Traffic problem is a major problem in most developing countries. Indonesia, as a developing country with the largest number of operating vehicle in South East Asia, suffers from the high rate of traffic disturbance and traffic accident that caused by irresponsible road users. This research is conducted to initiate a social campaign project that promotes the importance of traffic law for a safer road usage, due to the lack of discipline on following the traffic law shown by people in Indonesia. The social campaign use illustration with sarcastic message that criticize traffic law violators as the medium of the message to create awareness about traffic laws and rules. These illustrations then are communicated through various media, mainly social media. The social campaign project is expected to inspire road users to be more responsible and well-behaved when using the road.

Keywords: Traffic Law; Road User; Social Campaign; Design;

1. Introduction

Indonesia is one of the developing country with largest number of vehicles operating around the country. The country’s growth in economy and technology development has made Indonesia becoming one of the largest vehicle production industry in southeast Asia, reaching 8.988.506 units in 2013 alone with around 86,5% of the units are motorcycles production (BPS, 2013) which then sold locally and exported to other countries. There are around 124.348.224 vehicles across Indonesia by July 2016, and it keeps growing at around six million units per year (Maryoto, 2016). This growth, while increasing Inland Revenue, cause major drawback on traffic quality on the roads in Indonesia.

Based on Global Status Report on Road Safety 2015 made by World Health Organization (WHO), the reported road traffic fatalities in Indonesia reaching 26.416 victim, with estimated 15.3% death rate per 100.000 population. The majority of the fatalities are male citizen at 78%, and based on road user category, bikers are the most dominant fatalities with 36% fatalities, followed with drivers/ passenger bus at 35% and pedestrian at 21%. The following chart from WHO in 2015 provides the detailed number of fatalities number from each road user category:
World Bank Transportation Specialist, Mustapha Benmaamar (2014) mentioned that for example in Jakarta, the number of traffic accident each day is just as concerning as the number of air transportation accident each week. Ironically, people didn’t take the case of traffic accident in Jakarta as serious as the less common air transportation accident.

These traffic accidents have relation with the excessive number of vehicle in a rather small and busy areas, for example, Jakarta undergo around 9.93% growth of vehicle amount per year, and in 2014, the amount of vehicles already at 17.523.967 units with motorbike dominating the percentage at 74.66%, and that number of vehicles are operating within 661.5km2 area of Jakarta (BPS, 2015).

Another factor of traffic accident is the fact that there are many underage children are allowed by their guardian to drive a car or bike. One of the reason this often happening is because they need a fast and reliable transportation for travelling and the sanction from the Police for this underage driving phenomenon is still not explicit enough. Their lack of experience and education regarding traffic laws is the reason why they contribute around 4.000 traffic accident yearly (Rusyanto, 2016).

This lack of responsibility on the road surely raise the number of recorded traffic violation. During 2014, there are 865.175 violation and increased by 14.9% in 2015 which is 1.037.828 violation (Polda Metro Jaya, 2015). AKBP Budiyanto (2015) affirm that in 2015, 169.99 violations happen that could cause a fatal incident. He also add that from the total number of violation, motorbike rider is the majority of violator, reaching to 770.252 violation case followed by mikrolet / angkot (short distance transportation in shape of mini bus), at 89.792 case and mini bus at 59.021 case. These violation is related with how easy it is to get a driving license in Indonesia, and secondly due to Indonesian people is barely trained to understand how to perform first aid in accident (Parikesit, 2014). It is also worth mentioning that pander services are still happening in Indonesia. People could get their driving license without having to go through the test with a fee. Martinus Sitompul (2016) says that the portion of those who failed the driving license test decided to take a shortcut and pay for a pander service instead. This resulting on quality degradation of Indonesian drivers.

Even during 2016’ Lilin Jaya operation, a safekeeping operation during Christmas and New Year celebration by police, government and Indonesian National Army (TNI), the number of traffic violation is steadily increasing. During 10 days of the operation, the recorded ticketed violation is already at 17.391, and warning violation on 7.130. Whereas, compared to last year operation, ticketed violated is only at 12.796 and warning violation is only reaching 608 cases (AKBP Budiyanto, 2017).

