

Live Streaming and Video Recording While Driving – A Worrying Trend in Malaysia

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Abstract:- Live streaming and video recording (LSVR) while driving for content creation has becoming a worrying trend in Malaysia. The frequency of these videos being uploaded to social media platforms such as Facebook and Instagram for potential mass viewership are getting higher. While the former is more dangerous than the latter, both are in the same category as it shifts substantial focus for driving towards content creation. Thus, it is important that a study can be conducted to analyse the trend in order to have better understanding as well as well to curb the issue at its most critical areas. With that being said, this study aims to provide some closure to the issue by identifying the trends in LSVR while driving in Malaysia as a case study using PICO framework (Problem, Intervention, Comparator and Outcome) as a guideline. While for the analysis, thematic, descriptive and trend analysis were used. From n=100 videos studied within the time frame of year 2020–2022, it shows that the trend has been escalating. Results have illustrated that the most critical area is from normal everyday people trying to make their contents to become viral. Contributions of this study is two-fold: (1) Provides current comprehensive view on LSVR while driving in Malaysia and (2) Highlights the most critical area in the trend so that efforts can be made to manage it. The novelty of this study is that, it is one of the first studies focusing on LSVR while driving with Malaysia as its scope.

Keywords:- Live Streaming; Video Recording, Content Creation, Malaysia.

I. INTRODUCTION

Content creation for social medias using social live streaming services such as Facebook Live, Twitter Live and Instagram Live has been increasing in frequency in the last few years [1]. It is due to the people are mainly influenced by the multiple social and economic activities such as self-presentation, relationship development, information exchange and digital participation that includes both production and consumption of digital content [2,3,4].

This scenario can be observed on the massive demand for it in year 2021 where there were 2.78 million viewers on average per month, that are streaming live videos by 8.46 million broadcasters on one of world's most famous live streaming platforms, Twitch.tv [5].

Fig.1 shows the rise of average concurrent viewers per year in Twitch.tv throughout the years. Even though the platform is mainly dedicated towards gaming, it illustrates on the massive demand for live streaming services. In this context, similar scenario also has been observed in social media platforms as well, where there are many people conducting LSVR while driving for content creation purposes even though the action is illegal in Malaysia since 2020 [6]. Driving in this study context, refers to either being the driver or front-passenger while the vehicle is in motion or at a traffic light mainly utilising smart phones.

LSVR while driving is dangerous as it shifts the substantial amount of focus of driving to the content creation. As the focus is shifted, it can lead to road accidents. This scenario is true when looking at the report produced by Malaysia Institute of Road Safety Research (MIROS) where it was stated that around 80.60% of road accidents are due to human behavior [7] Although there is no exact statistics specifically for LSVR while driving that causes accidents, it is generally accepted that doing other tasks especially using mobile phones while driving is dangerous and as bad as driving drunk [8]. Thus, it is important a study can be conducted in order to find out the seriousness of the LSVR while driving situation in Malaysia. This is so that recommendations can be given and actions can be exerted for critical areas in order to curb the trend. This study aims to identify the trends of LSVR while driving in Malaysia for year 2020 - 2022 focusing Malaysia as a location.

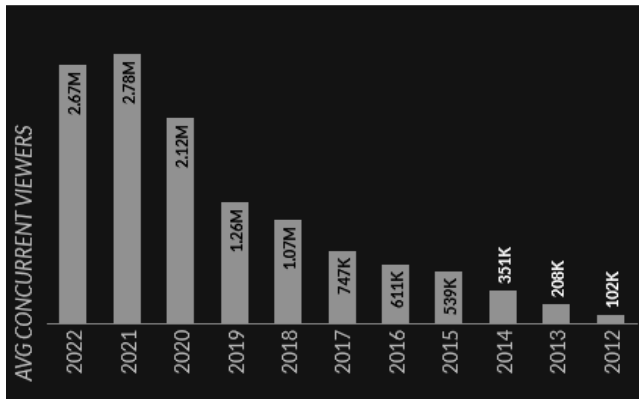


Fig 1: Average concurrent viewers on Twitch.tv from year 2012 to year 2022

The reason why 2020 – 2022 was chosen is because it is critical years of Covid-19 pandemic where many studies focusses their research within that time frame [9,10]. While so, the study was conducted using PICO framework as a guideline. General flowchart of methods using PICO framework is shown in Fig 2.

