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Critical Incident in Project Management

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Individual Project

**CRITICAL INCIDENT
IN PROJECT MANAGEMENT**

*EMGT 565
RESEARCH METHODOLOGY*

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1. INTRODUCTION

Critical incidents do occur in projects. As in a human body, when a part of human body can not perform its job, the whole body experiences the problem. For example, when a person has a broken arm, he/she can not run fast, because he/she can not swing his/her arm. The same thing happens to an organization. When a member can not do his/her job well, the whole organization would feel the effect. Understanding the cause of critical incidents, what are the effects of critical incidents, and how people react to them would help the management to cope with the problem.

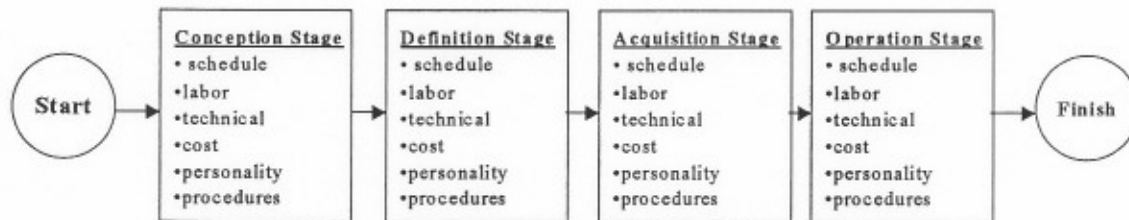
Critical incident studies have been done in many areas. Accidents, employee-manager relationship, or cultural differences can cause critical incidents. Those are only several causes that can cause critical incident. Critical incident in project management, due to cultural differences, is the area of interest for this project. In the literature research done as preliminary research for this project, no article about studies of critical incident in project management was found. However, an article, reporting study in critical incident in management, was found. This study only investigated the effects of critical incident in management to the psychological aspect of human resource.

2. LITERATURE RESEARCH

2.1 Project Management

Project management involves many people, functions, departments, or sections. Each of these sub-systems of a project system has different interests and requirements. The differences in interests, requirements, and priorities are potential causes of conflict in project management.

Conflicts and problems in project management derive from various areas. Those areas are schedule, labor, technical, cost, personality, and procedure [1]. The level of conflict is also various for each stage of project. The project life cycle can be classified into four stages, which are conception stage, definition stage, acquisition stage, and operation stage [2].



Management system has changed over years, from classical viewpoint, to behavioral viewpoint, to systems approach viewpoint, and to the latest trend of viewpoint in management, which is the contingency viewpoint [1]. The way of viewing the management, how to manage people and conflict in project, has changed from seeing the organization as a machine to make money or profit, to system which consists of human beings whose welfare are also as important as the importance of company's survival.

In classical viewpoint of management system, project organization is viewed as a rigid hierarchy and bureaucracy. The project management system is a machine, which is organized, planned, and controlled by the management. Human resource is seen as a functional part of the big machine system of project management.

In behavioral viewpoint, the emphasis changed from job emphasis in classical viewpoint of management system to human and social aspects of organization emphasis. Social needs and relationship, leadership, social environment, and teamwork in management are more emphasized and acknowledged as factors, which are very important in managing a successful project management.

The systems approach viewpoint emphasizes on addressing issues and solving problems in management through understanding of the objectives and missions of the organization as a whole system.

The contingency viewpoint suggests that for management practice to be effective, it must be consistent with the requirement of the environment. Thus, the appropriate management system is depending on the situation and requirement of the project or organization environment.

Human aspect in management has received more attention and consideration nowadays. The management system that fits the necessities and requirements in today's project can not neglect the importance of human aspect in organization.

2.2. Critical Incidents

Critical incidents in project management have tremendous effects to those who experience them. These incidents would affect psychological aspect of the victims. Disturbance of employees' psychological aspect would influence their job performance and this condition might lead to disturbance in many areas of project management.

Critical incidents are events that can cause unusual psychological distress in healthy people [3]. They have sufficient emotional power that is able to overwhelm a person's ability to cope with that situation [4]. Such events include fires, robberies, natural disasters, accident, homicide or death of an employee. Those kinds of events can have a substantial impact. Employees might suppress emotion to hide their feeling about the incidents and this could lead to trauma.

