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The influence of driver training on self-regulated and safe driving behavior. case study: bus driver in Indonesia

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Abstract. Driving safety is a priority in road traffic. In public transport, especially urban buses, safety driving would have a significant impact on the use of public transport. The number of accidents where the bus is very high due to human error showed that the low awareness of the driving Safety. The purpose of this study is to measure how much influence driver training towards self-regulation of the driver in safety driving. Qualitative analysis obtained by conducting interviews to representatives of operator, public transport lecturers and representatives from the Ministry of Transportation. Quantitative analysis is also done by questionnaires at the bus driver who was doing the training driving. A questionnaire was conducted before the training starts driving and driving after training finished.Results of the analysis showed that the driver training has a significant influence on the safety of driving. Self-regulation of driving shown in job factors and personal factors. On the other hand they also find that driver training can not be used as a variable moderation. It is supported on the results of the analysis showed that the results of statistical tests on driver training is rejected as a moderating variable. Driver training is more likely to be used as independent variables. Value variables in this study was not able to represent the vast majority of self-control in driving Safety. This means that there are factors that can potentially affect self-regulation in the safety driving out of this study. Researcher advised in future studies to find potential factors in question.

1. Introduction

In an organization or company, work accidents must obtain serious attention in order not to obtain a colossal loss. According to OHSAS 180 001: 2007, the incident is defined as event-related jobs, where an injury, illness (regardless of severity), or death occurred, or may occur. Heinrich developed one theory of the cause of the accident in 1931. Heinrich conducts an analysis of 75,000 accidents report on the company and develops the domino theory. Results of the study showed that unsafe acts cause 88% of accidents. Pheasant (1991) also states that human error is a major contributor to accidents. Unsafe behavior is errors and violations in work that may lead to workplace accidents (Lawton, 2008). McCormick (1992) makes it clear that he thinks it makes sense to believe that the error in the stage of perception, cognition, decision-making, and the lack of relevant skills has contributed to unsafe behaviors, and conversely that the fulfillment of the steps will shape the safe behaviors in the work.

Unsafe behavior in road traffic was an error and violations committed by the driver. Errors and these violations can cause accidents. Following the statement, HotmaSimanjuntak In 2011, the Director of Land Transport Safety Ministry of Transportation "Aspects of driver error is the

biggest cause of road accidents. Human error factor accounts for about 80-90%". According to a report from the European Agency for Safety and Health at Work in 2010, the involvement of the accident was the result of human error about 85%.

Unsafe behavior can not be separated from the management of individuals to control their behavior or the so-called self-regulated behavior. Self-regulated behavior is behavior handpicked leading to the fulfillment of the standards and objectives that have personally (Ormrod, 2009). The ability to perform the self-regulated behavior is reflected in its standards and goals are determined, emotion regulation, self-instruction, monitor yourself, self-evaluation and self-imposed contingency (Ormrod, 2009). Another way to look at the increase in bus transport safety concerns are with the driver characteristics and attributes.

The driver who has a high self-regulated behavior can regulate their behavior, to realize a safety behavior and avoid unsafe behavior that may lead to accidents. Therefore, it is necessary to explore additional ways to reduce the rate of accidents such as driver training. The term "driver training" has a different meaning to the "driver education". Driver education is broader and longer-term often, typically focusing on the acquisition of knowledge about driving and road safety (Christie, 2001). Driver education can include driving training. Driving training is not only aimed to find out about driving safety but also understanding how to driving this training can support themselves so as to give effect to the self-regulated.

Driver training is a common approach to improving road safety. To attenuate the negative impact, one way that can be done is to provide training and development on employees (Imran, 2015). Although various studies have evaluated the training of drivers, questions remain over their effectiveness at enhancing driver safety. Results several studies showing that making people more skilled drivers does not make them safer drivers. In this research concerns the potential of driving training affect the self-regulated. Moreover, the author tries to analyze and evaluate how these issues might be solved through driver training to reduce accidents on the bus in Indonesia.

2. Theoritical Background

Unsafe driving behavior could potentially lead to an accident. Heinrich (1931) develops a theory of the cause of the crash. The study of 75,000 accident reports shows that 88% of accidents are caused due to unsafe actions (Heinrich, 1931). Heinrich also identified five stages accident factor. These factors are social environment, human error, unsafe actions and unsafe conditions, accidents, and injuries. The five factors disclosed Heinrich in his theory of analogy as a domino whose position is established and aligned with each other. If one of them falls, it will cause the fall of the cards. To overcome this Heinrich eliminate one card that is unsafe action and unsafe condition which is central to the arrangement of dominoes. By removing the unsafe actions and unsafe conditions, then the injuries and losses can be avoided. The theory is quite simple and can explain how the accident occurred to the stage of the events described. However, this theory has not adequately provided much information as to why such accidents can happen.