Problem in this case, is identified using case study while for Intervention, it is done by using thematic and descriptive analysis. Thematic analysis will provide the themes needed in grouping the characteristics while descriptive analysis will illustrate the statistical part. As for Comparator, it is conducted using trend analysis to analyse the results gained from Intervention. Last but not least, Outcome will be the contributions of this study which are: (1) Provides current comprehensive view on LSVR while driving in Malaysia and (2) Highlights the most critical area in the trend so that efforts can be made to manage it. Fig.2 shows the general methodology used.

A. Live Streaming

Live streaming is not a new activity and it has existed for many years with the emergence of better Internet bandwidth and web services [11]. Generally, it is an activity of showing what a person is doing in real-time. There are many different reasons on why people or entities conduct live streaming. First, it can be to show their services, such as wildlife organization in streaming bird actions and second, it can be artists live streaming their art to the public for sales. Apart from that, it can just be the people wanting to update real-time towards their friends and family on something that are exciting, meaningful and important. In this context, live streaming can be divided into two segments which are streamers and audiences. The main difference is that, streamers are the people who create the contents and audiences is the group that receives or consumes it [12]. In this mode, both groups can interact with one another by means of communication, rewards, subscribes and many more [13]. In the context of this study, it is interaction part that makes live streaming to be more dangerous as it shifts substantial amount of focus towards it rather than focusing on the road. Be it the driver or the side passenger, both are still considered to be dangerous and unlawful.

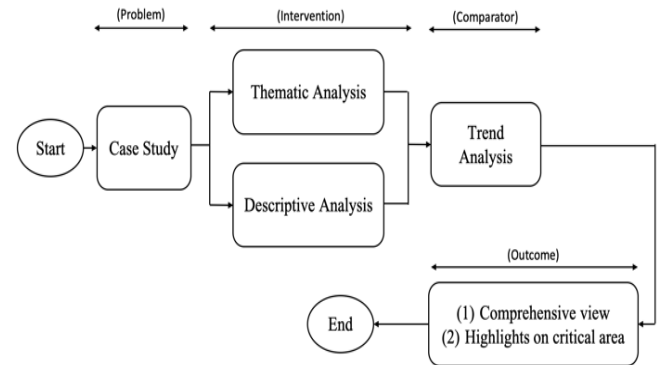


Fig 2: General flowchart of methods using PICO framework

B. Video Recording

Video recording is an act of recording or capturing moving visual images over a period of time in a digital format. It can be a short video of few seconds long that can be extended to several hours. Nevertheless, in this study, video recording is limited to several seconds to few minutes with maximum of 30-minutes duration. This is because, it is observed that most of the recordings done (if not all), does not reached 30-minutes in duration. Most will be short in duration in which people are expressing their thoughts, showing the road updates or selling products.

Similar to live streaming, video recording is conducted using a mobile phone or a video recorder. The main difference is only that in video recording, the content is published later on and not real-time. With that being said, it is less dangerous than the former as it does not have interaction elements in it. Nevertheless, it is still considered dangerous as a person needs to exert actions for recording and have some of his or her focus shifted.

II. METHODS

The choice of PICO framework in this study is to conduct a proper and systematic case study for the problem stated. As PICO framework is mainly used for clinical questions and systematic reviews under healthcare scope towards evidence-based research [14], it is highly suitable to be utilised in this study. In this study, case study conducted will provide a solid overview on the problem existence while giving means to collect information on the trend. Afterwards, thematic analysis will help in grouping the information obtained into themes. After themes have been obtained, descriptive analysis will help in providing insights on the seriousness of the scenario and specific the areas that are critical. Last but not least, trend analysis compares the trend and provide extra insights on the emergence of the trend through year 2020 until 2022. With valuable insights obtained, a recommendation was constructed.

