

Optimizing Work Safety: Campaign using the Facet Model of approach Effect and the assessment sheet potential hazard IDEACM

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ABSTRACT

The macro-ergonomic approach integrates human factors with cultural and environmental aspects in occupational health and safety (K3). This approach emphasizes the critical role of culture, advocating for practitioners to adhere rigorously to workplace norms. A well-designed campaign targeting a homogeneous audience can significantly enhance the implementation of a harmonious safety culture. Through persuasive communication strategies that resonate emotionally and encourage changes in attitudes and behaviors, such campaigns utilize various appropriate media to convey the importance of adhering to company safety regulations. Furthermore, macro-ergonomics aims to foster a health and safety culture by clearly communicating organizational rules. This study explores the impact of persuasive campaigns on achieving zero accidents by conducting a case study at PT.X in Batam. It investigates potential hazards using macro-ergonomics and examines the effectiveness of a persuasive campaign aimed at the target audience at PT Batam-based Corner, focusing on the application of visual communication design in reinforcing K3 compliance. This integrated research approach underscores the need for collaborative efforts in industrial engineering to enhance safety outcomes.

Keywords: Health And Safety Work, Campaigns, Ergonomics Macro

Introduction

In essence, a man on advanced earth needs protection in his daily life activity. Humans often do things that are beyond their ability to protect themselves. Sometimes, people forget their role as an essential human figure in the eyes of their family. Necessity protection will self-manage the demand period now. To keep going, develop a culture and life of being happy and healthy at work or daily activities. The protection you get at work is Occupational Safety and Health (K3). K3 is an effort to protect workers from their safety in doing work. To ensure safety, workers are in place. Work activity production must be maintained and used safely and efficiently. Work accident figures for 2018-2020 experienced fluctuation, which increased based on data from BPJS Employment [1]. Batam is an industrial area with 169,265 workers who require special K3 attention to avoid work accidents [2]. Evaluation K3 overall can be reviewed through the Ergonomics Macro.

Approach Ergonomics Macro sees the factor man in the K3 in interacting with culture and environmental areas. Realization This can be seen from the use of Sheet evaluation IDEACM to evaluate potential hazards. The IDEACM assessment sheet is a tool for assessing potential hazards using an approach of macro ergonomics; the macro ergonomic elements used are humans, technology, environment, work, and organization [1], [3], [4], [5], [6]. Implementers must adhere to culture as a working system as strictly as possible. The required approach can support a harmonious implementation culture and approach campaign.

Campaign persuasively with your audience target, which is homogeneous, endeavors to enlighten, gives an emotional impression and tries to change attitudes and behavior through various media that communicate appropriately. Ergonomics Macro Also tries to persuade the target audience to carry out a Healthy And safe culture by communicating company work rules. Reviewing the science of Visual Communication Design In terms of persuasive communication can maximize the process of enforcing K3 discipline in science. Industrial Engineering needs to conduct integrated research in case studies of companies implementing K3 [7]. This research explores how implementing a campaign approach can actively contribute to the pursuit of *zero accidents*. The research aims to identify potential hazards using an assessment sheet. IDEACM studies the PT.X case in Batam using Ergonomics Macro.

This research was previously carried out with the same approach, namely the facet model of effect, only with the title Creative Strategy for Online Advertising for Women's Accessories Stores on Instagram Social Media [8], [9], [10], [11], [12], then also carried out research entitled Parody as a Creative Advertising Strategy in Indonesia (Ovo Case Study Cussons Kids Advertisement on Consumer Perceptions by [13], then also research entitled Creative Strategy for Public Service Advertisements (A Glance at Udinus DKV Student Film Design) by [14].

This research employs the Facet Model of Effect approach as its primary campaign strategy, aiming to address specific issues through targeted methods. Despite the utilization of this approach, the study currently overlooks the integration of crucial tools like the IDEACM assessment sheet and the Macro Ergonomics approach for hazard identification. Consequently, to enhance the depth and accuracy of hazard assessment, the research now incorporates the IDEACM assessment sheet, aiming to refine the identification process and provide a more comprehensive analysis of potential risks.

