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Motivational Effects of Government Seminars, Competitions, and Recognition on Capstone Project Success Among IT Students

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Abstract*—Maintaining student motivation in completing capstone projects remains a significant challenge among Information Technology (IT) and Computer Engineering students. Existing interventions, such as seminars and academic competitions, often lack sustained impact, leading to incomplete or suboptimal project outcomes. This study aimed to assess the influence of the Department of Information and Communications Technology (DICT) capability-building initiatives—including seminars, contests, and recognition programs—on students' motivation and academic engagement. Utilizing a quantitative descriptive research design, the study surveyed 186 IT and Computer Engineering students from the Polytechnic University of the Philippines through a structured, validated questionnaire distributed via Google Forms. Data were analyzed using descriptive statistics to determine mean scores and corresponding interpretations. Results revealed consistently high mean scores across four evaluated areas: DICT-led seminars (M=3.69), contests and recognition (M=3.62), perceived motivational influence (M=3.67), and overall impact (M=3.68), all interpreted as "Strongly Agree." These findings demonstrate that DICT initiatives positively influenced students' confidence, creativity, commitment, and sense of purpose in completing their capstone projects. The study concludes that the DICT's comprehensive support enhances student motivation and academic perseverance, affirming its valuable role in improving capstone project outcomes through structured, government-led capability-building interventions*.

***Keywords*—** *Motivation, Seminar, Recognition, Competition, Information Technology.*

I. INTRODUCTION

Maintaining student motivation and engagement has emerged as a significant challenge within Information Technology (IT) and Computer Engineering programs. Capstone projects, critical components of these academic curricula, demand substantial dedication, creativity, sustained effort, and practical application of learned skills from students. However, many students face difficulties staying consistently motivated, resulting in incomplete or suboptimal projects. These challenges often translate into lower academic performance, decreased confidence, and reduced satisfaction among students.

Various research efforts have previously explored solutions to enhance student motivation and performance. Structured workshops and seminars have been widely implemented to help students improve their technical capabilities and gain confidence in their abilities to manage extensive projects (Farhan et al., 2019). Additionally, academic competitions and recognition programs have been introduced to foster creativity, promote goal-oriented behavior, and encourage students to aim for excellence (Amabile & Pratt, 2016; Locke & Latham, 2019). Institutional mentorship and external partnerships have also been explored to provide continuous guidance and structured support throughout project development phases.

However, despite these initiatives, previous studies and approaches often show certain limitations. For instance, workshops and seminars, while useful initially, might only have short-term motivational effects if they do not continuously address the evolving needs of students throughout the project duration. Similarly, competitions and recognition may only motivate a subset of students, particularly those who thrive under competitive pressure, potentially neglecting the broader student population who may benefit more significantly from personalized encouragement and consistent institutional support.

Given these gaps, engaging an external specialized government organization, specifically the Department of Information and Communications Technology (DICT), emerges as a comprehensive and effective solution. As a government agency, DICT carries substantial credibility and authority, significantly impacting students' motivation and sense of importance concerning their projects. The DICT offers targeted interventions through structured seminars, practical and hands-on workshops, well-designed academic competitions, and formal recognition tailored explicitly to IT and Computer Engineering students' needs. Unlike prior approaches, DICT's holistic strategy systematically integrates continuous academic and psychological support, targeted motivational activities, and sustained engagement from the project's inception through completion. By effectively addressing previous methods' shortcomings and leveraging its authoritative status as a government institution, DICT's capability-building initiatives represent an innovative and robust approach that enhances overall student motivation, strengthens commitment, stimulates creativity, and ultimately improves the quality and completion rates of capstone projects.