A. Case Study

Although the problem is observable, it needs to be verified and proven that it really exists. Thus, in achieving it, n=15 individuals were selected from different age range for a period of seven days. These individuals were chosen in catering different segments of demographic and were instructed to: (1) Open any of the social medias that they used

every day for a minimum of 15-minutes and (2) Note down if they encounter at least a video of LSVR while driving that comes in their feed. The individuals were selected in catering the demographics shown in Table 1.

From Table 1, it shows that there are five main age demographics that are being catered separated into three main races used in this study.

Table 1: Demographic Segments for Chosen Individuals in Case Study

Demographics	Items
Age	(1) Below 18 years old (2) Above 18 and below 25 years old (3) Above 25 years and below 35 years old (4) Above 35 years old and below 50 years old (5) Above 50 years old
Race	(1) Malay (2) Chinese (3) Indian

The reason why different age group demographics are being selected is to see whether the scenario is occurring in all range of age or not. This is because, different age groups will have specific feeds that the social media are catering towards them. Thus, it is important all groups can be catered especially including three main races in Malaysia which are Malay, Chinese and Indian. In this case study, Malay, Chinese and Indian all have equal number of individuals of n=5 catering for five different age groups. With this first part of case study conducted, problem can be identified and proven clearly.

Afterwards, case study continues on by searching for LSVR while driving contents of n=100 from various sources using the Eligibility Criteria as shown in Table 2. The chosen sample size is adequate considering the trend has not matured yet. Contents were obtained from three major social media platforms of Facebook, Instagram and TikTok as these three are some of the top social media platforms in Malaysia [15].

These videos are selected at first popped out first chosen basis as it will display those contents that are highly engaged by the people. It should be noted that the search can be further expanded into other platforms for future study. The search was conducted in two main languages used in Malaysia which are English and Bahasa Malaysia. While so, it should be noted that language of contents has four languages are these are the main languages spoken in Malaysia.

In obtaining the contents, several keywords were used in the search and they are: (1) “Live streaming” AND “driving”, (2) “Video recording” AND “driving”, (3) “Content” AND “driving”. Contents will only be selected if it fulfils the Eligibility Criteria. While so, the reason being why number of minimum views was added is to highlight the magnitude of attractions the type of contents has on the public. Not just that, it is also to ensure the sources are from the mainstream attentions than isolated ones.

Table 2: Eligibility Criteria for Case Study

Items	Inclusion Criteria
Language of contents	English, Bahasa Malaysia, Tamil and Mandarin
Year of creation	2020 - 2022
Platform Source	Facebook, Instagram and TikTok
Settings	Driver or co-driver in front seat
Vehicle	In motion or stand-still (in traffic)
Minimum Views Needed	1,000
Location	Malaysia
Mode	Live streaming or video recording through a handheld device

B. Thematic Analysis

After contents were obtained, thematic analysis was conducted to establish themes so that information can be grouped in its proper and systematic manner. Thus, in generating the themes, thematic analysis process framework was used as a guideline as shown in Fig 3 [16]. In general, after contents have been obtained, these contents were reviewed in order to familiarized them. With the initial familiarization, initial codes were generated from insights obtained. It may seem that video contents are simple and easily understood but there are many elements that contains within it. Afterwards, themes to group the codes were search and reviewed on multiple official websites that host video contents. These official websites are from: (1) Facebook, (2) Instagram, (3) TikTok, (4) YouTube and (5) twitch.tv. After themes have been reviewed, they are defined into segments for this study.

C. Descriptive Analysis

Descriptive analysis in this study will be mainly the percentages or frequency of each of the items obtained from the thematic analysis. In this analysis, it will provide an overview on which part is critical and which segments are less frequent. It also gives an overall idea on the why some of the items have higher frequency than others.

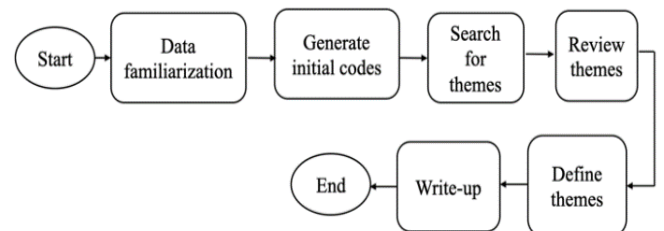


Fig 3: Thematic analysis process framework (Braun & Clarke, 2006)

D. Trend Analysis

As for trend analysis, it is too analyzed using the frequencies obtained from descriptive analysis with respect to the years studied., This is in order to see the trend that is happening in Malaysia in order to provide recommendations.