The human aspect in project management is important. It is interesting to find out how critical incidents can affect the individual and the organization in the management and thus, affecting the project. The signs and the results of a critical incident and how to

overcome the negative impact of a critical incident are also interesting issues to be investigated.

2.3. Critical Incident Effects

When a crisis strikes the workplace, the effect on employees may include significant emotional distress that can lead to physical or mental disability [5]. The effects can be immediate, appear later, or both. These effects may include physical, cognitive or emotional reactions and often present themselves as a change in normal behavior.

Symptoms and effects following a critical incident are shown in table below:

Physical symptoms:	Emotional symptoms:	Effects that may happen:
<ul style="list-style-type: none">• Chest pains• Headaches• Gastrointestinal distress• Elevated heart rate and blood pressure• Muscular soreness• Fatigue	<ul style="list-style-type: none">• Grief• Depression• Anxiety• Inability to concentrate or to make decisions• Emotional numbness• Flashbacks	<ul style="list-style-type: none">Change in eating habitsSuffer from panic attacksInsomnia or nightmaresIsolation, social withdrawalInterpersonal relationsAlcohol or drug

In a project management, critical incident could cause trauma to employees [6]. The symptoms of critical incident trauma in work place are:

Changes in physical and cognitive functioning.

- Employees will continue to experience somatic symptoms without there being a medical explanation for their persistence.
- Employees may have difficulty concentrating.
- Some will experience memory loss or impairment.
- People will become very tense and easily startled.
- Some will experience physiological complications, such as gastrointestinal disturbances, separate from any injuries related to the trauma.

Changes in perceptions.

- Fear of returning to the workplace.
- Concern and anxiety about the safety of the physical work environment.
- Changes in regular work routines to avoid physical reminders of the traumatic event, e.g., avoiding performing job activities related to the traumatic event or refusing to use equipment or follow policies or procedures associated with the trauma.
- Experiencing flashbacks of trauma that are triggered by auditory, visual, and olfactory cues in the environment.
- Decreasing time spent at work (sick leave, vacation, unexplained absences).
- Questioning whether or not to remain working at "this" job or in "this" profession.
- Feeling foggy and numb.
- Being inattentive to the task at hand, which leads to increased accidents and errors.

Changes in relationships between coworkers.

- Fearing blame for the occurrence of the event.
- Feeling angry about actions (or in-actions) of coworkers.
- Losing personal and professional self-esteem around colleagues.
- Feeling marked or exposed.
- Withdrawing from usual kinds of peer interactions.

Changes in relationships with management.

- Increasing conflicts with authority figures.
- Feeling betrayed and abandoned.
- Seeking some evidence of "justice" in management's response (or lack of) to the incident.
- Turning to legal action if their distress is not recognized and dealt with.

Critical incidents also affect the organization as a whole [7]. The effects of critical incidents in organization include:

- Cost of security
- Cost of building repair and clean up
- Business interruptions with customers
- Loss of productivity
- Lost work time
- Turnover
- Increase in compensation claims, medical claims, insurance premiums, and absenteeism
- Changes in employee work performance
- Changes in employee relationships and management-employee relationships
- Changes in employee perception of management and employer

These costs and effects are affecting the productivity of an organization, thus critical incidents in work place are not only threaten the individuals who experienced them, but also threaten the organization as a whole.

2.4. Critical Incident Debriefing

In the early 1980s, Dr. Jeffrey T. Mitchell and Dr. George S. Everly's study revealed that emergency care providers were experiencing stress as a result of responding to repeated calls for emergency service. It has been acknowledged that stress could be resulted from trauma exposure, which is the situation that emergency care providers are likely exposed to [8].

To restore employees' performance to the previous stage, one strategy is critical incident debriefing. Mitchell and Everly developed a procedure known as a critical incident stress debriefing (CISD). They define the CISD process as a "peer driven, clinically guided intervention, designed to mitigate the effects of stress resulting from incidents involving extreme trauma." [4].