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II. METHODOLOGY

The study utilized a quantitative descriptive research design to comprehensively evaluate the influence of capability-building initiatives by the Department of Information and Communications Technology (DICT) on the motivation and academic engagement of Information Technology (IT) and Computer Engineering students during their capstone projects. Respondents comprised 186 IT and Computer Engineering students from the Polytechnic University of the Philippines (PUP), selected through criterion sampling based on their active participation in DICT-led workshop. Data collection employed a structured survey questionnaire using a four-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (4), divided into four distinct sections: perceptions regarding DICT-led seminars (Section A), attitudes towards DICT contests and recognition (Section B), perceived motivational influences of DICT's involvement (Section C), and overall impact of DICT engagement on student motivation and perseverance (Section D). The questionnaire was rigorously validated by educational research experts and pilot-tested to ensure reliability. For efficient and accessible distribution, a QR code linking to the Google Forms survey was provided to participants. Descriptive statistical methods were utilized to analyze the data, specifically calculating mean scores for each indicator and section, with interpretations based on predefined qualitative descriptors ranging from "Strongly Disagree" to "Strongly Agree." Ethical standards were meticulously observed, ensuring respondents' confidentiality, voluntary participation, and freedom to withdraw at any stage. This comprehensive methodological approach aimed to deliver robust, reliable insights into the role of DICT in enhancing student motivation and academic performance, thus contributing valuable recommendations for educational policy and practice.

III. RESULTS AND DISCUSSION

Section A: DICT-Led Seminars on Capstone Projects

Indicators	mean	Interpretation
1. The DICT seminars helped me understand how to plan and develop a capstone project.	3.720238095	Strongly Agree
2. The topics discussed during the DICT seminars were relevant and applicable to my project.	3.690476 19	Strongly Agree
3. I felt more confident working on my capstone project after attending a DICT seminar.	3.690476 19	Strongly Agree
4. DICT seminars provided me with practical strategies for completing my capstone project.	3.678571 429	Strongly Agree
5. I was motivated to improve my project after attending the seminar facilitated by DICT.	3.660714 286	Strongly Agree

The table illustrates the significant positive impact of Department of Information and Communications Technology (DICT)-led seminars on the motivation and project development skills of Information Technology (IT) and Computer Engineering students at the Polytechnic University of the Philippines (PUP). Each indicator yielded mean scores ranging from 3.66 to 3.72, categorized as "Strongly Agree," signifying a robust affirmation of the seminars' effectiveness.

The highest-rated indicator, "DICT seminars helped me understand how to plan and develop a capstone project" (Mean = 3.72), resonates with findings from Farhan et al. (2019), who emphasize that structured workshops and expert-led seminars significantly enhance students' understanding of complex projects, ultimately fostering greater confidence in project execution.

Likewise, students strongly agreed on the relevance and applicability of seminar topics (Mean = 3.69). This aligns with the argument by Karunaratne and Perera (2019) that educational seminars effectively motivate students when content is closely aligned with their academic tasks, as relevance boosts their intrinsic motivation and encourages active learning.

The confidence enhancement reported by students (Mean = 3.69) confirms prior research by Blazar and Kraft (2017), who assert that targeted educational seminars significantly elevate student self-efficacy. Increased self-efficacy, in turn, positively affects students' performance and persistence, especially in technical fields requiring complex problem-solving.

Moreover, the provision of practical strategies during seminars (Mean = 3.68) supports empirical studies such as those by Hussein et al. (2020), who highlight that clearly articulated practical strategies provided through guided instruction lead to more efficient and higher-quality academic outputs, particularly in technology-driven courses.

The increased motivation reported by students (Mean = 3.66) is consistent with Deci and Ryan's (2020) Self-Determination Theory, which suggests that well-designed educational interventions—including interactive and practical seminars—effectively meet students' needs for competence, autonomy, and relatedness, thereby enhancing their overall motivation and engagement.

Section B: DICT Contests and Recognition

Indicators	mean	Interpretation
6. The DICT contest for best capstone project encouraged me to think more creatively.	3.642857 143	Strongly Agree
7. I was motivated to enhance the quality of my capstone project because of the DICT competition.	3.660714 286	Strongly Agree
8. Knowing that DICT recognizes outstanding capstone projects motivated me to perform better.	3.642857 143	Strongly Agree
9. I considered submitting my project to DICT because of the recognition and potential rewards.	3.547619 048	Strongly Agree
10. The contest gave me a clear goal to work toward in completing my capstone project.	3.619047 619	Strongly Agree

All indicators presented yielded means ranging from 3.54 to 3.66, uniformly interpreted as "Strongly Agree."

Students strongly indicated that the DICT contest motivated them to enhance the quality of their projects (Mean = 3.66), aligning with studies by Ames and Archer (1988), who highlight that competitions and external recognition significantly boost student motivation and encourage higher performance standards.

