that the object is right to the person seeing it. Traditionally we relate „ right? to good things; therefore, the advertisement uses this cue to produce positive impression among the people. Relative Size: The right earpiece appears to be bigger than the left one. Again, „ right? is associated to positive, so the advertisement employs this cue of relative size to create a good impression. 11 Interposition: The words „ 123 Aktel Care Line? re covering the left earpiece, indicating that it is at a greater distance. The right earpiece is similarly blocking our view of those words, meaning that it is closer to us. Again, the advertisement is emphasizing right over left to the viewers which gives a sense of inclination toward positive things. 3. 2 International Advertisements 3. 2. 1 Red Cross Disaster Relief Fund Top half: Here the perception of convergence is used by showing that a natural calamity can affect wide areas and take many lives. The truck is the closest object which overlaps the buildings. Then some buildings are blocking others.

This is an example of using interposition to show that calamity affects wide area. Texture gradient is used by presenting a clearer view of the front sides of the buildings than the sides which are farther. The relative size of cars is used to show distance. They look smaller with the distance. The rate of

decrease shows the velocity of destruction. Bottom Half: The scenario looks like seen by the left eye. Retinal disparity is used here to show calamity is disastrous as left eye indicates negativity. The truck is closer, it itself and the company logo both receives emphasis.

This effect is created by using interposition. The texture closer to the truck is more detailed. The haziness of the building texture shows distance depicts wide area of destruction. 12 The size of the building is relatively small which symbolizes distance and a wide area of destruction. This is done by using relative size. 3. 2. 2 MTV System Upgrade In this advertisement of MTV, the concept of texture gradient is used to show different distance. Different texture is used on the letter " M" in order to create a three dimensional effect. 3. . 3 Evlan Mineral Water In this advertisement, texture gradient is used to distinguish between people in different positions. People who are nearer can be identified better. On the other hand those who are farther cannot be identified easily as their presence is blurred. The concept of relative size is used as the things perceived nearer are relatively big in size. The things which are smaller are perceived as being farther. 13 4. CONCLUSION Depth Perception is what makes us perceive a two-dimensional picture into a threedimensional view.

Therefore, marketers can use this psychological ability of human beings to advertise their products effectively, especially on billboards. In Bangladesh, the most widely advertised product is the mobile phone network. Telecom companies such as Grameenphone, Banglalink, Aktel, etc. undertake various promotional offers regularly. These include discount offers and special offers. So they need to change the billboards on a regular basis. Depth perception is

used in these to make each advertisement stand out and reach the public. Our study revealed that depth perception is used extensively in the advertising world.

Retinal disparity, Convergence, Interposition, Texture gradient, Relative size, Height cues, Peripheral vision are used effectively on billboard to attract the general public and turn them into loyal customers of the respective product. 14 Sources Theories Wikipedia: http://en. wikipedia. org/wiki/Depth_perception MSN Encarta: http://encarta. msn. com/encyclopedia_761571997_4/Perception_(psychology). ht ml Images http://www. banglalinkgsm. com/img/yellow_pages. jpg http://www. aktel. com. bd/themes/images/91. jpg http://www. aktel. com/latest_images/currentPrpmo/reg_march08.

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