These traffic violations and avoidable accident are the result of the lack of awareness from the drivers themselves whom also tend to purposely neglect traffic laws for their own benefit. Traffic police also held responsibility for the minimal socialization regarding promoting traffic laws using major visual and textual content like public service announcement on TV or radio and a more assertive when addressing with traffic violator (Fitriani, 2011).
Based on this problem, researcher proposed this research to understand about the communication barrier that hinders the improvement within the traffic situation in Indonesia, despite the fact that government and traffic police already working together in facilitating traffic facilities and keeping the traffic remained in orderly in order to find practical method to gain public awareness about traffic laws and make Indonesian road safer for its users.

This project is aimed to investigate the relationship between people’s awareness and understanding about the traffic laws, and how design communication can affect people’s behavior, which then the data will be used for design exploration that can on communicating the importance of following the traffic laws as a step to improve the traffic situation in Indonesia. The student believes that the behavior study affected by visual communication design can be a leaning phase towards a better traffic situation and reducing the number of traffic accident by encouraging people to practice the traffic laws and make the roads safer for its users, and said communication design can be spread effectively through specific media platform.

Social media have become a well-known platform for communicating a message due to the growth of internet usage. In Indonesia itself, from 72.7 million internet users, active social media users have reached 72 million users and 62 million from that number mainly use mobile device for managing their social media life (We Are Social, 2015). According to Pew Research Center (2016), the majority of active social media user on some of the most popular social media platform, are teenager to young adult who seek out information or interact with others. Understanding about the audience of social media is vital for the student project as it would have impact on reaching the target audience.

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<tr>
<th>79% of online adults (68% of all Americans) use Facebook</th>
<th>32% of online adults (28% of all Americans) use Instagram</th>
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Note: Race/ethnicity/breaks not shown due to sample size.
Source: Pew Research Center, 2016

Figure 2. Social media user statistic on Facebook and Instagram (Pew Research Center, 2016)
This study will cover the connection between traffic laws and how do road users in Indonesia cope with said laws and translate this connection into 3D illustration design to convince people to comply with the traffic laws. The student will then use social media as the main platform of the illustration project to communicate the importance of following the traffic laws to public, followed with print design as additional communication platform.

2. Literature Review

Law has been a part of social norm as a part to establish and maintain social order by regulating public behavior. The dominant approach of maintaining compliance of the law for the past few decades is by the use of punishment via deterrence, and even until twenty-first century, it is still the main approach of maintaining social order (Nagin, 1998). Incentives and sanctions are presumed to be factors that motivating human behavior, this motives leads to a deterrence strategy that link incentives with provision of rewards, and sanctions to rule breaking (Tyler and Blader, 2000), this includes but not limited to traffic law.

Sperling (1960), mentioned that many studies have been conducted to determine what message that can be extracted from traffic sign, including within brief visual presentation. Color and shape are the most noticeable feature when perceiving traffic sign (Gao et al., 2006), and visual elements of sign affects how viewer perceive the message. Research has shown that personal color preferences (Ellis & Ficek, 2001) and cultural differences (Adams & Osgood, 1973) affects the effectiveness on perceiving a color.

Graphic design is the art and practice of arranging visual and textual elements to promote a message, in shape of ideas or experience to audience. The term ‘Graphic Design’, is first coined by a book designer, William Addison Dwiggins back in 1922, to describe the activity that creates visual form in structural order for communication purposes. Graphic design itself have roots deep into antiquity. Ancient manuscript, like the Egyptian Book of the Dead, unconsciously creating a step forward for using visual elements for conveying message intended to aid the deceased in afterlife, expressing sadness and hope for life after death. This is an example that, even back in ancient times, graphic design already have ties with human psychology.

Psychology is the science that study the form of human and animal mind and behavior. The human mind is a complex and enigmatic entity that facilitate the human thoughts, cognition, emotions, memories, perceptions and dreams that affects individual reaction when dealing with different scenario of life. The reaction of individuals when perceiving graphic design with their eye is an example of how the human mind translate visual input from
the eye to the mind within the brain, and this reaction is based on the psychology of graphic design. Gestalt theory is a notable example of research on how psychology affects individual on perceiving graphic design.

Gestalt theory provides information behind how different configuration of visual element can affects the meaning of presented information. It is a theory that try to explain the pattern-seeking on visual information in human behavior (Graham, 2008). The theory is developed in 1920's by a group of German scientist: Wertheimer, Koffka and Kohler; and is based on psychology research conducted by previous German and Austrian psychologist in the late 1800's and early 1900's. According to Gestalt theory, there are laws of visual perception that provided scientific validation on visual composition structure, detailed below:

1. **Figure/ground**: A fundamental law that helps us differentiate an object (figure) with the background (ground) based upon the use of contrast of the composition. The more contrast that is applied on the composition, the easier the viewer can identify the figure from the ground.

