"Baha-La Na": A Qualitative Inquiry into Challenges Faced by Computer Engineering Students in Bulacan State University in Complying with Academic and Laboratory Requirements on Post-Calamity Situations

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ABSTRACT

The focus of this study is to examine the lived experiences of third- and fourth-year computer engineering students at Bulacan State University-Main Campus with regards to their academic and laboratory needs in the face of the aftermath of calamities. The study examines how students deal with the adverse effects of resource constraints by examining how the "Bahala Na" sociocultural narrative manifests itself as a coping mechanism for stress on students. The qualitative phenomenological method that the researchers employed was based on the Socio-Cultural Resource Conservation Model, which combines Gripaldo's Theory of Bahala Na as Theistic Circumstantialism with Hobfoll's Conservation of Resources (COR) Theory. Researchers utilized purposive sampling, choosing cases with valuable and meaningful data from just third- and fourth-year Computer Engineering students. Using a semi-structured interview approach, which was validated by professionals in the fields of psychology and disaster risk reduction, the researchers gathered data and then utilized Braun and Clarke's six-phase thematic analysis framework to analyze the participant narratives. Due to the lack of access to physical labs, the students experienced "Logistical Paralysis," as evidenced by the "No Power, No Code" situation, as well as a "Simulation vs. Reality Gap." The students' learning experiences also showed "Communal Resourcefulness," while their "Bahala Na" coping strategy ranged from "Passive Bahala Na" (fatalistic resignation) to "Active Bahala Na" (courage in uncertainty). This study shows that "Bahala Na" is a resource-driven reaction brought on by the significant lack of material and environmental resources during post-calamity, rather than an underlying laziness. The research suggests creating institutionalized "Compassionate Flexibility" with deadlines that are specific to the situation, creating disaster-resilient lesson plans using asynchronous learning, and establishing community centers or student-friendly evacuation shelters with dependable power and internet connectivity.

Keywords: Post-Calamity Situations, Computer Engineering Education, "Bahala Na" Coping Mechanism, Socio-Cultural Resource Conservation Model, Academic Resilience, Compassionate Flexibility

INTRODUCTION

Due to its proximity to the Pacific Ocean, the Philippines has the greatest risk of experiencing natural disasters worldwide. Because of its geographic location, the Province of Bulacan serves as a "catch basin" for floodwater coming from nearby provinces, which causes prolonged time of being submerged in flood. The University students' capacity to achieve their full potential is immediately impacted by environmental factors such as frequent extreme flooding and power outages. According to research, climate change functions as a threat multiplier, where frequent disruptions gradually lower the learning environment and negatively impact student achievement (Caruso et al., 2024).

A student's resilience in the face of hardship is greatly impacted by their understanding of risk and capacity for adaptation, according to research. Because of its emphasis on practical experience and adherence to technology,

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the Computer Engineering program at Bulacan State University is especially hampered from fulfilling academic standards after a catastrophe. Students encounter significant challenges: The development of students' practical skills and capacity to accomplish technical tasks is hindered by the unavailability of university laboratory equipments. Due to this lack of access to necessary resources, such as laboratories and electricity, students resort to using the "Bahala Na" sociocultural value as a coping mechanism in a "loss spiral" (Hobfoll, 1989; Fernando, 2022).

The objectives of the study are to: 1) Following a natural disaster, determine the variables that affect the academic achievement of computer engineering students at Bulacan State University. The Socio Cultural Resource Conservation Model was intended to be used by the researchers to examine how the "Bahala Na" mindset manifests as a coping mechanism in the face of the resource constraints that floods expose. 2) Determine how students are impacted by their inability to comply with the course's requirement and laboratory work criteria, and find the coping mechanisms they employ following a tragic occurrence. With the goal of developing potential university policies pertaining to flexible learning models and measures for disaster-resilient procedures during recovery periods, the study aims to examine how students deal with these challenges.

Objectives of the Study

The primary objective of this qualitative inquiry is to explore and document the lived experiences of Computer Engineering students at Bulacan State University as they navigate academic and laboratory requirements in post-calamity environments. Specifically, the study seeks to:

- Identify the specific resource losses—classified as object, personal, or condition resources—that most significantly impede laboratory compliance following natural disasters.
- Analyze the manifestation of "Bahala Na" as a sociocultural coping mechanism and determine its role as a cognitive resource in mitigating academic stress.
- Describe the adaptive strategies and resource substitution behaviors employed by students to fulfill their technical obligations despite environmental constraints.
- Propose a Socio-Cultural Resource Conservation Model that integrates indigenous psychological traits with formal academic resilience strategies for engineering education.

METHODOLOGY

This study utilized a qualitative inquiry using a transcendental phenomenological approach to explore the lived experiences of third-year and fourth-year Computer Engineering students at Bulacan State University - Main Campus. The methodology is grounded in the Socio-Cultural Resource Conservation Model, integrating the "Bahala Na" theory with the Conservation of Resources (COR) framework to examine academic and laboratory compliance during post-calamity situations.