The addition of the IDEACM assessment sheet marks a significant evolution in the research methodology, introducing a structured framework for hazard evaluation. By integrating this tool alongside the Facet Model of Effect approach, the study anticipates gaining deeper insights into potential hazards, which can lead to more robust and tailored solutions. This enhancement underscores the research's commitment to refining its approach and ensuring the delivery of effective strategies for resolving existing challenges.

In summary, this study's integration of the IDEACM assessment sheet signifies a proactive step toward enhancing hazard assessment methodologies within the campaign framework. By leveraging this tool alongside existing strategies, the research aims to elevate the quality of hazard identification and subsequently offer superior problem-solving solutions. This evolution in approach reflects the study's dedication to advancing methodologies and achieving impactful outcomes in addressing prevalent issues.

Research Methods

Campaign: Let me know if there is anything else I can help you with. Campaign

A campaign is a planned series of communication actions to create an effect specific to a large audience, which is done in a way sustainable over a while, according to Venus [15]. Objective campaign related to aspect knowledge, cognition, attitude, And behavior [16], [17], [18], [19], [20]. The review objective from the campaign seen from corner look advertising can be evaluated via the Facet Model of [21]. The association with meaning is second reviewed from the theory of Semiotics. Campaigns are categorized into three stages: conditioning, informing, and remembering. Maximizing principal Elements of Simplicity [ability] [21] as an effort to capture a massive level of persuasion participation. Principle 1) Time, involvement in participation activities that take up the target's time. 2) Money, the nominal size of the material issued by the target 3) Physical effort, the size of the physical involvement effort that the target must carry out 4) Brain cycle, how much big business think hard in participating 5) Social deviance, suitability activity participation with norm social and rules society 6) routine, participation activities are routine daily.

Evaluation

Evaluation is a process for making decisions using information obtained through measurement results. Study Good, which uses test or non-test. Evaluation is the activity of interpreting or describing the measurement of results. According to evaluation, it is a decision about value [22].

Facet Model of Effect

Reviewing the objectives of the campaign from an advertising perspective can be evaluated through the Facet Model of Effect [23]. The facet Model of Effect is the parameter of advertising effectiveness. Effective advertising can generate the consumer response expected by the advertiser. The response caused by advertisement is a response to see/hear (Perception), feel (Affection), think about / understand (Cognition), associate/connect (Association), believe (Persuasion), and do (Behavior). Six responses can determine goals for communication and evaluate the effectiveness of advertising.

Macro Ergonomics

Macro ergonomics is a sociotechnical systems approach that analyzes, designs, or improves work systems and work organization from the top down, harmonizing the design into its elements as a whole [24]. The following are the stages in the macro ergonomics method, namely identifying human errors using the Macro Ergonomics Method based on five elements in ergonomics macro: man, Environment Work, Machine and Equipment, and Work and Technology [25].

Results And Discussion

1. Approach Communication Psychology Persuasion (*Facet Model of Effect*)

Humans' role in improving Occupational Health and Safety lies in internal human factors. If viewed from the perspective of persuasive communication, it is necessary to review the fundamental side of knowledge and attitudes and do it from an individual. Communication persuasion can impact if the message from the communication resonates or is heard correctly, so that is capable of moving behavior. When planning a campaign to persuade obedience culture, K3 needs to review the knowledge (cognitive) importance of K3 to each worker. Then, harmony between cognitive and an attitude positive to the effort must be necessary. Effort communication will impact behavior with the encouragement of designed visual communication media. Campaign objectives Persuasive communication creates attitudinal and behavioral effects that support improving K3 with target participants, and PT is taking place.

a. Cognitive (comprehension)

Through interviews and FGDs with workers, it was concluded that, in general, the worker knows the importance of using K3 protective equipment and the function of each tool. Cognitive para workers know matter base, which becomes enhancement culture Work K3 through work experience that has been done before. Knowledge of safe and healthy work culture is critical in forming the positive persuasion implementation of K3.

b. Affective (attitude)

Through interviews and FGDs with workers, it was also found that, in general, the workers had a positive attitude to implementation culture K3. Attitude is formed because encouragement is based on what they have gone through and experienced during work in the field. Knowledge And experience directly drive the need for job protection and work accuracy. The workers, too, feel Afraid when working without using equipment and directions in K3 culture.

c. Behavior

Response or reaction para worker after own knowledge and attitude positive to K3 is striving for K3 equipment independently and in a limited manner. Work shoes, a long-sleeved shirt, and work glasses mark this effort. With these behavioral efforts, it is necessary to review motivation and ability, even without being pushed by the holder's interest. For K3, the workers have knowledge and attitude suitable for implanted behavior culture K3. Through the analysis, attainable knowledge and attitudes have been formed in most workers. If knowledge and attitudes have been fulfilled, the campaign aims to maximize efforts to shape behavior through media and facilitators.

