

Line Sticker Character Designing for Visually-Impaired Users: a Case Study for Low Vision Users

Amornrat Seesuk¹,
Amon Rientaksinayan²,
and Pisit Prougestaporn³

Faculty of Communication Arts, Digital Media,
Siam Technology College, Thailand

¹amornrats@siamtechno.ac.th

²amonr@siamtechno.ac.th

³pisitp@siamtechno.ac.th

Abstract - The purpose of this research was to design a sticker character for the low vision users. The instruments used in the study were the 8 sets of a sticker character. The sample group consisted of 30 low vision subjects selected by the simple random sampling method. The results showed that the colors of the graphical sticker character sets affected the vision of the low vision persons at some statistical significance.

Keywords - Character, Sticker Line, Low Vision Person

I. INTRODUCTION

Universal design lays its important principle on designing for everyone's equal use; that is, the design can accommodate different uses of various groups such as people with disabilities, the elderly and children. The designing for all people should well serve the users without their discriminated or inferior feeling (Wolfgang, 2001). In practice, in the context of Thailand a lack of attention in this regard has still much prevailed. Even with the vivid requirements of the Ministerial Regulations on the Facilities in the Buildings for the Disabled and Old People A.D. 2005, those safety provisions cannot yet fully meet the needs of the handicapped people, especially the visually impaired, who are less fortunate than those with mobility or communicating disabilities.

In Thailand, Section 4 of the Act of the Promotion and Development of the Quality of the Lives of the Disabled B.E. 2550 (A.D. 2007) defines persons with disabilities as “the persons who have limitations in daily life or social activities because of the impairments in seeing, hearing, movement, communication, mind, emotion, behavior, intelligence, learning, or any other defect, have the obstacles in certain areas and have a special need to get some help in order to complete everyday or social activities as the ordinary persons”.

It is now being the digital era. The communication technology makes life easier for people in society. The communication gap between the transmitter and the receiver is smaller. People can communicate easily. By developing a gadget that the user can carry at all times like smartphones and the applications on the smartphones, more can be conveyed than talking on the phone. The “Chat” applications, that is, have been varied. Lines, for instance, is a smartphone chat application. The creative differences that make Lines stand out are: the “Stickers” including its unique features such as the voice chat, the group communication, the creating of timeline and games, etc. Lines, hence, have been enormously popular to the handicapped, the general users, the owners of goods and services who have been using it as a means to reach the consumers.

This research was an application of the computer technology to design a line sticker character for the low vision persons so as to help solve their visual problems and to be a communicating medium between the disabled and the general users because the design of the line sticker character shone off the gestures, the descriptive text and sound for the low vision or blind persons to listen and convey their feeling to others. That would help the little-visibility people to practice their daily or social activities like the general people did.

II. PURPOSE

To design a line sticker character for the little-visibility persons.

III. CONCEPTS, THEORIES, AND RELATED RESEARCH

1. Graphic means a branch of art or science that expresses the meaning by the lines, colors, images, symbols, photos. The graphic is clearly visible and immediately comprehensible.

2. Character means a character in cartoon, an animal, an object, a symbol or image used in business for marketing promotion. The created movie or cartoon is born from the continuous running of images to build motion or from a computer graphical application.

3. Line Stickers mean the created SD (Super Deformed) cartoons, of which the head size is one to three or four of the body. It is cute and unique, symbolizing and communicating the meaning on the Line application, a chat program of the wireless communication.

4. People with low vision mean those who have lost some vision, possibly permanently blur or invisible in the center of the image as if something has covered it or visible only in the middle without the sight of the sides. That is, some people may have one low-vision eye and one blind eye.

5. Related Research - Chavalit (2009)'s research indicated that the design of characters in advertisement had affected the consumers' recognition of the goods. The study aimed to

study the factors of the design of the characters in the advertising that had affected the consumer's recognition of the products. It concluded in two parts: 1) the physical factors were the movement of the characters, the cartoon / image characteristics, the colors of the characters, the characters themselves, and the voice communication and 2) the mentality factors were the personality of the characters and the content communication. Overall, the factors of the character design in the advertising of the movie directors, the animator experts and the marketeers were quite consistent with the character design factor analysis table of the case study movie.

IV. RESEARCH HYPOTHESIS

Graphical lines in Line stickers affect the sight of the low vision people at some statistical significance.

V. RESEARCH METHODOLOGY

This study was an experimental research. The researchers developed and designed the Line sticker character for the vision impaired, a case study of the low-vision persons, by conducting the following process.

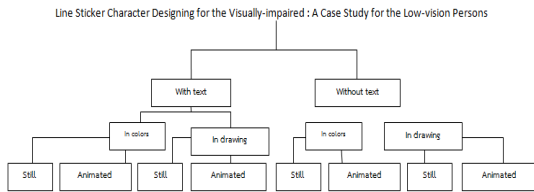
1. The Studied Information. The studied data about the Line sticker character came from various sources, which were documents and e-information, and about the individual categories through interviews with the character designing experts, the blind and low-vision persons.

2. The Population Demographics and Sample Selection. Involved were: 1) 5 designing experts and 2) the population and the samples, who were the 30 low-vision persons in Bangkok selected by the simple random sampling method.

3. The Experimental Plan. The research aimed to find the effectiveness of the created Line sticker in order to test the research hypothesis.

4. The Research Tools. The tools used in the research were the Line sticker character

that was divided into 2 parts: 1) the character with text, which were the character in colors and the character drawing in still and animated images and 2) the character without text, the character in colors and the character drawing in still and animated images. Details are shown in the following chart.



