



Research Paper

Importance of Organizational Theories: Case of the Space Shuttle Challenger Disaster

Nazrul Islam¹ & Md Maruf Billah²

(¹Assistant Professor, Department of English, German University Bangladesh)

(²MA Student, Department of Educational Administration, University of Saskatchewan)

Corresponding Author: Nazrul Islam

ABSTRACT: This paper is an endeavor to analyze the Space Shuttle Challenger Disaster Case Study in accordance with Janis and Selznick's Groupthink: The Desperate Drive for Consensus at Any Cost and the Foundations of Organization Theory respectively. Pointing out the consequences of groupthink, possible solutions to it, and the efficacy of the application of co-optation are the main focus of this paper. The Space Shuttle Challenger Disaster case study brought out some organizational failures responsible for the loss of lives and challenged the importance of practicing specific organizational approaches acknowledged by theorists. This analysis directly links the groupthink errors as found through the words of the witness. Similarly, the analysis is also closely connected to Selznick's explanation to different aspects of organizational failure. The paper will address the theoretical solution in which this disaster could have been avoided. The education sector should also ensure accepting the adaptations, contextualizing to their systems, leading to transformations facilitating the efficacy and effective pedagogical practices.

KEYWORDS: Space Shuttle Challenger Disaster, groupthink, Selznick, cooptation

Received 09 Mar., 2024; Revised 20 Mar., 2024; Accepted 22 Mar., 2024 © The author(s) 2024.

Published with open access at www.questjournals.org

I. INTRODUCTION

The necessity of organizational structure is immense since it enhances decision making and provides companies with a systematic framework for decision making. The focus of this study was on the correlation of modern organizational theories namely Janis' 'groupthink' as well as Selznick's 'cooptation' theory. The work showed varied aspects in which the Challenger explosion was the consequence of the failure of fragile administrative setup. In the meantime, a detailed experiential proposal was also laid here to provide solutions to overcome such incidents in giant corporate firms. Through a depth analysis of both of the theories, this paper also sketched effective pathway to implement modern organizational theories that can be considered in the educational institution as well. After the amalgamation of 'groupthink' and 'cooptation', a resolution is formed by addressing the internal and external influences that caused the fatal loss of the NASA.

II. LITERATURE REVIEW

A number of researches have been conducted on this Challenger explosion to find out the reasons behind the collapse. According to the report to the President by the Presidential Commission or the Rogers Commission stated that the disaster was an "accident rooted in history". It was mainly due to the faulty designs of the Solid Rocket Boosters. And the NASA managers at level III were aware of the possibility of the O-ring error earlier in 1977 but the NASA and the contractor management were unable to sort out the problem before the final launch of the shuttle (Presidential Commission, 1986). Diane Vaughan (1996), a sociologist has written a book on Challenger and outlined that only the act of investigating an accident can cause us to view, as ominous, facts and events that is eventually considered normal: at the time of technical system failure, external investigators constantly find an engineering world characterized by ambiguity, disagreement, eccentricity from design stipulations and operating standards, and "ad hoc rulemaking". When this muddled situation is revealed

to the public, automatically it becomes an account for the failure, for after all the engineers and managers did not follow the rules. Nobody publicly examines the engineering process behind a “nonaccident”. If “nonaccidents” were investigated, the public would discover that the messy interior of engineering practice, which after an accident investigation looks like “an accident waiting to happen, is nothing more or less than normal technology”. In addition to the structural strains, the commission examined the chain of decisions that culminated in the approval of the launch. It found that the decision-making process was faulty. The discussion heavily relied on the management body that finally led to the launch of the Challenger which proved the failures in communication that resulted in a decision to launch 51-L (Presidential Commission, 1986). An internet web-based platform named ThinkReliability outlined a complete visual presentation of the machine. It scrutinized the detailed engineering procedure of the rocket. However, researchers continued to look into the depths of this great loss. Thus, a group of researchers from different institutions named Randy Y. Hirokawa, and Dennis S. Gouran, and Amy E. Matz from the University of Iowa and the Pennsylvania State University respectively concluded it in a more complex way. They decided to look into how “the interaction and joint influence of various psychological and social factors” affected the decision-making process in such a mega project. Hirokawa and his coworkers finalized that the disaster was “not the result of simple, singular causes, but rather the result of a complex interplay among a number of interrelated cognitive, psychological, and social influences constituting the decision environment” (Hirokawa et al., 1988). On the contrary, Howard S. Schwartz from Oakland University directly blamed NASA for this disaster. He said that NASA set its own overly ambitious launch schedule and therefore set themselves up for failure from the beginning. He also found in the Rogers Commission report instances where they mentioned issues with not only the Space Rocket Booster (SRB), but also the brakes, steering, turbine blades, and fuel valves so “if the SRB joints had not been the cause of disaster, inevitably something else would have been.” These problems can be attributed to the culture at NASA, where there was a “can’t fail mentality” and that the show must keep moving forward (Schwartz, 1987).