   ![Figure 4](image4.jpg)

   **Figure 4.** Figure/ground application (Graham, 2008).

2. **Proximity**: Identifying whether a visual element is a whole or separate unit based on the placement in the composition.

   ![Figure 5](image5.jpg)

   **Figure 5.** Gestalt Proximity example. Closer arrangement makes certain items seems like a group (left), whereas scattered items seems separated (right) (Graham, 2008).

3. **Closure**: Human’s natural tendency to close the gap of an incomplete visual element in their mind. When processing visual information, the brain will focus on what is present and ignore the missing parts. After that, the brain will fill the gaps with familiar line, tone or pattern to complete the form.

   ![Figure 6](image6.jpg)

   **Figure 6.** A series of incomplete illustration of maple leaf. (Behrens, 2002)

4. **Similarity**: Visual elements with similar characteristic, like shape, size and color, are perceived as part of a group.

   ![Figure 7](image7.jpg)
Figure 7. A difference in color make it seems that there are groups of element within the composition (Graham, 2008).

5. Continuation: The human eye seeks relationship between objects by following certain element along a line, curve or sequence of shapes, even if the object is crossing another visual elements.

Figure 8. The eye focused on the textual element even that it crossed another shapes (Graham, 2008)

These five Gestalt principles provides scientific structure that is highly influential on research about an effective composition in visual communication design. Artist and designers have long used the principles to create an artistic composition that facilitate an effective communication message.

In graphic design, visual design visualized in either two dimensional (2D) or three dimensional (3D) visual representation, and the term 3D in this subject specifically refer to 2D projection of 3D environment with pictorial cues like shading and depth to assist spatial cognitive abilities. Advancement in computing technology leads to a trend on 3D visualization production, which intended to trigger natural cognition and action based on the common belief that 3D representation of the real world allow a more realistic approach on bridging information from its digital representation, compared to 2D visualization that are thought to be more unnatural and hence requires habituation to be used (Tavanti, Lind, 2001). A research study also concludes that 3D visualization can display a larger sets of hierarchical data compared to 2D, due to the perspective nature of 3D representation that displays dimension of depth which increase viewer’s spatial performance (Ark, Dryer, Selker, Zhai, 1998).

Color is another important part of perception that affects psychological processing. Although, the way color affects psychology has not been fully explained, past studies about how color can affects cognitive tasks has shown a contradicting results (Mehta & Zhu, 2009). According to Elliot and Maier (2007), color can affects cognitive performance based on six premises, which is:

1. Color should be able to contain specific meaning. If color is only for aesthetic purpose, then it would not have influence on psychology functioning.
2. Meaning of color based on individual learned association and biological response.
3. Perception of color alone will cause evaluative processes which determines whether a stimulus is harmful or hospitable.
4. Previous evaluative processes caused by perception of color will influence motivated behavior. Color associated as positive will trigger approach motivation, whereas color with negative association would trigger avoidance motivation.
5. Psychological influence from color perception is implicit and automatic, it doesn’t require individual awareness.
6. The meaning and effect of color are based on the context, the same color used on different context can have different association.

Elliot & Niesta (2008) gave example how the same color could have different meaning under different context. Red color for example, on achievement setting, like on traffic light & sign, is associated as danger, which is negative association. In a social context however, red color can be positively associated as romantic situation.

The symbolism of colors tends to have common identification through cultural exchange in different cultures. Color as a symbols, possess specific connotation in addition to their convention and obvious meanings but can also imply something vague, hidden or unknown (Jung, 1964). Fontana (1994), building the work of Jung, stated that certain kind of symbolism constitute a universal language which carry similar meaning across cultures for centuries. However, the idea of universal symbolism go only part of the way accounting for the rich and varied
symbolic vocabularies of different culture. For example, in northern Europe, yellow color connotes ‘deceit’ and ‘cowardice’, while in China it stands for ‘humility’ and ‘renunciation’ (Fontana, 1994).

The symbolism of color on cultural standpoint is related to myths and legends around said culture. While color can be readily explained in today world, in ancient world, color are simply mysteries. Yu (2014) mentioned that early people associate colors with divinities, elements, direction and planets.