Critical incident debriefing is a counseling method that tries to help employees in a group setting understand their emotional reactions to a crisis [5]. Many organizations have

implemented the critical incident debriefing method to help their employees who have experienced critical incidents in the workplace. This program is called Employee Assistance Professionals program (EAP). The EAP personnel are specifically trained to deal with mental health issues in a business setting.

The debriefing is a personal, sensitive process in which employees voluntarily discuss their experiences and express how they felt when he experienced the incident [3]. The group debriefing should be held within 24 to 48 hours after the crisis, and it lasts in range from one and a half hour or longer.

Before conducting debriefing, several steps should be taken by the EAP personnel.

1. Analyze the event's impact to determine the need for counseling
2. Determine whether the incident caused serious injuries or fatalities
3. Determine whether the work site represent a danger to the workplace or community
4. Determine the crisis's overall emotional impact on employees

The finding from those steps are then listed by the company personnel who are in charge of managing the disaster.

The debriefing process involves several phases [8] [9]. Those phases are:

1. Introduction of the consultancy service
2. Description of group members' experience
3. Discussion about their thoughts and their reactions to the experiences
4. Recognition, acceptance and handling such symptoms
5. Development of an action plan for effective adjustment to the structural changes

The goal of this program is to restore victims to a pre-crisis level of functioning and to provide them with resources and problem solving skills they can use to reduce their feeling of vulnerability [5].

If it was conducted properly, critical incident debriefing could stabilize the workplace performance. Such results that can be obtained from a critical incident debriefing are:

- Improve the productivity and retention of staff affected by the incident
- Reduce workers' compensation stress claims and hasten return to work
- Lower the long-term incidence of generalized anxiety, panic attacks and substance abuse among survivors
- Decrease the likelihood of litigation

Responding promptly after a crisis, using a critical incident debriefing, can help reduce the long-term cost of a crisis to the organization by helping traumatized workers to return to their pre-crisis performance. It is also could be use to reduce emotional distress as a counseling method, resulting in healthier, happier and more productive employees

2.5 Critical Incident Technique

Critical incident technique is a classification technique developed by J.C. Flanagan. This technique was published about 40 years ago, in 1954.

The critical Incident technique consists of a set of specifically defined procedures for collecting data. The data is obtained from observation of human behavior and classifying them in such way that they would be useful in addressing practical problems.

Critical incident technique can be categorized as a classification method. Other grouping methods that are categorized in classification method are factor analysis, cluster analysis, and multidimensional scaling. This kind of method is useful in determining categories based on analysis of a specific set of data. This method is particularly useful when there is little documentation of the properties that are likely to be important for classifying.

The difference between critical incident technique and other classification techniques is that in the data analysis stage of procedure, critical incident technique uses the content

analysis of the stories while other techniques use quantitative analysis. Critical incident technique takes the stories of the people, as subjects of study, and asks questions of the stories in order to classify each one within the scheme. Content analysis "takes the communications that people have produced and asks questions of the communications" [10].

2.5.1 The Advantage of Critical Incident Technique

The benefit of using the critical incident technique is that the technique is able to elicit specific responses of importance to people as the objects of the study. The primary advantage of this technique is "its capacity to provide accurate and consistent interpretations of people's accounts of events without depriving these accounts of their power of eloquence" [10].

Other classification techniques attempt to measure the general satisfaction or dissatisfaction of people or they ask a specific questions. These techniques provide answers to the questions asked, but they do not necessarily address the concerns of people. The critical incident technique would address the specific concerns of the people that would be elicited in their stories rather than their opinions as answers of questions asked.

Another advantage is that critical incident technique and content analysis utilize both qualitative and quantitative examination of communications (combining "rigor and vigor"), usually thought to be antithetical forms of analysis [11].

2.5.2 The Disadvantage of Critical Incident Technique

The disadvantage of using the Critical Incident Technique would appear to lie in the lengthy analysis of data required [11].

Criticism of content analysis typically centers on issues of reliability and validity of the categories. Reliability and validity problems may arise as a result of the ambiguity of

word meanings, category labels, and coding rules in a particular study. Though use of computerized content analysis programs may reduce reliability problems to some extent, computerization introduces other potential problems, such as the possibility of "mindless content analysis" [10].