Loss causation theory is one cause of the accident model which is the development of the domino theory put forward by Heinrich (1931). Unlike the theories of the causes of other accidents, the model developed by Frank E. Bird (1990) is much simpler (see Figure 2), so users more easily understand it. In contrast to the domino theory, on this model stage begins with the crash of lack of control that causes the basic cause and immediate cause, causing an accident and ended up with a loss of people, property, and process.

The theory is proven by research John L.M. Tse, et al. (2006) which describes the strong relationship between job stress with the accident rate. This study showed Certain stressors result in physical (cardiovascular disease, gastrointestinal disorders, musculoskeletal problems, fatigue), psychological (depression, anxiety, post-traumatic stress disorder) and behavioral outcomes (substance abuse). In addition, the obtained consequences for organizational performance in terms of employee absences, labor turnover and accidents on the bus driver who experience stress. These conditions would lead to the heightening of other work stressors
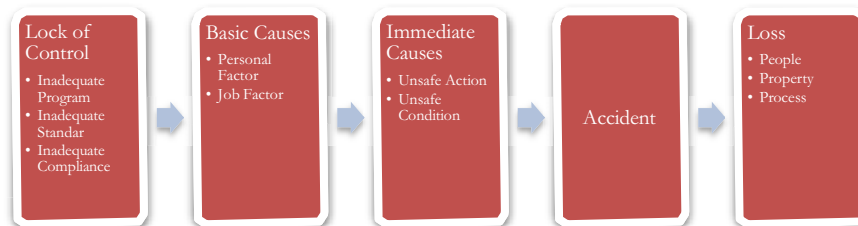

Figure 1 Theory Loss Causation Model

3. Methodology

Basically, in all research using positivistic paradigm, will face two big questions, that are: (1) whether the results of this study is correct or trustworthy?; and (2) whether we can generalize these results to some subjects whose condition is considered equal to the subject we were studying? (Borg & Gall, 1983).Problem number (1) is related to the internal validity of the results, while the problems related to the question number (2) concerning the external validity of the research. Research experiments are generally more emphasis on meeting the internal validity, namely using controls/eliminate the influence of external factors that can affect experimental results.

The impact can be measured before and after treatment. Scheduling impact measurement is one important tool to detect and attribute the impact of the effects of the treatment (Cook & Campbell, 1979). Stouffer (1950) and Campbell (1957) formulate a quasi-experiment as an experiment that has treatment, impact measurement, experimentation unit, but do not use random assignment to create a benchmarking to conclude the changes caused by the treatment. To measure the impact of the treatments on this research, applied design control group pre-test and post-test (Bryman& Bell, 2007).

The independent variables in this study were self-regulated.The dependent variable in this study is the safe driving behavior. Moderator variable in this study is driver training. A survey was conducted by direct survey for bus drivers in Indonesia, altogether, 315 respondents. Data collection was conducted for drivers who following drivers training in Bali Land Transportation Training and Education Center (BPPTD Bali), Ministry of Transportation. Technique Sampling is obtained on bus drivers who are taking driver training. The total respondent overall sample is 318 participants. The number of respondents was considered representative of the population based on the calculation of the total sample number of samples (replication) has been chosen by using the formula from Krejcie& Morgan (1970).

4. Result and Discussion

From a qualitative survey, researchers get some attributes used as the basis quantitative survey. These attributes are also supported by a literature review on previous studies. On the results of this analysis determined 11 attributes its initial Self Inspection (Q1), Competence and knowledge (Q2), Regulations (Q3), Environmental (Q4), Self-Efficacy (Q5), Self Control

(SOP) (Q6), Workplace Stress (Q7), Motivation (Q8), Workload (Q9), comitment Company (Q10) and the Situation (Q11). After factor analysis found three attributes that do not have a strong relationship with safe driving behavior. These attributes are environmental (Q4), comitment company (Q10) and motivation (Q8), so that the three attributes that need to be eliminated. The attributes which have strong links to the results of this analysis diloading into two variables. Both of these variables are internal (personal factors) and external (job factor). Variable to personal factors consisted of Regulations (Q3), Competence and knowledge (Q2), Self Control (SOP) (Q6), Self Inspection (Q1), Self-Efficacy (Q5) while the variable for job factor consists of Workload (Q9), situation (Q11), Workplace Stress (Q7) (see : Table 1).