Media and facilitator design can be maximized by knowing the participants' and employees' motivation and abilities. Through FGD, some motivation and abilities are as follows:

d. Motivation

Motivation is matter-based and pushes para workers to behave. From the results, FGD motivated para workers to maintain their jobs to reduce the fear of not having enough needs. The primary motivation is to meet the family's economic needs during the Covid-19 pandemic. Furthermore, motivation is complex in Century Covid-19, so work is maintained with high risk. This is because they want to give their family the best (pleasure), which is still happy during the COVID-19 pandemic. Motivation still works, and one uses tools to protect oneself in a limited way. This is initiated by an individual who wants to return home and meet a family with Happy. The matter is encouragement and hope from each individual to keep going and behave so that the objective fulfillment of an integrity economy and a deep, social, permanent family is sufficient.

e. Ability (Abilities)

Ability, in this case, is a factor that inhibits behavior even though it has strong motivation. The factor that hinders the enforcement of K3 culture during work lies in the significant value of the material incurred in purchasing K3 equipment (money). The next factor is that norms or norms still need to be formed K3 work culture rules and values in the work environment (social deviance). This factor is the cause of normal K3 culture violation activities in the work environment. With no rewards and punishment if you ignore K3 rules, then enforcement of K3 culture rules will not be formed. This matter required encouragement from holders interested in giving instruction. Work That is more aware of the importance of culture K3. Factor furthermore is Routine (Routine). Routine is fundamental to its implementation.

K3 culture protocol. The more routinely workers implement the K3 work culture; the easier it is to do so while still maintaining the culture. Work K3 in the environment works.

Through analysis, motivation, and ability (ability), we can conclude that qualitative para workers have their own motivation, which is vital for operating culture K3. Through analysis, it was also found that the ability of workers to implement K3 culture still needs to be supported by external factors. Strategy

communication and countermeasures must be spared from various types of accidents. Work requires effort and cooperation between workers and holders. Planning strategy communication aimed at designing trigger media that are facilitators. This trigger is suitable when the target audience has high motivation but is not accompanied by good implementation ability. This communication strategy focuses on the obstacles during culture enforcement K3 work is an easy thing to carry out. The stakeholders in this case are as follows: The facilitator has to try hard to realize the need for material and cultural work.

2. Creative Brief

Through the procurement of K3 equipment materials and work culture rules cultivated in the work environment, encouragement media, which nature *triggers facilitators*, will also walk as dominoes, which will have an impact. Before planning campaign K3 then, make it the formerly *creative brief* as follows:

a. Why are we advertising?

We must explain why we want to advertise or compile objective communication here. Objective: Remind workers always to use personal protective equipment and comply with the K3 protocol.

b. Who are we talking to (and what do we know about them)? Who? Demographics, Psychography, Geography.

They are a worker project called Jogging Tracks PT in Batam aged 30-40 years, educated Senior High School–D3, work employee contractor, with income UMR, Religion Islam And Christian.

c. (What do we know about their complaints About? Which do they know?)

The matters That take priority in work are sufficiency and family. What is expected is to work with a happy and healthy group for the family. The matter that is desired is to work the maximum possible. A person who cares about family and a professional at work.

d. What do we want them to think or do?

The purpose of communication is to care/know/think/feel, emotions/act (buy? Try? Avoid? Approach?) **Remember always to use PPE while working because that is the trust of the House.**

e. What should the advertising say? Must express quality brand goods for sale and profit. Which got it? – Position brands or matter unique. Which brands are not owned by others?

Language style corner look First

"Do not forget to use Tool Self-Protection (PPE)" We are waiting from home, which want to Father healthy and safe at work - Wife & child #TrustFromHome

f. Why should anyone believe it?