Therefore, initially, the factors listed above identified the root causes behind this fatal catastrophe. The Presidential report accused the whole system that NASA worked in. Similarly, Schwartz stated that NASA was responsible as it did not maintain safety, and kept the world blind to its problems, and continued the mission. All the studies mainly focused on mechanical issues with a touch of organizational setting. However, this paper will introduce two particular organizational theories that are closely related to the Challenger disaster and NASA. Based on the theories, I will examine and show how and why practicing organizational theories in large organizations play crucial role for the institutions.

III. WHAT DOES ‘GROUPTHINK’ ACTUALLY MEAN ?

At first, William H. Whyte Jr. (1952) introduced the term ‘groupthink’ from George Orwell’s popular novel *1984* “as a coinage – and admittedly, a loaded one – a working definition is in order. We are not talking about sheer innate conformity; it is, after all, a perennial failing of mankind. What we are talking about is efficient conformity – an open, articulate philosophy which holds that group values are not only expedient but right and good as well” (Groupthink, 2024). However, without making any direct link to Whyte’s thought, American psychologist Irving L. Janis (1971) stated groupthink as follows:

“I use the term groupthink as a quick and easy way to refer to the mode of thinking that persons engage in when concurrence-seeking becomes so dominant in a cohesive ingroup that it tends to override realistic appraisal of alternative courses of action. Groupthink is a term of the same order as the words in the newspeak vocabulary George Orwell used in his *dismaying world of 1984*. In that context, groupthink takes on an invidious connotation. Exactly such a connotation is intended, since the term refers to a deterioration in mental efficiency, reality testing and moral judgments as a result of group pressures” (p. 161).

IV. CONNECTION BETWEEN GROUPTHINK AND THE CHALLENGER FIASCO

From the very beginning of the conversation among the concerned parties, Morton Thiokol and NASA, it was evident that there was a serious information gap or that they did not intend to listen to each other’s opinions. The top management wanted to launch it at any cost since NASA attempted to meet the increasing flight schedule of the space shuttle and achieve commercial and military goals. According to Janis’

groupthink symptom, invulnerability causes some degree of reassurance about obvious dangers and leads decision-makers to take excessive risks. Similarly, they fail to respond to clear warnings of danger (Janis, 1971). So, despite the technical faults in the O-ring seal, NASA could not resist launching the rocket.

Being highly rationale is another symptom of groupthink victims. As I mentioned above, these victims avoid warnings and try to make superficial rationalizations to support their decision as well as to defend other forms of negative feedback. The Commission has settled that none of them from Thiokol and NASA responded adequately to internal warnings about the faulty seal design (Rogers Commission, 1986). This proves the truth of the theory of groupthink as was coined by Janis.

Thirdly, morality is another factor that affected the members of the groupthink victims. Janis (1971) pointed out that victims of this group remain undaunted by their inherent morality, which inclines the members to ignore the ethical or moral consequences of their decisions. Evidence of this symptom at work usually brings a negative result – the unspoken words in the meetings. As we see in the conversation between the two parties, while some of the engineers tried to raise their voice but could not succeed or were not given attention. The Rogers Commission thus found written objections to the design as early as October 1977 (Rogers Commission, 1986).

Stereotypical thinking is another evident symptom found in the case of this Challenger disaster. The groupthink theory identified how the groupthink victims are affected by their conventional mindset to treat other parties. NASA failed to break their stereotyped success story as they remained solely dependent on their previous success history. This tendency moved them towards the final step, the launch. NASA's decision-makers implemented their stereotyped actions without considering the level II engineers of Morton Thiokol, regardless of the potential risks.