Table 1 Result factor analysis

Table 5.13 Result Factor analysis

Attributes	Extraction	Loading Factor
Q1 (Self Inspection)	Acceptable	
Q2 (Compate and knowledge)	Acceptable	
Q3 (Regulation)	Acceptable	**Personal Factors (PF)**
Q5 (Self Efficancy)	Acceptable	
Q6 (Self Control)	Acceptable	
Q7 (Workplace Stress)	Acceptable	
Q9 (Workload)	Acceptable	**Job Factors (JF)**
Q11 (Situation)	Acceptable	
Q4 (Environmental)	Not Accept	*Eliminated*
Q8 (Motivation)	Not Accept	*Eliminated*
Q10 (Comitment company)	Not Accept	*Eliminated*

These results support the theory Loss causation model developed by Frank E. Bird (1990). In this model developed how the cause of the safe driving behavior. In the model of loss causation stage model 'basic cause' is described as a direct cause of the unsafe action. Where unsafe action that occurs will give rise to a potential accident. Basic Causes is the actual cause of the symptoms and is the reason why the action and dangerous conditions occur. The basic cause is divided into two categories play items, namely the factor of personal and work factors. Category basic causes in this study can be explained according grouping factor analysis results that have been obtained. The result is proven by research John L.M. Tse, et al (2006) the which describes the strong relationship between job stress with the accident rate. This means the environment (job factor) have a strong relationship with the safe driving behavior.

Theory loss causation model is a theory which can explain the causes of an accident. Where to prevent accidents, the basic cause must be eliminated in accordance of the domino theory expressed by Heinrich. How to weaken the basic causes believed to be able to reduce the accident rate. To realize this theory will require a strong control to manage basic causes so that the driver can control the safe driving behavior. Control of the basic causes of this is the self-regulated (Amekae, 2004). Preliminary evidence suggests that one of the most important mechanism is self-regulation (Shapiro et al., 2006). Self-regulated is an attempt to change the thoughts, emotions, impulses, desires, behaviors and processes related to attention. It also said another possible mechanism of awareness of welfare is autonomous (Brown & Ryan, 2003) and values clarification (Shapiro et al., 2006).

According to Nadler and Nadler (1991) training is strengthening attributes and help to increase the value of the work related to human resources (employee or employees) in any organization.

In this case, the training was considered to improve the performance of public transport. This is evidenced by the results of the comparison of pre-test and post-test on the research training of drivers. Correlation between pre-test and post-test in this study is 0.974 which means to have a strong and positive relationship. This mean that driver training was very effective to bus driver. Driver training have a positive influence to safe driving behavior. The level of paired samples is 0.000 namely significant correlations. This means that this study provides the impact of increased self-regulated to safe driving behavior. Increasing the impact when seen from the results of the analysis is approximately 1.36305. Where the mean in the pre-test or driver training before being given treatment is 40.7133. The results test showed that their post-test results for an experimental class is greater than their pre-test results.

The correlation effect of driver training on the relationship of self-regulated and safe driving behavior has a significant absolute value (sig = 0.000). This shows that driver training has a strong influence, and it is important for the driver. These results support the statement Gusdof (2009) and Paton, Peters &Quintas (2005) that training and development can be a tool to transform human resources more potent and productive, combining the work culture and innovation in work.

With the increase in self-regulated that affect safe driving behavior, the expected customer of public transport can be increased and have high levels of satisfaction. In line with the opinion of Brid and Germain (1990), the training impact on employee morale and teamwork will increase, and satisfaction towards the work will increase. Safety is an essential factor that must be kept and fulfilled for the customer. Customer trust is high on the public transport safety. For that, the accident rate can be suppressed by the provision of driver training. The influence exerted on the research pre-test and post-test proved that driver training can reduce the accident rate. These results support the statement Michael McHale, Group Communications Manager, LLC, BMW of North America states that driving safety training is one of the most significant ways to reduce the incidence of traffic accidents.

When viewed from the loss causation theory models, the basic causes can be minimized due to the influence of driver training. Ferry (2004), states that the driving safety training not only taught about good driving technique but also about how to reduce the level of a driver's emotions. Based on the statement Ferry, basic causes also an influence on personal factors and job control factor..

5. Conclusions

Increased self-regulated has been increasing safe driving behavior, which impacts reduced the accident rate. Salf-regulated as basic causes have an important role so that one of the ways used to control the self-regulated is driver training. Driver training can affect a driver in improving driving behavior on the highway (ReimaLehtimaki, et al. 2005).From the results of t-Tests on pre-test and post-test to driver training found that the role of driver training is significant to safe driving behavior. Drivers are considered better able to perform self-regulated when after getting treatments driver training than those who have not followed the training of drivers.

Although there are several promising research developments such as hazard perception training and testing, and training which aims to provide insight into the limited driving skills and life skills, driver training has not been reliably shown to be effective in directly improving road safety (Wahlberg, 2011).Driving safety training not only taught about good driving technique but also about how to reduce the level of a driver's emotions. Overall driver training is affective for driver bus.

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