5. The Experiment and Data Collection. The researchers gave explanations about how to view each Line sticker character image to the samples. Then the researchers built groups in Line, the group named Stickers for the Low-vision Persons. The researchers pulled the samples into Line by sending a Line sticker into the group, one by one. The samples glimpsed the stickers by themselves. Each sample had one mobile phone. Totalling 30 samples. After watching the stickers, they made replies on the questionnaire.

6. Data Analysis and Statistics. The data were analysed into arithmetic means.

VI. RESEARCH RESULTS

This research aimed to design Line sticker character for the visually impaired, a case study for the low vision persons. Following are the research analytical results.

A. Results of the Line Sticker Character Designing.

The researchers designed the Line sticker character into 2 parts:

1. The sticker character without text were in four types as shown below.



Fig. 1 Still Character in Colours without Text



Fig. 2 Still Character in Drawing without Text

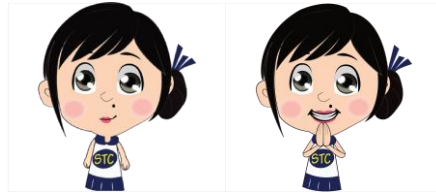


Fig. 3 Animated Character in Colors without Text

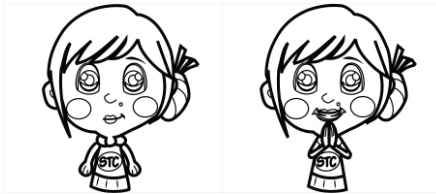


Fig. 4 Animated Character in Drawing without Text

2. The character with text were of 4 types as shown below.



Fig. 5 Still Character in Colours with Text



Fig. 6 Still Character in Drawing with Text



Fig. 7 Animated Character in Colors with Text



Fig. 8 Animated Character in Drawing with Text

VII. RESEARCH CONCLUSIONS

The scores from the questionnaire were collected upon the condition that any character that recorded more than 2.00 in average would need no revision but that less than 2.00 would need the correction as required by suggestions. Following are the average rating scale.

The arithmetic range 4.00 to 5.00 = Most Satisfied.

The arithmetic range 3.00 to 4.99 = Very Satisfied.

The arithmetic range 2.00 to 3.99 = Moderately Satisfied.

The arithmetic range 1.00 to 2.99 = Little Satisfied.

The arithmetic range 1.00 to 1.99 = Not Satisfied.

TABLE I
SHOWS THE RESULTS OF THE CHARACTER DESIGN ASSESSMENT BY THE EXPERTS.

Character Type Effectiveness Assessment by Experts	Average	Standard Deviation
1. Still character in colors without text	3.13	0.35
2. Still character in drawing without text	2.72	0.39
3. Animated character in colors without text	3.12	0.31
4. Animated character in drawing without text	2.40	0.31
5. Still character in colors with text	4.84	0.29
6. Still character in drawing with text	3.72	0.29
7. Animated character in colors with text	4.76	0.40
8. Animated character in drawing with text	3.68	0.42
Total	3.55	0.05

TABLE II
CHARACTER TYPE EFFECTIVENESS ASSESSMENT BY LOW VISION PEOPLE

Character Type Effectiveness Assessment by Experts	Average	Standard Deviation
1. Still character in colors without text	2.87	0.35
2. Still character in drawing without text	2.52	0.33
3. Animated character in colors without text	1.68	0.40
4. Animated character in drawing without text	1.32	0.49
5. Still character in colors with text	3.80	0.31
6. Still character in drawing with text	3.08	0.36
7. Animated character in colors with text	1.88	0.20
8. Animated character in drawing with text	1.12	0.20
Total	2.28	0.10

The study found that the average scores of the experts were higher than 2.00. They were 3.55 that indicated the high satisfaction which did not require any modification of the Line sticker character on the reasons of the character's interestingness and easy comprehensibility.

The experiment with the samples manifested the average scores of the low vision samples were highest at 3.8 for Character Fig. 5, still character in colors with text. The average scores were 3.08 for Character Fig. 6, still character in drawing with text and Character Fig. 1, still character in color without text. These were because colors were important and necessary for the designing, colors affected the sighting senses, some colors made the differences of the distance and sizes, colors

affected the feelings and mind (Kossum Saijai and Bamroong Issarakul, 1997). Colors were thus a graphical factor that affected the visibility of the low vision persons significantly.

VIII. SUGGESTIONS

1. Those who want to study the Line sticker character design for the visually impaired: a case study for the low vision people, may be re-analyze some contents for further resolutions that may be useful for the designers and those interested in designing. Examples are the blended use of computer graphical technology to create other characters in the future.
2. Other different types of Line sticker characters should be constructed or developed for the low vision persons.

REFERENCES

(Arranged in the order of citation in the same fashion as the case of Footnotes.)

- [1] Saijai, G. and Issarakul, B. (1997). "Communication Art and Design 2". Bangkok: Suan Dusit Rajabhat Institute.
- [2] Santiaphorn, R. and et al. (2016). "Designing of Sticker Line Character and Animation Phayoon". Department of Communication Art and Design, Faculty of Fine Art and Architecture: Rajamangala University of Technology Lanna.
- [3] Duang-u-tha, C. (2009). "Design of Characters for Advertising Works to Affect Consumers' Recognition". Thesis for Master's Degree in Communication Art and Design, Department of Communication Art and Design, School of Graduates: Silpakorn University.
- [4] Graphics and Computer Graphics. <http://krukikz.com/index.php?option=com_content&view=article&id=132&Itemid=180>. Accessed 14 March 2017.
- [5] Low Vision People. <<http://www.thairath.co.th/content/334075>>. Accessed 14 March 2017.