Self-censorship is another symptom that Janis identified in his theory. Groupthink members keep themselves on the line of 'group consensus', they remain silent about their wrongdoings that led them to skip their doubts as well (Janis, 1971). The same we see in the Challenger case that the Commission showed, more than 30 people made at least 25 communication situations during this period when they were discussing the O-ring problem. Unfortunately, none of the concerns reached levels I or II (Rogers Commission, 1986). Thus, it proves the self-censorship tendency of the victims of groupthink.

Lastly, one of the recurrent symptoms of 'groupthink' that was transparent in NASA individuals is the pressure both from external and internal sources. Upon pressure, the solid rocket booster project manager of the Marshall Space Flight Center, Lawrence Mulloy commented on hearing the Thiokol engineers' objections to the Challenger launch, 'My God, Thiokol, when do you want me to launch, next April?' Consequently, the external pressures were internalized as organizational goals by NASA (Presidential Commission, 1986). And it made the individual decisions overlap and proceeded with the Challenger disaster.

V. Importance of Organizational Theory

Each 'groupthink' symptom above was pertinent to the concerned members involved in the Challenger event. The conversations, actions among the members of NASA, Morton Thiokol, and even the comment by the then President of the United States of America can be taken into consideration in support of the findings of Janis' research. At the very beginning, Janis described several historical backgrounds, namely the attack on Pearl Harbor, the Korean stalemate, and the escalation of the Vietnam War; those were the consequences of this 'groupthink' fiasco (Janis, 1971). If NASA had the practice of administering the system in regard to this organizational theory, the fatality could have been avoided. A general understanding of this 'groupthink' theory would at least make the associated authority think twice before proceeding with this faulty mega event. They could not avoid their coworker's recommendation, and ultimately, the result could be different. Again, the theory itself portrayed varied socio-psychological aspects of human behavior that tend to fall into the pitfall of 'groupthink'. Janis accordingly pointed out nine points of remedies to avoid the 'groupthink' consequences. Thus, large institutions like NASA could effectively reduce their organizational malpractices by implementing this sort of modern organizational theory which is now proven.

VI. Theory and Evidence: Selznick (1948)

Co-optation is the process of absorbing new elements into the leadership or policy, determining structure of an organization as a means of averting threats to its stability or existence. This is a defensive mechanism, formulated as one of a number of possible predicates available for the interpretation of organizational behavior. Co-optation tells us something about the process by which an institutional environment impinges itself upon an organization and effects changes in its leadership and policy (Selznick, 1948). The cooptation theory sheds light on how this concept might have affected the decision-making process leading up to the fiasco. First of all, suppression of dissent that played a key role behind this great loss. It was evident within NASA as we see that there was communication gap since the members were connected electronically at three different places and it was unable to see what their approaches towards the final decision were. Cooptation could have been at play if these concerns were not given enough attention or if dissenting voices were marginalized or silenced. Individuals with concerns might have been assimilated into the existing decision-making structure without addressing their reservations adequately.

Normalization of deviance is another aspect that NASA normalized from safety protocols. This normalization could be seen as a form of cooptation, where risky behaviors or decisions became accepted practices within the organization. Despite getting several objections against NASA's decision, it declared the risk as "acceptable" and "unavoidable." Commented Dr. Alex Ronald, a former NASA official. Thus it linked cooptation as voiced by Selznick. In addition to that, political influence also affects decision-making. At higher levels of NASA's management, where political pressures, and economic concerns influenced coopted decision-makers into downplaying safety concerns in favor of meeting project deadlines and maintaining positive public sentiments along with minimizing the cost. Organization as an economy is, however, necessarily conditioned by the organic states of the concrete structure, outside of the systematics of delegation and control (Selznick, 1948). These pressures were also evident in President Ronald Reagan's policy speech on July 5, 1982, that increased the pressure on NASA when he declared the shuttle was "fully operational". One of the goals was for NASA to become an economically self-sufficient cargo hauler (Kramer, 1994).