III. RESULTS AND DISCUSSIONS

A. Case Study

Initial part of case study was conducted for n=15 individuals for a period of seven days whether they have encountered at least a video of LSVR while driving from any of the social medias that they are using. This is in order to find out that the problem really do exists. From the study conducted, Table 3 below displays the results obtained from the individuals.

From Table 3, it shows all the individuals will encounter LSVR while driving at least four times in a week. This statistic is alarming because it shows that the frequency of occurrence is high indicating a norm.

Table 3: Results from n=15 Individuals on LSVR while Driving Occurrence

Person	Age	Race	Frequency of days occurrence
1.	Below 18 years old	Malay	6 out of 7 days
2.		Chinese	5 out of 7 days
3.		Indian	5 out of 7 days
4.	Above 18 and below 25 years old	Malay	7 out of 7 days
5.		Chinese	6 out of 7 days
6.		Indian	5 out of 7 days
7.	Above 25 years and below 35 years old	Malay	7 out of 7 days
8.		Chinese	7 out of 7 days
9.		Indian	6 out of 7 days
10.	Above 35 years old and below 50 years old	Malay	6 out of 7 days
11.		Chinese	4 out of 7 days
12.		Indian	5 out of 7 days
13.	Above 50 years old	Malay	5 out of 7 days
14.		Chinese	3 out of 7 days
15.		Indian	4 out of 7 days

Nevertheless, it proves the point that the problem exists especially in Malaysia and it is crucial an effort can be exerted in curbing it. While so, the reason why Malay as a race is getting the highest frequency of occurrence can be due to Malay being the biggest race in Malaysia [17].

B. Thematic Analysis

After the problem verification, obtained themes are shown in Table 4. From Table 4, it shows that a total of 16 items were obtained from thematic analysis. These items are coded from 1 to 5 according to their classifications. The coding will enable statistical part of descriptive analysis possible to be analyzed. Although there are more themes that can still be added, these 16 items are the crucial ones to provide comprehensive view on what is happening with LSVR while driving in Malaysia.

Table 4: Themes obtained from thematic analysis

No.	Themes	Classification
1.	Language Used	(1) "English", (2) "Bahasa Malaysia", (3) "Tamil", (4) "Mandarin", (5) "None"
2.	Year	(1) "2020", (2) "2021", (3) "2022"
3.	Platform	(1) "Facebook", (2) "TikTok", (3) "Instagram"
4.	Driver Settings	(1) "Driver", (2) "Co-driver", (3) "Unidentified"
5.	Vehicle Type	(1) "Car", (2) "Lorry/truck", (3) "Motorcycle"
6.	Views, x	(1) "5,000>x≥1,000", (2) "10,000>x≥5,000", (3) "x≥10,000", (4) "NA"
7.	Road-Type	(1) "High-way", (2) "Country-road", (3) "Off-road", (4) "Neighborhood Road", (5) "City-road"
8.	Mode	(1) "Live streaming", (2) "Video Recording"
9.	Content Duration, t (mins)	(1) "6>t>0", (2) "15>t≥6", (3) "t≥15"
10.	Types of People	(1) "Normal people", (2) "Artist", (3) "Social media famous", (4) "Politicians", (5) "Religious people"
11.	Speed, s (km/h)	(1) "25>s≥0", (2) "45>s≥25", (3) "s≥45", (4) "Stand-still"
12.	Age, a (years)	(1) "25>a≥18", (2) "35>a≥25", (3) "a≥35", (4) "Unknown"
13.	Content Attributes	(1) "For fun", (2) "Incident report", (3) "Product/service related", (4) "Life-related", (5) "Others"
14.	Record Medium	(1) "Mobile phone", (2) "Video camera", (3) "Others"
15.	Time	(1) "Morning", (2) "Noon", (3) "Evening", (4) "Night", (5) "Unknown"
16.	Road Congestion	(1) "None", (2) "Mild", (3) "Jam", (4) "Unknown"

C. Descriptive Analysis

With the themes generated from thematic analysis, descriptive was conducted towards n=100 LSVR while driving and its results are displayed in Table 5.