Things that support and convince the target target. Can reason Rationally or emotionally. Show me insight (motivation, fear, hope, matter which pleasant person/ matter Which No preferred). Facts that move the person. Using PPE when working can reduce the risk of work accidents. Work accidents are not predictable. We use PPE to achieve work goals, namely safety and health, for they are at home.

g. What is the desired tone and manner of the advertising? Reflect on how characteristic brands are more specified again.

Touching, assert! Inflict flavor motivation, remember.

h. What execution considerations are there? It must be visible from a distance! Clear!

The tone and manner are Firm and touching. It Must involve the Logos of PT.

Based on the results, the next stage furthermore is to make a design campaign on four media; the plan is as follows:

1. Planning campaign Banner



Figure 1. Campaign Banner K3 At The Entrance Project



Figure 2. Campaign Banner On the Hill Jogging Tracks

2. Planning Lunchbox campaign and bottle drink-themed K3.



Figure 3. Lunchbox for Workers With the K3 Campaign



Figure 4. Bottle Drink For workers with the K3 Campaign

3. Planning campaign shirt hand Long with theme K3



Figure 5. T-shirt long arms for workers with Campaign K3

4. Implementation of Results Planning Campaign

After planning the design campaign, the matter That is done furthermore is applied in a way K3 campaign directly in the field. This was done by implementing the K3 Campaign banner At the Project Entrance and on the Jogging Track Hill; apart from that, lunch boxes and bottles are provided with a drink with the K3 theme, a shirt with long sleeves with the K3 theme, and videos with the K3 theme.



Figure 6. Handover of Equipment Personal Protector And Media Campaign K3 To Jogging Project Worker



Figure 7. Handover of Tools Personal Protection and Media Campaign K3 To Workers Project



Figure 8. Use Tool Personal Protection and Media Campaign K3 To Workers Project



Figure 9. Tool Use Personal Protection and Media Campaign K3 To Worker Project

Afterward, the evaluation sheet for assessing potential dangers will be utilized, specifically the IDEACM (Integrated Design and Engineering Analysis for Countermeasures); evaluation perception, affection, and persuasion will be returned. Then, evaluating the results will result in final findings in the form of a ranking of potential dangers and the top four rankings that must be immediately reviewed and dealt with in the project.

1. Cultural Evaluation K3

Evaluation culture K3 This is done using sheet evaluation IDEACM. Before evaluating, utilize the IDEACM (Integrated Design and Engineering Analysis for Countermeasures) sheet to assess the potency of potential dangers. Moreover, potential danger is identified based on the top 4 rankings in the assessment of potential danger in stage I, namely on criteria: human expertise, technological criteria, equipment and machines, organizational criteria, and policy. As for the evaluation of potency danger, they can be seen in Table 1, which obtained the subtraction score.

Table 1. Sheet Evaluation Potency Danger IDEACM Stage I

POTENTIAL HAZARD ASSESSMENT SHEET					NO. DOC: 01 NAME: Dinda Okta Dwiyanti Ridwan Gucci ST., MT DAY/YEAR: Thursday, 27 May 2021		
Criteria (Weight)	Sub- criteria (Weight)	Danger Level (Give a checkmark)			Calculation: Weight Criteria x Weight Sub criteria x Hazard Level = Final Score	Score End	Rank
		Not harmful (1)	Dangerous (2)	Very dangerous (3)			
Human (3.44)	Education (0.147)		√		3.44 x 0.147 x 2 = 1.101	1.01	5
	Experience (0.205)	√			3.44 x 0.205 x 1 = 0.705	0.70	7
	Skill (0.646)			√	3.44 x 0.646 x 3 = 6.666	6.66	1
Technology (1.03)	Technology System Information (0.117)		√		1.03 x 0.117 x 2 = 0.241	0.24	13
	Equipment			√	1.03 x	1.19	3