As an exploratory method, critical incident technique also shares the advantages and disadvantages of other exploratory inductive methods. However, when the purpose of the research is to increase knowledge of a phenomenon about which relatively little has been documented and/or to describe a real-world phenomenon based on thorough understanding, an approach such as critical incident technique seems particularly well suited to the task.

Critical incident technique has been used extensively in many disciplines area such as:

- management
- human resource
- marketing
- education
- health care

In management and human resource area, critical incident technique has been used as a tool of critical behavior interviewing. The purpose of using critical behavior interview is to uncover precise information on the actions and thoughts that make up competence in a given job [12].

The goal of this critical behavior interview is to obtain highly specific information regarding key situations in which the interviewees felt particularly effective or ineffective on the job

The critical incident technique focuses on the performance of an individual in the same way that the case study focuses on the performance of an organization or group [13].

Because it deals with the details of a specific job in a specific work-related situation, it is useful with line level staff. Through interviews or observation, the critical incident technique records events and behaviors that have been observed to lead to success or failure in accomplishing a specific task.

2.5.3 Critical Incident Technique Procedure

There are five components in critical incident technique described by Flanagan [11]. Those components are:

1. Establish the general aims of the activity to be studied
2. Develop plan and specifications for collecting factual incidents
3. Collect data
4. Analyze the data
5. Interpret and report results.

Establish the general aims of the activity to be studied

The general aim of the study is to elicit the opinions of the surveyed people about the study issues.

Develop plan and specifications for collecting factual incidents

a) Validity

Flanagan suggests that "evidence regarding the accuracy of reporting is usually contained in the incidents themselves. If full and precise details are given, it can usually be assumed that this information is accurate." He also states that if a question is not understood, it may be repeated for clarification

b) Reliability

It is difficult in this type of study to assure that there is no collusion among subjects, since they could not all be interviewed at the same time. To reduce this problem, the interview should be conducted in private and the subjects are asked not to discuss the study with

other subjects. The data collection time should also be limited, such as two-week period, within an identified area.

Data collection

It is suggested in the literature that a higher response rate is obtained using interviews as opposed to questionnaires. Subjects are asked to imagine themselves in the situation presented in the interview. Their responses are then analyzed. The interviewer has a function as an information source regarding to the scenario in the critical incident interview. Subjects can ask for more additional information from the interviewer.

Analysis of data

There are three problems involved in analyzing the data:

- (1) the selection of the general frame of reference
- (2) the inductive development of a set of major area and sub-area headings
- (3) the selection of one or more levels along the specificity-generality continuum in reporting the requirement

There are four steps in analyzing the result of the survey [14]. Although those steps are deployed in retail service area, they are basically the same steps used in other areas. Those steps are:

Step 1: Identifying the Failure Incident.

Initially, each critical incident was systematically categorized through a deductive sorting process into one of the major groups.

Step 2: Identifying failure subgroups within the major groups.

The second step of the sorting process involved the classification of the failures into subgroups within each of the major.

Step 3: Classifying Recovery Strategies.

The third step in the categorization process involved classifying the recoveries within each failure subgroup.

Step 4: Collapsing Recovery Strategies.

The final step in the categorization process involved reducing the recovery categories to a more manageable number of recovery strategies.

There are many ways of applying Critical Incident method. These differences in applying Critical Incident method are due to modification made in the method to fit the necessities and requirements in the area where the Critical Incident method is deployed. Essentially, the steps in deploying Critical Incident method are those steps or components described by Flanagan.

3. PROJECT

3.1 Project Purpose

Employees are valuable assets for a project. When critical incidents happen, helping them to return to their previous level of performance would be beneficial to the project.

The purpose of this project is to investigate critical incidents, caused by cultural differences, in project management and to find the reaction of people who have experienced those incidents and how they tried to overcome them. A previous article reported the effect of critical incidents in management. This project is attempting to do research in similar area but from different perspective and more specifics. The scope of this project is project management and the type of critical incident is narrowed to critical incidents caused by cultural differences. Cultural differences for this project could happen between individuals or between an individual and a system where he works at.