Table 5: Results from descriptive analysis

No.	Themes	Classification	Percentage	Observation
1.	Language Used	English	8%	Percentage for None is quite high as many of contents were without voice recording. Nevertheless, Bahasa Malaysia was the dominant language used as Malay is the largest race in Malaysia [15].
		Bahasa Malaysia	46%	
		Tamil	1%	
		Mandarin	0%	
		None	45%	
2.	Year	2020	4%	Frequency of content creation starts to rise in year 2021.
		2021	58%	
		2022	38%	
3.	Platform	Facebook	24%	Data for TikTok is expected as majority of young people are in TikTok.
		TikTok	72%	
		Instagram	4%	
4.	Driver Settings	Driver	57%	Driver and co-drivers almost on par with one another.
		Co-Driver	42%	
		Un-identified	1%	
5.	Vehicle Type	Car	78%	Majority are of the contents created are inside cars. While so, substantial percentage still exists for motorcycles as well.
		Lorry / truck	9%	
		Motorcycle	13%	
6.	Views	5,000 > x ≥ 1,000	52%	Even though the number of views for the majority are between 1,000 and 5,000, there are still substantial viewership that receives more than 10,000 views. This is quite alarming as these types of contents attract a lot of people.
		10,000 > x ≥ 5,000	11%	
		x ≥ 10,000"	25%	
		NA	12%	
7.	Road-Type	High-way	53%	High-ways are the most common in occurrence for LSVR while driving. It can be due time being spent on road and road space that makes the content creator to feel confident in conducting the activity.
		Country-road	24%	
		Off-road	0%	
		Neighborhood	11%	
		City-road	12%	
8.	Mode	Live-stream	2%	Most of the contents are happening from video recording rather than live streaming.
		Video Recording	98%	
9.	Content Duration	6 > t > 0	99%	This is expected as video durations follow the social media platform's allowance for time.
		15 > t ≥ 6	1%	
		t ≥ 15	0%	
10.	Types of People	Normal People	90%	It is the normal everyday people that makes up the trend. However, it is not surprising as they form the majority.
		Artist	5%	
		Social Media Famous	4%	
		Politician	0%	
		Religious People	1%	
11.	Speed	25 > s ≥ 0	10%	Most of the content creators are still doing the act while being in a fast speed.
		45 > s ≥ 25	24%	
		s ≥ 45	63%	
		Stand-still	3%	
12.	Age	25 > a ≥ 18	10%	As for age, sometimes it is hard to know as the creator is behind the camera. However, even when the face is visible, age is mainly estimated based on the facial features and voice. However, when age information is available to be used, then it will be utilized.
		35 > a ≥ 25	24%	
		a ≥ 35	22%	
		Unknown	44%	
13.	Content Attributes	For fun	81%	Majority of the data shows that it is intended for leisure purposes rather than business or other things related.
		Incidence Report	9%	
		Product/Service Related	1%	
		Life related	7%	
		Others	2%	
14.	Record Medium	Mobile phone	100%	All contents are from mobile phones.
		Video camera	0%	

		Others	0%	
15.	Time	Morning	8%	Majority of the recording occurs in the afternoon. However, substantial number of occurrences still happens at night.
		Noon	45%	
		Evening	21%	
		Night	26%	
		Unknown	0%	
16.	Road Congestion	None	59%	Majority of recording occurs when there is none or mild congestion.
		Mild	31%	
		Jam	5%	
		Unknown	5%	

Table 5 shows an overview of LSVR while driving in Malaysia. In general, it shows that majority of the contents are on TikTok where most of the contents were obtained. While so, the difference of the recordings done by the driver and co-drivers is not significant which suggests that it has become a norm. whether for the driver or the co-driver. This is interesting as drivers are at higher risk for accidents when conducting other tasks than driving. Nevertheless, it should be a sign of relief that majority of the contents are from recordings rather than life-streaming. This is because, live-streaming makes the content creator to be engaged with the viewers while on the road.

