Traffic Safety Stickers for the Children with Hearing Impairment

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Abstract: Children with hearing impairment have the same rights and obligations when in a traffic area. Drivers with hearing impairment must wear identification when in the traffic area. In fact, there are no drivers with hearing impairment who use special identification cards. The purpose of this development is to produce driving safety stickers in traffic for students with hearing impairments and to assist the government in socializing about traffic regulations, especially identification for drivers with hearing impairment. This study uses a research and development (R&D) development model that adapts the steps of the Borg & Gall development model. The results of the development show the level of validity of driving safety stickers for the drivers with hearing impairment are included into very well or suitable to be used. In conclusion, hearing impairment drivers need special identification cards when driving on the highway.
Keywords: driving Safety Sticker, Traffic, Hearing Impairment Children

INTRODUCTION

People with hearing impairment (deaf) who have both total hearing loss and still have residual hearing are often referred to as total hearing impairment in obtaining information will maximize other senses that are still functioning. People with hearing impairment who still have residual hearing can minimize deafness by using hearing aids to assist in communication. Deafness is a hearing barrier caused by hearing aids that are impaired. The disorder is found in some hearing organs or as a whole. The children who are in a state of hearing loss are called hearing impaired children (Efendi, 2009: 57). Hearing impairment or obstruction can affect daily activities, one of which is driving, both in the neighborhood and the highway (traffic area).

According to Suparno (2003:67), traffic is a behavior that concerns the interests of many people, that is why, it is necessary to be polite and regulations that enable the implementation of the interests of many people. Deaf drivers have the same rights and obligations when in a traffic area. The right is to respect and be respected by other drivers, so that, they have a sense of security and behave well among fellow riders. The government provides regulations that for persons with disabilities are required to use special identification for safety when driving. Deaf drivers must use identification that is attached to the front and rear of the vehicle in accordance with Government regulations Article 123 of Law No. 22 of 2009 concerning Non-Motorized Vehicles, “Deaf cyclists must use identification on the front and rear of their bicycle”.

Problems and Research Objectives

The law for deaf motorists has been made, but in reality there are still many deaf motorists who have not used a special ID because socialization from the government is not evenly distributed. Making special identification requires expensive materials and costs, takes a long time, and is complicated in its manufacture, so that, many deaf motorists do not use it. The above problems are strengthened through surveys and comparisons made to experts who make identification such as license plates, road directions, and other items made of aluminum with experts who make identification from the basic ingredients of stickers. Making aluminum-based identification takes 4-5 days while making identification with sticker-based materials only takes 1 day.

Departing from these problems, the researchers developed a special identification to strengthen government regulations on deaf drivers. The identification is in the form of a driving safety sticker for the deaf. The driving safety stickers in this study are yellow triangular stickers with the words “Deaf”. This driving safety sticker is in the form of an isosceles triangle with a height of 10 cm and a base of 8.5 cm. Yellow color on the traffic signs means “alert or attention”, so that, it can be interpreted as a driving safety sticker that is alert/attentive to the deaf who is driving. This research and development aims to produce identification in the form of driving safety stickers in traffic for the deaf in SMALB (Special High School) Kepanjen, Malang regency. With the developed product, it is hoped that it can help deaf children and ordinary people to respect one another in driving on the highway.

Table 1. Data Table of Media Experts

No	Questions	Answers from Media Expert	
		Se	Sh
1	The shape of the sticker is in accordance with the requirements for traffic signs	4	4
2	The materials used on the stickers are in accordance with traffic regulations	4	4
3	The size of the sticker is in accordance with the rules of driving visibility	3	4
4	Words used on stickers are easy to understand	4	4
5	The typeface used on the sticker can be read clearly	4	4
6	The color of the sticker is in accordance with the traffic signs	4	4
7	The location of the sticker on the vehicle is easily seen by other drivers	4	4
8	Stickers are easily recognized in ideal driving distance (about 5 meters)	4	4
9	Stickers can be used without time limit (day and night)	4	4
10	Sticker installation can be done in front of or behind the vehicle		
11	Material on stickers is easy to get	4	4
12	Affordable sticker material prices	3	4
13	The level of difficulty making stickers is relatively easy	3	4
14	Making stickers does not require a long time	4	4
15	Installation of stickers does not require a wide place	4	4
	Score	57	60

It also makes it easier for other motorists to provide opportunities for deaf motorists to be easily in mobility on the road. In addition to facilitating deaf motorists and public motorists on the road, this research is expected to help the government in socializing about traffic regulations, especially identification for disability drivers with hearing impairment.

METHODS

This study uses a development model with Research and Development (R&D) methods. According to Sugiyono (2015: 407), the Research and Development is a research method used to produce certain products and test the effectiveness of these products. The product developed is in the form of a deaf driver's identification that must be installed on the vehicle when driving in the traffic area. Each developer can choose and determine the right steps for himself based on special conditions encountered in the development process. Researchers can adjust the steps to suit the field conditions based on reasons of limited time, cost, and energy. The steps in product development is explained as follows: (1) Research and information gathering, (2) planning, (3) product design development, (4) product validation, (5) product revision, (6) small group trials, (7) product revisions, (8) field trials, (9) final product revisions.