The research for this project is separated into two areas. The first area is the critical incident and the second area is the cultural management. This research in this paper is in regard with the first area of research for the project, which is the critical incident.

3.2 Hypothesis

The null hypothesis for this project is that the critical incident that happens between personnel or between a person and a system, due to cultural differences, affects the whole dimension in project management.

The alternate hypothesis is that the critical incident that happens between personnel or between a person and a system, due to cultural differences, only affects several dimensions in project management.

3.3 Research Questions

Critical incident technique is widely used in many areas as a survey and an interview technique. The areas, in which critical method is used, are concerning about the human aspect. Since the project main issue is the critical incident in project management, which emphasizes the human aspect of project management, critical incident technique is considered as the appropriate survey technique to address the issue.

The research questions, for this sub-project, are:

- What are the dimensions or the elements of project management?
- What is the relation between the critical incidents and those dimensions or elements of project management?
- What is the relation between cultural differences and project management?
- How could critical incidents affect those dimensions of project management?

3.4 Research Methodology

3.4.1. Procedure

The steps for this project are:

1. Literature research
 - Identify areas or segments in project management.
 - Find relation between cultural differences and project management.
 - Investigate critical incidents and how to relate them to project management.
2. Determining samples and analysis method
3. Survey design
4. Data analysis

3.4.2. Samples and Survey

To collect data for this project, survey will be used. The target respondents are those who have experienced critical incident due to cultural differences. Therefore the respondents must have experience in working with other people from different cultures. To avoid bias in respondent's perceptions, the respondents have to come from different cultures.

Large number of samples is desirable, because different person from different culture background has different perspective. Even if various cultural backgrounds were obtained, one person from that background could not represent all people from that background. Therefore, it is also desirable to have many samples from each of cultural background.

The critical incident technique will be used as the survey method for this project. Anonymous in survey data is important, because data for this survey includes sample's characteristic, attitude, and perception. People might not fill the questionnaires honestly if their name were recorded. Even ensuring that their name would not be recorded does not guarantee that they would be honest in answering questionnaires.

3.4.3. Statistic Methods

Correlation and factor analysis could probably be used to analyze the survey result. The purpose is to find the relation between the effects of critical incidents or the pattern of efforts to cope with them.

Correlation is used to find the correlation between various areas in project management, to see that if one area was affected by critical incidents, would other areas be affected as well. Is there any pattern of efforts to cope with critical incidents and which efforts lead to success and which lead to failure in order to cope with them?

Factor analysis could be used to find factors that influence the effects of critical incidents due to cultural differences. Factor analysis could also be used to analyze the efforts to cope with the incidents.

To ensure the validity of variables, variables would be based on standard of project management or based on previous research papers. The variables for analysis are not identified yet. However, since the issue is concerning with human perception, which does not have a standard measurement, then survey answers would be provided in Likert scale. Due to the nature of critical incident technique, there would be open-ended questions in the survey.

4. CONCLUSION

From the literature research, critical incidents could cause severe damage to the individual who experienced them and also to the organization where that individual belongs. This project would reveal the critical incidents in project management. Although it is known that critical incidents happen in project management, research about critical incidents in project management has not been done. This remark was based only on literature research for this project. Therefore it possible that it actually has been done, but the number would be very small since literature research ranges from 1988 to 1997 articles did not find any similar articles.

Critical incident method is a classification technique that is specifically designed to address the issue of critical incidents. This technique uses content analysis, which is a method to interpret and classify the answers in the survey. This technique could uncover factors that

are not pre-designed in the survey questionnaires, however subjectivity is a thread in this technique.

Validation has been identified as one disadvantage of critical incident method in categorizing the survey responses. Several ways could be taken to minimize this problem. First, the categorizing result can be brought to expert panel for validation. Second, several people categorize the responses and then the results are compared. Third, standard categories can be used in categorizing the responses.

The result of this project is to identify the relation of critical incidents and project management, not to find the solution or ways to deal with critical incidents in project management. Further studies in this area could be the ways to deal with critical incidents in project management.

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