	(0.386)		$0.386 \times 3 =$ 1.192		
	Machine (0.486)	√	$1.03 \times$ $0.486 \times 3 =$ 1.501	1.50	2
Environment (0.75)	Humidity (0.050)	√	$0.75 \times$ $0.050 \times 2 =$ 0.075	0.11	18
	Noise (0.057)	√	$0.75 \times$ $0.057 \times 2 =$ 0.085	0.12	17
	Lighting (0.070)	√	$0.75 \times$ $0.070 \times 2 =$ 0.105	0.15	16
	Temperature (0.115)	√	$0.75 \times$ $0.115 \times 2 =$ 0.172	0.25	12
	Layout (0.120)	√	$0.75 \times$ $0.120 \times 2 =$ 0.18	0.27	11
	Station Work (0.128)	√	$0.75 \times$ $0.128 \times 3 =$ 0.288	0.28	10
Employment (0.75)	Required Work Attention (0.403)	√	$0.75 \times$ $0.403 \times 3 =$ 0.906	0.90	6
	Working target (0.392)	√	$0.75 \times$ $0.392 \times 2 =$ 0.588	0.58	8
	Work Schedule (0.204)	√	$0.75 \times$ $0.147 \times 2 =$ 0.220	0.22	14
Organization (0.67)	Incentive (0.130)	√	$0.67 \times$ $0.130 \times 2 =$ 0.174	0.17	15
	Awards (0.320)	√	$0.67 \times$ $0.320 \times 2 =$ 0.428	0.42	9
	Policy (0.548)	√	$\times 3 = 1.101$	1.10	4

It can be seen in Table 1 that after identifying potential hazards, a potential assessment is carried out hazards using the IDEACM potential hazard assessment sheet. Table 8 shows the results of the evaluation of potency danger. Based on results obtained from Table 8, the four ranks must be overcome as soon as possible. For example, Element Man has an element skill ranked 1, scoring 6.66 on the end evaluation. Then, on element technology, the machine became ranked 2 with a score of 1.50; furthermore, on the sub, the equipment element was ranked 3rd with a final score of 1.19, and policy was ranked 4th with a score of 1.10.

After the implementation, K3 changed that on four subcriteria ergonomics macroso the obtained results on criteria man are still on rank 1 with a declining mark from 6.66to 4.48 because it still uses the same workers. On criteria, technology is a machine ranging from 2 with a decrease in value from 1.50 to 1.00; this is due to the machine, which is now already more often done for maintenance. Then, still on criteria technology isequipment on rank 3 with a declining mark from 1.19 to 0.79 Because workers now Alreadywear personal protective equipment when on duty. In addition, the assessment of potential hazards is final on the criteria policy, with a decline mark from 1.10 to 0.73. Decline the because there are improving K3 policies that direct workers to use PPE. Overall, on the fourth-ranking top, it has experienced a decline from the category "very dangerous" to "dangerous" just.This decline occurred after implementing four media campaigns and providing protective equipment for para workers. Matter This can be seen in Table 2.

Table 2. Sheet Evaluation Potency Danger IDEACM Stage II

Criteria (Weight)	Sub-criteria (Weight)	Danger Level (Give a checkmark)			Calculation: Weight Criteria x Weight Sub criteria x Hazard Level = Final Score	Score	Rank
		Not harmful (1)	Dangerous (2)	Very dangerous (3)			
Human (3.44)	Education (0.147)		√		$3.44 \times 0.147 \times 2 = 1.101$	1.01	5
	Experience (0.205)	√			$3.44 \times 0.205 \times 1 = 0.705$	0.70	7
	Skill (0.646)		√		$3.44 \times 0.646 \times 2 = 4.448$	4.48	1
Technology (1.03)	Technology System Information (0.117)		√		$1.03 \times 0.117 \times 2 = 0.241$	0.24	13
	Equipment (0.386)		√		$1.03 \times 0.386 \times 2 = 0.79$	0.79	3
	Machine (0.486)		√		$1.03 \times 0.486 \times 2 = 1.00$	1.00	2
Environment (0.75)	Humidity (0.050)		√		$0.75 \times 0.050 \times 2 = 0.075$	0.11	18
	Noise (0.057)		√		$0.75 \times 0.057 \times 2 = 0.085$	0.12	17
	Lighting (0.070)		√		$0.75 \times 0.070 \times 2 = 0.105$	0.15	16
	Temperature (0.115)		√		$0.75 \times 0.115 \times 2 = 0.172$	0.25	12
	Layout (0.120)		√		$0.75 \times 0.120 \times 2 = 0.18$	0.27	11
	Station Work (0.128)			√		$0.75 \times 0.128 \times 3 = 0.288$	0.28
Employment (0.75)	Required Work Attention (0.403)			√	$0.75 \times 0.403 \times 3 = 0.906$	0.90	6
	Working target (0.392)		√		$0.75 \times 0.392 \times 2 = 0.588$	0.58	8
	Work Schedule (0.204)		√		$0.75 \times 0.147 \times 2 = 0.220$	0.22	14
Organization (0.67)	Incentive (0.130)		√		$0.67 \times 0.130 \times 2 = 0.174$	0.17	15
	Awards (0.320)		√		$0.67 \times 0.320 \times 2 = 0.428$	0.42	9
	Policy (0.548)		√		$0.548 \times 2 = 0.73$	0.73	4