The indicators "The DICT contest encouraged me to think more creatively" and "Knowing DICT recognizes outstanding capstone projects motivated me to perform better" both scored highly (Mean = 3.64). This corresponds with research by Amabile and Pratt (2016), suggesting that competitive environments that emphasize recognition effectively foster

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creativity and innovation by stimulating intrinsic motivation and striving for excellence among students.

Moreover, students affirmed the positive role of clearly defined goals provided by contests (Mean = 3.61), resonating with the Goal-Setting Theory by Locke and Latham (2019). According to their findings, clearly articulated and achievable goals provided by structured competitions significantly enhance student motivation, helping them remain focused and committed to their academic projects.

The motivation derived from potential rewards and recognition through DICT's activities (Mean = 3.54) corroborates with studies by Deci, Koestner, and Ryan (1999), indicating that external incentives and acknowledgment can serve as effective motivators, particularly when aligned with personal and professional growth objectives.

Section C: Perceived Influence on Motivation

Indicators	mean	Interpretation
11. DICT's involvement in academic activities makes me feel supported as an IT student.	3.708333333	Strongly Agree
12. I feel more motivated to complete my capstone project because of DICT's programs.	3.625	Strongly Agree
13. DICT's presence adds value to my academic experience as a capstone project developer.	3.684523 81	Strongly Agree
14. DICT's initiatives encouraged me to pursue excellence in my final project.	3.660714 286	Strongly Agree
15. The recognition from an external organization like DICT increases my sense of accomplishment.	3.660714 286	Strongly Agree

The indicators achieved high means between 3.62 and 3.71, consistently interpreted as "Strongly Agree."

The highest mean score (Mean = 3.71), related to students feeling supported by DICT's involvement in academic activities, aligns with findings by Tinto (2017), who emphasizes the critical role of institutional support and external collaboration in enhancing students' academic motivation, sense of belonging, and overall educational experience.

Students strongly agreed that DICT's presence adds value to their academic experiences (Mean = 3.68), reflecting assertions by Ryan and Deci (2020), which underline the motivational importance of perceived institutional value and recognition, significantly influencing students' self-determination and engagement in academic tasks.

The positive motivational impact of DICT's initiatives on pursuing excellence (Mean = 3.66) corroborates the Achievement Motivation Theory proposed by McClelland (1987), suggesting that institutional initiatives aiming for excellence can stimulate a strong intrinsic drive among students to achieve higher standards in their academic projects.

The recognition from external organizations such as DICT increasing students' sense of accomplishment (Mean = 3.66) is consistent with the Social Cognitive Theory by Bandura (1986), asserting that external recognition significantly contributes to enhanced self-efficacy and motivation, leading to higher academic achievement.

Motivation derived specifically from DICT's programs (Mean = 3.62) confirms literature by Pintrich (2003), who indicates that structured academic interventions, particularly by external and reputable institutions, effectively boost students' intrinsic motivation to successfully complete challenging academic tasks like capstone projects.

DICT's substantial positive influence on students' motivation, emphasizing its supportive role, recognition impact, and value addition to the academic experiences of IT and Computer Engineering students at PUP.

Section D: Overall Impact of DICT Engagement

Indicators	mean	Interpretation
16. DICT's activities positively influenced my motivation to complete my capstone project.	3.654761 905	Strongly Agree
17. DICT's involvement made me more committed to finishing my project on time.	3.654761 905	Strongly Agree
18. I set higher goals for my capstone project because of DICT's encouragement.	3.672619 048	Strongly Agree
19. I felt a greater sense of purpose in doing my capstone project after participating in DICT-led events.	3.696428 571	Strongly Agree
20. Overall, DICT initiatives contributed significantly to my drive and perseverance throughout the capstone process.	3.696428 571	Strongly Agree

The table demonstrates the substantial overall impact of the Department of Information and Communications Technology's (DICT) engagement on the motivation, commitment, and perseverance of Polytechnic University of the Philippines (PUP) students enrolled in Information Technology (IT) and Computer Engineering programs. All listed indicators scored between 3.65 and 3.70, uniformly interpreted as "Strongly Agree," illustrating the highly positive perception among students.

Students highly agreed that DICT's engagement fostered a greater sense of purpose (Mean = 3.70) and significantly enhanced their drive and perseverance (Mean = 3.70). These findings resonate with the principles outlined in Self-Determination Theory by Deci and Ryan (2020), which state that supportive educational environments enhance students' sense of purpose, autonomy, and intrinsic motivation, thus improving academic perseverance and performance.