As an effort of collecting data, the instrument functions are to simplify, facilitate, and make the work of collecting data more systematic (Arikunto, 2014: 90). In developing this safety sticker, the instrument is a questionnaire used to measure the feasibility of the product to be developed. Arikunto (2014: 116) says, the format and composition of the questionnaire should be interesting, pleasant to look at, easy to understand, and invite answers. Questions should be neatly organized and not require too much time and thought sacrifice. The questionnaire used in this study is in the form of a closed questionnaire. Closed questionnaire is a questionnaire that has provided the answer, so that, the respondent only has to choose the answer that has been provided. Questionnaire instruments are used to collect data about responses from media experts, material experts, deaf students, and public drivers. The statement in the questionnaire relates to the effectiveness of the product and the complete contents of the user manual.

Data analysis techniques can be interpreted as a way to carry out an analysis of the data with the aim of processing the data into information, so that, the characteristics of the data can be easily understood and useful for answering problems related to the description of the data. The data analysis is also to make induction or interesting conclusions about population characteristics based on data obtained. The formulas in processing data are grouped into two data analysis formulas for expert validation instruments and data analysis for trial result instruments.

FINDINGS AND DISCUSSION

Findings

The first evaluation was carried out by media experts regarding the design of safety sticker products and manuals. The product design that has been made by researchers is evaluated by media experts namely Eka Pramono Adi, SIP, M.Sc. Based on the evaluation results obtained by media experts will be presented in the data table 1.

Teble 2.Data Table From Material Experts

No	Questions	Answer from Material Expert	
		Se	Sh
1	The stickers are in accordance with traffic laws	4	4
2	The writing on the sticker is easily understood by other motorists	4	4
3	Stickers can already be used as the development of government regulations on identification for deaf drivers	3	4
4	The color of the sticker is in accordance with the traffic signs	3	4
5	Stickers can be seen from the ideal distance between the drivers (approximately 5 meters)	3	4
6	The shape of the sticker is in accordance with the requirements of traffic signs	4	4
7	Suitability of traffic material with safety stickers	3	4
8	the contents completeness of the instructions for the use of safety stickers	3	4
9	The user guide for stickers is compatible with safety stickers	3	4
10	The sentence in the user guide for using stickers is easy to understand	3	4
	SCORE	34	40

Table 3. Data table of small group trial results

Component	**Finding**
Questionnaire Distribution to students	1. 10% of students already know about traffic 2. 80% of students do not have a driver's license 3. 80% of students already know a lot about traffic signs 4. 100% of students already know how to drive well 5. 50% of students need identification in their vehicles 6. 60% of students say that the public does not know if a deaf driver is without using identification tags 7. 100% of students do not yet know that the government has made regulations to require deaf people to wear identification 8. 100% of students agree that there are driving safety stickers for the deaf 9. 70% of students are willing to wear driving safety stickers for the deaf 10. 70% of students claim stickers can provide a sense of comfort for deaf motorists

Based on table 1, the number of instruments given to media experts is 15 items with a percentage of 95% that is included in the criteria that is very valid, or can be used without revision. Suggestions or input from the results of the evaluation of media experts is "The stickers and this book are pretty good". The product design that has been made by the researcher is then evaluated by the material expert, Bripda Fajar Bayu Permana, who is assigned by Kapolri to be the product validator. The results of the expert evaluation the material obtained were presented in the data table 2.

From the evaluation conducted in table 2, it is obtained a percentage of 85% included in the criteria that is very valid, or can be used without revision. The input and advice from material experts, "This book is very suitable to help the deaf, hopefully this book is useful" Validated driving safety stickers and the manuals were tested to 10 deaf students of SMALB Kepanjen Malang who are subjected to trials in small groups. This group trial was carried out by socializing about good traffic methods and trying out on the road using a motorcycle that had a safety-saving sticker attached to it. Trial data collection is done by observing and giving questionnaires to deaf students to see the effectiveness of the use of their products. Based on the small group trial data described, it can be concluded and the feasibility of the product described in table 3.

The results of the small group trial data presented in the above table show that the percentage of validation obtained was 78%. This percentage is included in either criteria or the product can be used. Products that have been validated by experts and small group trials are then trialled in the field. Subjects in the field trials are public motorists who usually drive in traffic areas with a total of 50 public motorists. The trial was carried out with the socialization and provision of instruments in the form of a questionnaire totaling 8 statement items. Based on the results of the field trials obtained will be presented in the data table 4.