VII. Discussion

Following these mega organizations, other organizations i.e. educational and corporate firms have the necessity to practice these organizational theories. Educational institutions in the developing nations are remarkably affected by these sort of organizational hazards. School and university tuition fee are major issues. There are institutions who increase or decrease this fees in irrational ways that often results in poor and inefficient pedagogical approaches. And this is a common practice in many countries mostly in the developing and the underdeveloped nations. Governments often burke away this mega subject in the name of budget. The Shuttle Case Study revealed how the pressure on budgetary reasons caused fiasco to NASA. Selznick also theorized on the impacts of economic pressure to any organization quoting Marxist's term- sow the seeds at its own destruction. Again the symptoms of groupthink indicated how the policy making body caused that Shuttle disaster. This is also a frequent practice that hampers the educational institution's sole purpose. It is seen frequently in school management committee as well where the members yield to the chairperson's decision regardless of its potential threats to the learners and to the organization. Therefore, the application of these organizational theories will ensure efficient and effective operation and serve the sole purposes. Again, the proper understanding and the implementation of group think as well as the cooptation process can bring drastic changes in large organization. This is based on my personal experience that faced previously. However, there are limitations to the implementation of all these structures based on the situations and the contextual perspectives.

VIII. Conclusion

This paper worked on the basic creeds of groupthink and scrutinized the decision to launch the space shuttle Challenger. The Presidential Commission report provided adequate evidence of the precursor conditions, symptoms, and decision-making errors to launch the shuttle classified the groupthink theory. Again, it tried to showcase some possible pathways to get rid of this socio-psychological hazard. In addition to groupthink, this paper also revealed the connection of the Cooptation process to the Challenger disaster. It not only showed the causes but also the importance of practicing organizational theories in large institutions as well as i.e. Schools or educational institutions. Integration of these organizational theories brought a new dimension to the understanding of organizational practices. This paper outlined a general framework in which the shuttle disaster could have been avoided recognizing the modern organizational theories. The shuttle disaster's fatal consequence was caused by organizational failure which is demonstrated in this research work with theory and

evidence. Additionally, the paper vowed the efficacy of the application of these modern organizational theories to education as well as industry sectors. Despite having some limitations, educational institutions and other organizations can facilitate their smooth operation with need-based modification to these theories by their perspective and foster sustainable organizational development.

REFERENCES

- [1]. Britannica, T. Editors of Encyclopedia (2023, October 16). Challenger disaster. Encyclopedia Britannica. <https://www.britannica.com/event/Challenger-disaster>
- [2]. Hirokawa, R. Y., Gouran, D. S., & Martz, A. E. (1988). Understanding the Sources of Faulty Group Decision Making. *Small Group Behavior*, 19(4), 411–433. <https://doi.org/10.1177/104649648801900401>
- [3]. Janis, I. L. (1971). Human resource theory, or the organizational behavior perspective. In J. M. Shafritz, O. J. S., & Y. J. S. (Eds.), *Classics of organization theory* (8th ed., pp.161-168). Cengage Learning
- [4]. Kramer, R.C. (1994). Ethics in Organizations: The Challenger explosion. In Jaska. J. A., & P.M.S. (Eds.), *Communication of ethics: Methods of analysis*. Wadsworth Publishing.
- [5]. Moorhead, G., Ference, R., & Neck, C. P. (1991). Group Decision Fiascoes Continue: Space Shuttle Challenger and a Revised Groupthink Framework. *Human Relations* (New York), 44(6), 539–550. <https://doi.org/10.1177/001872679104400601>
- [6]. Report of the Presidential Commission on the Space Shuttle Challenger Accident, Volume I. Washington, D.C., United States Government Printing Office, 1986.
- [7]. Schwartz, H. S. (1987). On the Psychodynamics of Organizational Disaster: The Case of the Space Shuttle Challenger. *Columbia Journal of World Business*.
- [8]. ThinkReliability. (2011). *ThinkReliability*. ThinkReliability. https://www.thinkreliability.com/case_studies/root-cause-analysis-challenger-explosion/
- [9]. Vaughan, Diane, author, Vaughan, Diane, ACLS Humanities E-Book, American Council of Learned Societies, & ACLS, vendor. (1996). *The Challenger launch decision : risky technology, culture, and deviance at NASA*. University of Chicago Press.
- [10]. Wikipedia Contributors. (2019, February 16). *Groupthink*. Wikipedia; Foundation, Wikimedia.<https://en.wikipedia.org/wiki/Groupthink>