5.) Evaluation of Perception and Affection and Persuasion

Evaluation of workers' perceptions, affection, and persuasion regarding K3 campaign media messages is known through FGD after implementation of media. Participant FGD realizes a media campaign exists based on location, which is determined, meaning that workers consciously see and are exposed to campaign media. The fascinating thing about workers in media campaigns is Picture Photo Child, which uses PPE, the color yellow on the posters, and the hashtag #trustfromhome campaign in various media.

Workers recognize media and connect messages with action, for the sake of PPE, for the sake of the person loved at home. The photo is considered irrelevant because they need to realize the model, but they still can represent and convey the meaning of the appeal to use PPE for loved ones. Media messages are interpreted as relevant and important because they use PPE for motivation. Work that is Work Healthy and Happy For the family. Evaluation of Affection (Emotion) is done to understand reactions to various emotions generated by campaign media. The workers through FGD explained that they tended to feel emotional because they remembered what motivated them at work when they saw model figures of children and parents from media videos.

Workers agree with the message and appeal to the use of PPE, although they must adapt to the moment they use it. Workers must use PPE when working based on motivation and personal safety for the family. The following evaluation is persuasion. The persuasion response of workers is the emergence of an attitude of agreeing with the media message that PPE is essential for maintaining work safety. The side response persuasion message in the media felt relevant because of the condition of the family, child, and friends present in the media. Workers intend to use PPE by trying it on while working. Workers use ADP because the message media owns marks, the same as confidence for para workers, that PPE can maintain occupational safety and health. I believe that using PPE is something the family hopes for and is a form of effort to keep the trust entrusted to them from home. The general media campaign can persuade para workers because it relates to circumstances and motivation. The motivation is economic fulfillment during the pandemic and working safely for family.

Conclusion

The assessment results of potential hazards in stage 1 of 4 rankings that must be addressed immediately are as follows: In the human element, there is a sub-element of expertise, ranked 1st with the final score of the assessment, namely 6.66. Then, the machine technology element was ranked 2nd with a final score of 1.50. Next, the equipment sub-element was ranked 3rd with a final score of 1.19, and policy was ranked 4 with a score of 1.10.

After implementing K3, changes occurred in 4 macro ergonomic sub-criteria and then the results obtained on human criteria were skill at rank 1 with a decrease in value from 6.66 to 4.48. This is because workers are still used, the same as previously used. The technological criteria are machines ranging from 2 with a decreasing value of 1.50 to 1.00 because the machines used are now being maintained more frequently. Then, still, on the technological criteria, equipment is ranked 3rd with a decrease in value from 1.19 to 0.79; this is because workers are now wearing personal protective equipment when on duty. Besides that, the evaluation potency danger is final on the criteria policy, with a decline mark from 1.10 to 0.73. This decrease was due to increased K3 policies directing workers to use PPE. On the whole, on four ranking tops, it has experienced a decline from the category "very dangerous" to "dangerous" just. The decline occurred after implementing four media campaigns and providing personal protective equipment for the employees. This decline occurred after implementing three media campaigns, which displayed media and gave PPE to each worker.

There is relevance in workers' perceptions of the media. Media messages are essential for a reason. PPE is used for work motivation, namely, working healthily and safely for the family. Affection (emotion), which the worker feels, is a flavor emotional and will be relevant motivation. There is an attitude of agreeing with the message calling for using PPE and understanding the function of PPE. In general, campaign media can persuade workers because it is relevant to the state of motivation of the workers. The motivation is economic fulfillment during the pandemic and working steadily Happy For the family.

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