D. Trend Analysis

In general, trend analysis analyses the information obtained over the period studied. In this case, it is the year from 2020 until 2022. The reason being why these years were chosen is because it is the crucial period where Covid-19 pandemic has affected the whole world in multiple areas such as financial and lifestyle [18], where there is a substantial shift towards mobile and working from home. While so, increased of digitisation also plays a vital role. Thus, there is a spike of Internet usage for businesses and personal towards content creation. This is true by looking at the number of contents obtained as shown in Fig 4.

From Fig 4, it can be observed that majority of the contents were found in year 2021 rather than 2020. This can be an indication that the people have just started to adjust towards content creation just after Covid-19 pandemic has started. This is true when looking at education systems where they emphasized extra on content creation after the pandemic has started [19].

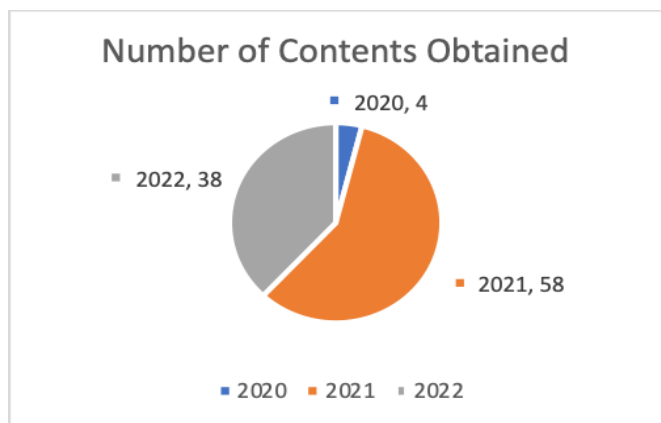


Fig 4: Number of contents obtained towards LSVR while driving for year 2020, 2021 and 2022 in Malaysia

The same goes for businesses where they developed more strategies for digital marketing that needs content creation [20]. All of these activities and efforts will have an effect on the public where they become used to it and start applying it as well in daily life. While so, Figure 5 shows the platform usage per year.

From Fig 5, it shows that most popular choice of content creation has been TikTok as the platform for year 2021. While in year 2022, the percentage for TikTok drops significantly as other platforms started to have more short video contents. It is interesting because in year 2022, other platforms have followed suit in the frequency making TikTok’s number to drop.

Nevertheless, LSVR while driving is worrisome as the trend shown in Fig 6 illustrates that half of the contents obtained were mainly from the drivers themselves throughout the years. It shifts substantial focus for the driving towards content creation that makes driving to be dangerous even though the speed may not be fast.

With that being said, it is also alarming that majority of the content creations happen in a car as shown in Fig 7 below and the trend keeps on continuing. Car in general will be driven on road where there can be passengers and people nearby. While, the speed also may not be slow as the size is small compared to lorries or trucks.

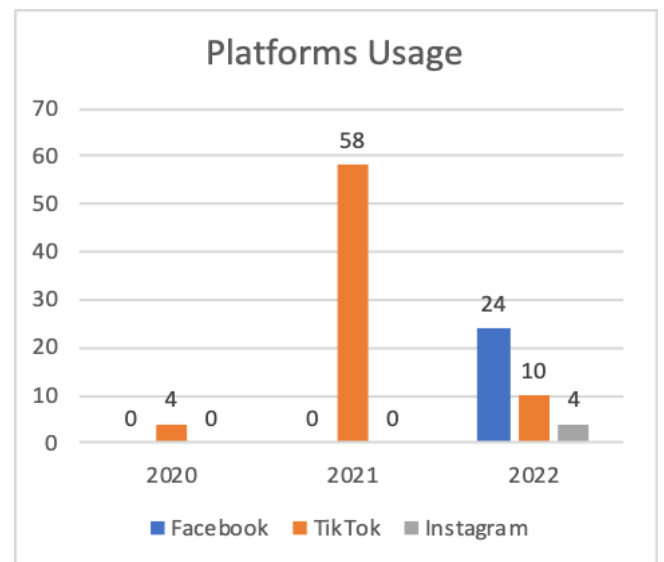


Fig 5: Platforms usage towards LSVR while driving for year 2020, 2021 and 2022 in Malaysia