1. **Divinity:** Several cosmologies mentioned that colors display a cosmic symbolism and mediate as divinities. In Chinese cosmology for example, the Yin and Yang are the positive and negative principles of universal life represented by dark and light color to distinguish between the two principles (Williams, 1999)
2. **Elements:** Ancient people believes that elements are essential energy forces to sustain the world. In Taoism, fire is related to chi, earth to yellow, wood to azure, metal to white, and water to black (Williams, 1999)
3. **Direction:** Colors where frequently associated with particular direction. In ancient Yucatec Maya, there are specific glyph for the colors red, white, black, yellow, and green associated with east, north, west, south, and center (Miller & Taube, 1997)
4. **Planets:** Planetary arrangement was associated with direction and with attendant color. Ancient Chinese assign the red color to Mars and associate it as fire and the south. Whereas Mercury is associated with the element water and the North and symbolized as black color (Eberhard, 1990).

In Traffic Sign, color and shape were the most dominant features to be seen, because these two visual features was able to be identified at a moderate distance (Gao *et al.*, 2006). According to study based on participants with normal and reduced visual acuity, familiar road signs using symbols are more legible by 50% at a distance compared to using textual element, so it is concluded that traffic sign with large and bold symbol is preferred (Chan *et al.*, 2010). Beside the aesthetics of the traffic sign itself, eye tracking is also affecting the way road users perceive the traffic sign. Based on the case study of driver reading pattern and behavior that uses an eye tracking device named EyeNTNU developed by National Taiwan Normal University (NTNU), revealed that road users tend to read traffic sign in a top to down, and left to right approach, and one consistent pattern is that road users will focus on the center part of the sign while at the same time having a well-distributed eye tracking path, furthermore, the study also revealed that road users take a shorter time at looking at the traffic sign itself, concluding that they memorized the sign and they take less attention with the detail of the traffic sign design (Chan *et al.*, 2010).

![Figure 9. EyeNTNU used on the test](image)

![Figure 10. Analyzed result of participants’ gaze contribution on traffic signs with different layout.](image)

The study of traffic sign design can possibly lead to international standardization based on empirical data, so road users across the globe can identify traffic signs easier in the future.

There’s also the psychology of warning that affects how people react when approaching traffic sign, the shape of their compliance with obeying the traffic sign. A traffic sign that have a bold and contrast design will still dependent with the cost and benefit of the message that the sign have. There are factors that affects human compliance on warning sign listed below (Green, 2001):

1. **Cost of compliance.** The more the viewer’s goal blocked by a warning, the less they’ll comply with the warning.
2. **Danger perception.** The greater the perceived risk told by the warning, the more likelihood of compliance.
3. **Decision making.** People will take risk if they gain something from it due to their goal involves with courting danger.
There is more to an effective traffic sign design than simply choosing the right visual elements, the best location or the right message. Understanding what the viewer trying to achieve and how the traffic sign affects their goal is an important calculation for the effectiveness of the traffic sign design.

3. Methodology

In this project study, the student use qualitative method for the research. The student choose this approach based on topic that examines the effect of visual communication design on human’s behavior, which underline psychology pattern in response of visual feedback that have been observed by research on relevant field. The data provided in this study is collected through finding correlation between literature reviews to measure the problem and the cause of the problem, and find solution of the problem.

The limitation that the student encountered with collecting data for this research is the lack of legible reference that the student can use. There is few literature review on the subject that is published for free and many of the potential data source requires a payment that is quite expensive, so the student only gathered data published in the reference that is free for public view.

4. Result and discussion

Based on the research study, the student analyze the correlation between the selection and organization of visual element, and how people perceive the message communicated through the structured visual design. According to the research result, Indonesia’s traffic problem is affected by the lack of understanding about traffic laws as the result of minimal communication between the officials and the people.

One of the effective method for communicating a message is through social media. For a decade, social media have been a popular media platform for communicating messages across the globe due to its efficiency and practicality. Based on this consideration, the student decided to create a social campaign about the importance of traffic laws with messages that is communicated through visual illustration of the relevant subject. The student choose social media as the main platform of the campaign due to its effectiveness on spreading the message to broader audience.

Since the campaign is using social media, based on previous research, the main target audience is teenager to young adult. The student also aim to cover audience from Jabodetabek, an urban area surrounding Indonesia that consist of Jakarta, Bogor, Depok, Tangerang and Bekasi region; due to the content and language used on the campaign are based on situation and everyday language from Jabodetabek area.