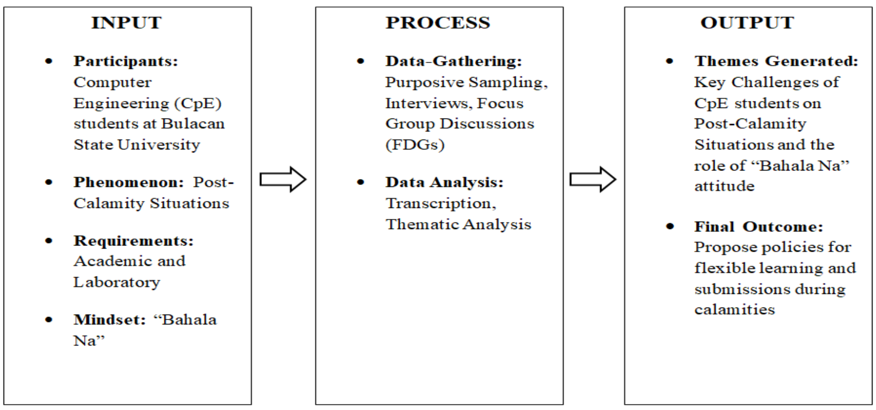

Figure 1: Conceptual Framework of the Study

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Figure 1 present the conceptual framework, and its consistency with qualitative research, which will be the focus of this research. In contrast to the Independent-Dependent Variables model, which aims for the measurement of relationship and cause-and-effect in a quantitative experiment, the IPO model defines the course of the investigation from the stage of recognition of the context of the problem, then the process of investigation, and ends with the findings. This model is appropriate for this research because:

Research Design

The researchers employed a transcendental phenomenological design to capture the essence of students' experiences without prior bias. This design allowed for the systematic collection of qualitative data regarding the manifestation of "Bahala Na" as a coping mechanism when students face resource constraints following natural disasters and calamities.

Participants and Sampling

Purposive sampling was used to select participants who could provide the most meaningful data relevant to the research objectives. The study focused specifically on 3rd-year and 4th-year Computer Engineering students at Bulacan State University - Main Campus, as these year levels handle the most intensive laboratory and technical requirements, making them the most susceptible to the challenges investigated.

Research Instrument

A semi-structured interview guide served as the primary instrument for data collection. This guide was subjected to validation by professionals in the fields of psychology and disaster risk reduction to ensure the questions effectively addressed the research objectives and ethical standards required for qualitative inquiry.

Data Gathering Procedure

Data collection was carried out through in-depth interviews. Participants were informed of the study's purpose and their rights to confidentiality and anonymity before the sessions began. The interviews were recorded and transcribed verbatim to ensure the accuracy of the data for the subsequent analysis phase.

Data Analysis

The researchers utilized Braun and Clarke’s six-phase thematic analysis framework to interpret the gathered data. This involved (1) familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing potential themes, (5) defining and naming themes, and (6) producing the final report. This rigorous process ensured that the themes accurately represented the participants' sociocultural responses to academic stress.

Ethical Considerations

The researchers strictly adhered to ethical protocols to ensure the protection and well-being of the participants. Prior to the commencement of the study, an informed consent form was provided to each participant, detailing the study's objectives, the voluntary nature of their participation, and their right to withdraw at any time without penalty. To maintain anonymity, pseudonyms were assigned to all participants, and any identifying information was redacted from the transcripts. All gathered data, including audio recordings and digital transcriptions, were stored in an encrypted cloud drive accessible only to the research team, following data privacy standards for academic research. Furthermore, the researchers ensured that the interview process did not cause undue psychological distress, providing a neutral environment for students to share their experiences regarding post-calamity academic challenges.

RESULTS AND DISCUSSION

The thematic analysis of the lived experiences of Computer Engineering students at Bulacan State University revealed a complex interplay between resource loss and sociocultural coping mechanisms. Following the Braun and Clarke framework, the researchers identified three core themes that illustrate how the "Bahala Na" philosophy functions during post-calamity academic recovery.

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Table 1. Demographic Profile of the 3rd and 4th Year Computer Engineering Students

Respondent's Alias	Year Level	Gender	Flood Prone Location
JL	3rd	Male	Yes
Azaz	3rd	Female	Yes
Lowrenz	3rd	Male	Yes
Alvin	4th	Male	Mildly Yes
Joms	4th	Male	Yes
Cheska	3rd	Female	Yes
Konsi Rhey	3rd	Male	Yes
Kael	3rd	Male	Mildly Yes
Nathaniel	3rd	Male	Yes

Table 1 presents the demographic profile of the 9 purposively selected Computer Engineering students. The data shows that the majority of respondents are in their 3rd year, a group particularly vulnerable to disruptions due to their heavy load of technical academic and laboratory units. The participants represent a variety of genders and reside in high-risk municipalities such as Hagonoy, Calumpit, and Marilao. Their residency in these flood-prone areas directly links their academic struggles to the recurring environmental realities of Bulacan, where prolonged submersions frequently hinder the fulfillment of laboratory requirements.Theme 1: Resource Depletion and Academic Impediments.