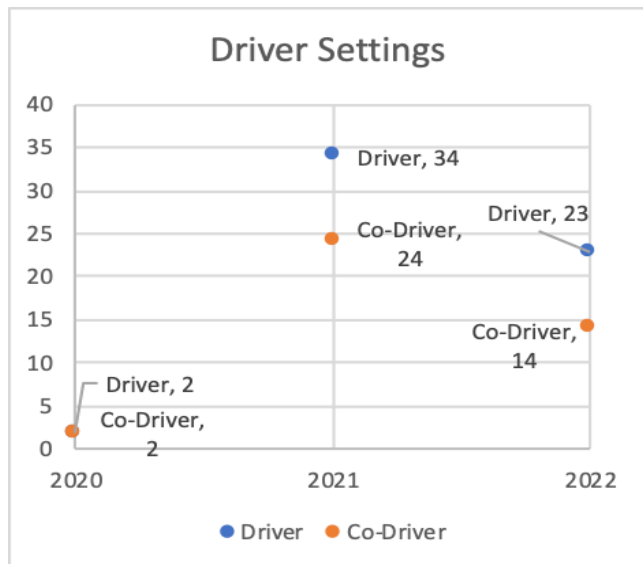


Fig 6: Driver Settings towards LSVR while driving for year 2020, 2021 and 2022 in Malaysia

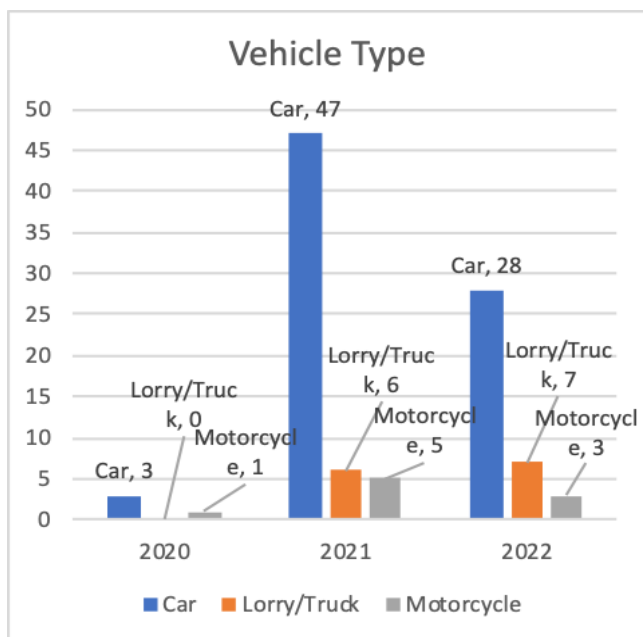


Fig 7: Vehicle Type towards LSVR while driving for year 2020, 2021 and 2022 in Malaysia

IV. CONCLUSION

LSVR while driving in this study has highlighted that it is a trending issue that needs to be addressed. Else, it will be a critical issue for Malaysia if efforts were not exerted in curbing it. It is because, the trend has shown over the years that it is steady and growing in size. Nevertheless, it is the normal everyday people that creates the contents in hoping to make it viral in order to obtain large viewership. While so, it can also occur due to the critical economic, psychological problems that Covid-19 pandemic entails that enforces people to conduct such acts. This in return, makes it more worrisome as it will start to influence big number of people and will continue to do so. As for now, there is yet other studies that has been conducted in this matter making the study to be novel. Although there are rooms for additional number of contents

that can be included, the study has provided a comprehensive view on LSVR while driving scenario in Malaysia. Another limitation is the number of individuals used in order to identify the problem that can be made bigger for future studies to come. With the facts stated, our conclusion is that efforts should be made from the authorities in order make have the issue under control. While so, there must be also future extension studies as well in term of public policies, bigger scope of research and surveys in order to really enhance the understanding and provide enclosure.

ACKNOWLEDGMENT

This study is supported by Faculty of Engineering and Technology (FET), and Faculty of Management (FOM), Multimedia University, Malaysia.

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