Table 4. Data Table of field Trial

No	Question	Number of Answers	
		A	B
1	Do you know about hearing impairment?	50	0
2	Do you know about traffic?	50	0
3	Do you think there is a need for identification on the deaf driver?	44	12
4	Did you know that the government made a regulation requiring deaf people to use identification?	10	80
5	Do you agree with the holding of safety stickers?	50	0
6	Is the setiker appropriate for identifying the deaf driver?	49	1
7	Are the words in the sticker easy for you to understand?	49	1
8	Is the shape and appearance of the sticker easy to see and remember?	46	4

Table 5. Data table from field trial results

Component	Findings
Questionnaire distribution to public motorists	1. 100% of public drivers know about hearing impairment 2. 100% of public drivers know about traffic 3. 88% of motorists say there is a need for identification on the deaf motorist 4. 80% of public drivers do not know that the government makes regulations to require deaf drivers to wear identification 5. 100% of public drivers agree with the holding of safety stickers 6. 98% of general drivers state the exact shape of the safety sticker as an identification of the deaf driver 7. 98% of motorists say words on stickers are easy to understand 8. 92% of public drivers state the shape and appearance of the stickers are easy to see and remember

Based on the field trial data described in the data table 4, it is concluded the feasibility of the product described in table 5.

The results of field trial data show that the percentage of validation obtained is 94.5%. This percentage is included in the criteria that is very well or suitable to be used without revision.

Discussion

Most people call this hearing loss as deaf, mute, and so on. All of these terms are not wrong, because the understanding of hearing loss is still vague and does not describe the actual situation. In the world of special education, this hearing loss is deaf. Deaf are individuals who have both total hearing loss and still have residual hearing. According to Efendi (2009: 57), hearing impairment in daily conversation among ordinary people is often assumed as a person who does not hear at all or is deaf. Deaf individuals are those who have total hearing loss, and in communicating, they maximize other senses that are still functioning. Kustawan and Meimulyani (2013: 30) define hearing impairment is a general term that indicates difficulty hearing from mild to severe, classified into deaf and less hearing. Moores (in Mangunsong, 1998: 68) said that disability or deafness is a condition where the individual is unable to hear and this appears in speech or other sounds, both in degrees of frequency and intensity. Students with hearing impairment at SLB Kepanjen Malang have a classification from mild to severe hearing impairment. The researchers do not discriminate among students who have hearing disabilities, provided that students with hearing impairment can ride motorized vehicles means that the students must use identification tags such as regulations made by the government.

Driving is an activity that involves humans and objects or tools that can be used to help speed up mileage time. The benefits of driving do not spend much energy because driving energy must be replaced by engine power. The purpose of driving is to simplify or speed up time if you want to go to a distant place. According to Kusmagi (2010: 4), motor vehicles are found as a means of transportation, humans do not have to bother with heat or rain when traveling. This shows that driving has a big advantage. Even though, the number of accident cases because of the more vehicles used is increased. The above problems as revealed by Kusmagi (2010: 4) despite bringing a number of advantages, the presence of motorized vehicles also brings other consequences including, adequate road

providers, vehicle movement regulation, and accident problems.

Deaf mobility on the road are mostly using motorbikes. Deaf drivers are not physically visible, so that, identification is needed. Driving safety stickers are created from government regulations that require deaf motorists to use identification tags affixed to the front and rear of their bicycles, this opinion is in accordance with Government regulations Article 123 of Law No. 22 of 2009 concerning Non-Motorized Vehicles, "Deaf cyclists must use ID on both the front and back of his bicycle ", but until now there has not been seen a deaf driver who uses ID according to the government regulations. This driving safety sticker was made not to replace government-issued identification tags but was made to strengthen government laws and make it easier for deaf motorists to get driving tags. This driving safety sticker is suitable to be used by deaf drivers because it has passed validation and trial use. The results of a small group trial indicate that the percentage of validation obtained is 78%. This percentage is included in the criteria of good and feasible to be used, which is between a score of 61% -80%. This states that this driving safety sticker product is suitable to be used by students/deaf people. And from the responses of public motorists who performed on 50 public motorists by filling out a questionnaire totaling 8 items, it showed that the percentage of validation is 94.5%. This percentage is included in the criteria that is very well or is feasible to be used, which is between a score of 81% -100%. This states that this driving safety sticker product is suitable to be used by students / deaf people.

Based on the results of the development of driving safety stickers in traffic for deaf students in SMALB Kepanjen Malang, the developer provides the following advice.

For student, It is recommended to study traffic signs well and for students aged 17 years and over to make a Driving License (SIM). In addition, the students are not ashamed or proud of wearing safety driving stickers, because wearing identification is a form of compliance with government regulations.

For the Government, The long-term expectation of this product is that there is support from the Director General of Special Education and Special Services (PKLK) and the Indonesian National Police to require all deaf drivers to use deaf tags.

Next Developer, This research can be developed more broadly. Before determining the location of the study, it is recommended to pay more attention of the deaf characteristics who are targeted to be able to provide motivation in the proper socialization to the person/child to be studied.

CONCLUSION

A deaf child is an individual who has both total and partial hearing loss. Total deaf is an individual who has no residual hearing absolutely, while low hearing is an individual who has a hearing loss but still has some residual hearing. In carrying out mobilization on the highway (traffic area), individuals with hearing impairment require special identification. They are known as no physical abnormalities, so that, deficiencies in hearing impairment are not visible. Through this driving safety sticker, the public can recognize the presence of deaf when in the traffic area.

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