Theme 1: Resource Depletion and Academic Impediments

Participants consistently reported that the primary challenge in complying with laboratory requirements was the loss of "Object Resources" as defined by the Conservation of Resources (COR) theory. Power outages, unstable internet connectivity, and damage to personal computing equipment were cited as the most significant barriers. For Computer Engineering students, whose curriculum relies heavily on high-spec hardware and constant connectivity for coding and simulation, these losses created a "loss spiral" where the inability to complete one task led to compounded stress for subsequent laboratory deadlines. As one respondent, Azaz, described the situation: “Mahirap mag-program pag walang kuryente... Parang mapuputulan ka ng kamay bilang engineering student sa hirap eh”.

Theme 2: "Bahala Na" as Theistic Circumstantialism

The data suggests that the "Bahala Na" narrative manifests not as fatalistic resignation, but as a form of "Theistic Circumstantialism". Students utilized this mindset to bridge the gap between their current lack of resources and their academic obligations. By invoking "Bahala Na," students were able to temporarily suspend the anxiety associated with missing requirements, allowing them to focus on immediate survival and gradual recovery. This aligns with Gripaldo’s perspective that the phrase functions as a psychological safety net that empowers the individual to face uncertain outcomes with courage. As respondent Cheska explained regarding her technical submissions: “Kahit alanganin yung project kasi kulang sa testing, isa-submit ko pa rin. Bahala na, kasi ginawa ko naman yung best ko... Malay mo gumana”

Theme 3: Adaptive Compliance and Resource Substitution

A key finding of the study was the transition from resource loss to adaptive compliance. Students demonstrated resilience by seeking communal resources, such as visiting classmates' homes with power or using mobile data to submit code. This behavior illustrates a proactive interpretation of "Bahala Na," where the student accepts the calamity as a circumstance beyond their control but continues to pursue academic goals through alternative means. The results indicate that this sociocultural trait acts as a "Condition Resource" that prevents total academic burnout during the post-calamity phase. This was exemplified by respondent JL, who shared: “Sinesend ko yung code ko sa kaklase ko na may data... Bahala na kung may error... Nagtutulungan na lang kami kasi pare-parehas kaming lubog”.

Synthesis of the Socio-Cultural Resource Conservation Model

The integration of COR theory and the "Bahala Na" philosophy provides a holistic view of the student experience. While the physical calamities deplete tangible resources, the sociocultural narrative provides an intangible cognitive resource. This synthesis suggests that educational institutions should consider the psychological and cultural frameworks of students when designing post-calamity academic policies, moving toward more flexible laboratory submission windows that account for these periodic resource "loss spirals."

CONCLUSION AND RECOMMENDATIONS

The study concludes that "Bahala Na" serves as a vital sociocultural resource for Computer Engineering students at Bulacan State University, acting as a psychological buffer against the "loss spirals" caused by post-calamity resource depletion. While physical infrastructure and technical tools are often compromised during disasters in Bulacan, the internal cognitive framework of the students allows for a transition from initial stress to adaptive resilience. The "Bahala Na" narrative, interpreted as Theistic Circumstantialism, provides the necessary emotional regulation for students to face uncertain academic outcomes and eventually seek alternative methods for laboratory compliance.

Conclusion

The integration of the Socio-Cultural Resource Conservation Model reveals that academic persistence in the face of calamities is a multifaceted process. For the Computer Engineering student, compliance with laboratory requirements is not merely a technical challenge but a sociocultural one. The study successfully mapped the transition from the loss of "Object Resources" (hardware and connectivity) to the activation of "Condition Resources" (the "Bahala Na" mindset). Ultimately, the findings suggest that the Filipino trait of "Bahala Na" is a proactive rather than a passive response, enabling students to sustain their academic journey despite recurring environmental crises.

The researchers acknowledge that this study is limited by its specific focus on nine purposively selected participants from a single institution. While this small sample size allowed for a deep phenomenological exploration of the 'Bahala Na' mindset, the findings may not be fully generalizable to other engineering disciplines or regions with different sociocultural backgrounds. Future studies should consider multi-institutional cohorts to further validate the Socio-Cultural Resource Conservation Model.

Recommendations

Based on the findings of this qualitative inquiry, the following recommendations are proposed to enhance the academic resilience of Computer Engineering students:

1. **Policy Flexibility:** Academic departments should establish "Calamity-Responsive Laboratory Protocols" that automatically trigger extended deadlines and alternative submission formats (such as offline coding tasks) when provincial power or internet outages are reported.
2. **Digital Resource Redundancy:** The University should explore the provision of "Offline Laboratory Kits" or portable resource modules that students can use during periods of low connectivity to ensure that the loss of "Object Resources" does not immediately lead to academic failure.
3. **Psychosocial Integration:** Guidance offices and faculty should recognize "Bahala Na" as a legitimate coping mechanism and integrate sociocultural resilience training into student orientation programs, helping students channel this trait toward proactive problem-solving.

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4. **Future Research:** It is recommended that future studies conduct a quantitative validation of the Socio-Cultural Resource Conservation Model across different engineering disciplines to determine if the "Bahala Na" effect varies based on the technical intensity of the curriculum.

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