4.1. Design Approach

When perceiving a visual design, people tend to focus on the graphical element first before the textual message of the design. A visual element that is simple, in terms of graphical and textual context and have clear communicated message is favorable for use because road users tend memorize the message at first glance. Based on this study, the student decided to have the social campaign project to use illustration with simple graphical element, supported by short and clear textual messages.

The student decided to use 3D visualization as the basis of the illustration because 3D visualization can represent the context of the illustration to the viewer by a more realistic approach by translating real-world situation into its digital representation. The student also decided to use 3D visualization approach as the basis of the illustration because based from the student experience, 3D illustration is easier to produce and can be easily modified for revision and improvement. The produced design is in shape of static visual without animated element because the whole message of the illustration already communicated through the static visual, and animation is deemed unnecessary. The software used on this project are:

1. Adobe Illustrator: Used to prepare the concept layout for the illustration and create 2D blueprint as a guide for 3D modeling process.
2. Autodesk 3Ds Max: Translating the 2D blueprint into 3D model.
3. Adobe InDesign: Used to create the final layout by positioning visual and textual element.
In this project, the student adjust certain rules for color selection used on the illustration. While there are theories on color usage based on cultural and psychology reasons, the student decided to create a color usage rules that is not limited on cultural and psychology theories, but still follow the Gestalt’s principles. The reason behind this color direction is because people in Jabodetabek area doesn’t always share similar cultural background and the color used in the project is used for aesthetic purpose, therefore disregarding psychology reasoning to remove the limitation on diversity of the color used on the project. Said rules for color selection are listed below:

1. Focal Point & Background: A contrast is necessary to separate the focal point and the supporting background element in the illustration.
2. Palette Selection: To create a contrasting visual element, each design required to use either monochrome, complimentary or split-complementary palette based on color wheel.
3. Additional Configuration: Further aesthetic diversity can be achieved by manually adjust the saturation and lightness value of the selected color palette.

4.2. Design Reference and Mood Board

Every design project will use preexisting visual element to be used as guidance on how designer want their produced design to look like. Design reference is a designing tool used to add characteristic on visualization process that affects the final product of the design. Below are three 3D illustration style that the student interested to recreate due to the simple but clear design:

Figure 11. Reference of the 3D illustration

In the other hand, mood board is a serial of images that communicate the concept and visual ideas and evoke a particular style of a project. Previously, the student decided the design to be as simple but clear as possible to ensure the message of the visual design to be communicated clearly to the viewer. Figure 12 displays some example of color and shape arrangement that the student intended to experiment on the 3D illustration:

Figure 12. Mood Board for the design
With these references in mind, the student decided to use minimalistic art style approach for the design, and without using specific color palette since the student want to explore the color combination used on the project without any limitation.

4.3. Design Process

At first process, the student draw a conceptual sketch about how the traffic illustration would look like:

Based on the sketch, the student decided to make several template objects that can be easily customized for scene arrangement of the illustration. Figured below are the template objects that will be used for the illustration:

Based on the template objects, the student then can recolor the visual element based on color selection rules previously explained. Below are examples of rendered illustration based on the applied color selection rules:
4.4. Design Result

After the 3D illustration have been visualized, the student then use the illustration for social campaign post. For this process, the student designed few layouts for multiple social media platform. Each layout will feature the illustration itself, a provocative headline to get attention from the viewer and a short text that encourages people to follow the traffic law. Figured below are the layout template and example for social media platforms:

Figure 17. Split-complementary color usage.

Figure 18. Social media layout 1

Figure 19. Social media layout 2
5. Conclusion

Problematic traffic condition that caused many fatalities and traffic disruption in Indonesia caused by the lack of people’s will to follow the traffic laws and rules, and based on this condition, the student believe that more socialization process is necessary to remind people to follow the traffic laws and rules and thus, the student begin a social campaign project aimed to spread awareness about the importance to be well-behaved when using the road by communicating the campaign message using visual design targeted mainly for social media platform. The student create the visual design to be as eye catching as possible, by applying selection of contrast colors on the and arrange the visual element to be able to deliver a clear message about the illustration of the traffic scenario in purpose to make the communication about the social campaign to be as effective and efficient as possible while reaching to broader audience.

With this research study and social campaign project, hopefully it can inspire people to improve their behavior when using the roads, whether they are driving a car or riding a bike, or simply walking as a pedestrian.

Acknowledgement

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Reference

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Appendix

Figure 21. Finished illustration promoted through social media.
Figure 22. Malu Lintas campaign social media page.