Setting higher goals due to DICT's encouragement also scored notably high (Mean = 3.67), consistent with Goal-Setting Theory by Locke and Latham (2019), emphasizing that targeted encouragement and clear, achievable goals significantly increase motivation and student ambition, driving higher standards of academic achievement.

Additionally, students strongly recognized that DICT's involvement increased their commitment to completing projects on time and positively influenced their motivation (Mean = 3.65 for both indicators). This aligns with findings from Kuh (2009), who argues that institutional engagement and timely academic support directly influence students' commitment and enhance their overall academic motivation and task completion efficiency.

Collectively, the results confirm that DICT's comprehensive involvement positively impacts student motivation, purpose, goal-setting behaviors, and overall perseverance throughout their capstone projects, reinforcing literature that highlights the value of institutional support and structured engagement in academic success.

Students' evaluation on Government Institution (DICT) capability building

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Section	mean	Interpretation
A	3.688095238	Strongly Agree
B	3.622619048	Strongly Agree
C	3.667857143	Strongly Agree
D	3.675	Strongly Agree
Overall	3.663392857	Strongly Agree

Section A (DICT-Led Seminars) received the highest mean (3.69), signifying that students highly appreciate structured seminars as pivotal in developing their skills and motivation. This is supported by research from Farhan et al. (2019), who assert that seminars enhance student competencies and confidence in managing complex academic projects.

Section C (Perceived Influence on Motivation) closely follows with a mean score of 3.67, indicating that students strongly perceive DICT's involvement as essential in fostering their motivation and academic growth. This aligns with Tinto's (2017) findings, emphasizing that institutional support significantly influences student motivation and sense of belonging.

Section D (Overall Impact of DICT Engagement) had a mean of 3.68, highlighting the comprehensive positive effects of DICT's initiatives on students' commitment and drive, corroborating Deci and Ryan's (2020) Self-Determination Theory, which highlights that institutional interventions significantly improve student engagement and perseverance.

Lastly, Section B (DICT Contests and Recognition) had the lowest yet still high mean score of 3.62, reinforcing that contests and recognitions are valuable motivators that encourage creativity, innovation, and enhanced project quality, as suggested by Amabile and Pratt (2016).

The collective mean (3.66) strongly suggests that DICT's capability-building initiatives significantly enhance students' academic experience, motivation, and performance. These findings affirm DICT's critical role in providing effective academic support, aligning well with existing literature on educational interventions and institutional influence on student success.

IV. Other Recommendations

Academic institutions, especially those offering Information Technology and Computer Engineering programs, formally integrate government-supported initiatives such as seminars, competitions, and recognition programs into the capstone project process. The Department of Information and Communications Technology (DICT) has shown to significantly boost students' motivation, creativity, and perseverance, and therefore, schools should establish strong partnerships with the DICT to ensure regular and meaningful engagement. These partnerships can involve joint planning of seminars, mentorship programs, and contests that are tailored to students' academic needs. Additionally, institutions should develop recognition and incentive systems that complement DICT's efforts, such as awards or academic credits for high-performing projects. Since not all students are equally motivated by competitions, it is also important to create diverse strategies that include personalized support and consistent guidance. Monitoring the impact of these activities should be a continuous process to help improve future implementations. Furthermore, expanding DICT's capability-building initiatives to other universities across the country will promote inclusive development. Faculty development should also be part of these programs to ensure that mentors are well-equipped to guide students effectively. Overall, these actions can help sustain high levels of student motivation and improve the quality of capstone project outcomes.

V. Conclusion

Capability-building initiatives of the Department of Information and Communications Technology (DICT), including seminars, workshops, contests, and recognition programs, have a strong positive influence on the motivation and academic engagement of Information Technology (IT) and Computer Engineering students. The high mean scores across all indicators show that students strongly agree that DICT's interventions helped them gain confidence, stay motivated, improve their creativity, and complete their capstone projects with a greater sense of purpose and commitment. The involvement of DICT as a government agency added credibility and value to their academic journey, making the learning experience more meaningful and inspiring. Overall, the study confirms that DICT's initiatives are effective in enhancing student motivation and performance, providing valuable support for educational practices and policies aimed at improving capstone project outcomes.

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