Empowering Student Success: Innovative Modelling Techniques for Enhancing Self-Efficacy in Education

Aldrin R. Logdat, Marianne Christine Jane B. Capio

Abstract—The study aimed to investigate the impact of modelling techniques on the self-efficacy of first year Bachelor of Science Major in Hospitality Management (BSHM) college students at City College of Calapan, Oriental Mindoro. The research utilized a ten-point general self-efficacy scale and collected responses from a sample of 107 students across five BSHM sections. The study found that the majority of students had a moderate level of self-efficacy, with 49.53% of total respondents falling within this category. However, 35.51% of students had high self-efficacy, and 14.95% had low self-efficacy levels. The two-tailed t-test for independent samples indicated a significant difference between the mean post-test scores of the experimental and control groups. Furthermore, Wilcoxon test showed that there were significant differences in the experimental group's self-efficacy before and after treatment, while no such difference was observed in the control group. Thus, the modelling technique proved to be effective in improving the self-efficacy levels of first year BSHM college students. Ultimately, the use of modelling techniques helped to elevate students' self-efficacy levels into higher categories.

Keywords—Self-efficacy, counselling, modelling techniques, hospitality management.

I. INTRODUCTION

ADULTHOOD is a challenging stage of life where individuals must navigate new situations, opportunities, and problems. For first-year college students, adjusting to the demands of college can be particularly difficult and stressful. Research suggests that students' self-efficacy, or belief in their ability to achieve academic goals through their own actions, is a critical factor in their academic performance and overall success. Students with low self-efficacy are more likely to drop out of college due to a lack of belief in their ability to manage the challenges and responsibilities of academic studies [1].

A person’s self-efficacy is their confidence in their ability to perform the actions necessary to finish a task based on their capacity to feel confident and think clearly. Self-efficacy, which emerges from an individual's personal behaviors and actions, represents their belief in their capability to successfully achieve desired goals. What is desired is not achieved if it does not come from within the individual. Consequently, it is critical for students to raise their low self-efficacy [2].

Albert Bandura contends that psychological techniques influence behavior in part by fostering and enhancing perceived self-efficacy, or assessments of one’s performance potential in a particular activity domain [3]. Self-efficacy can affect activity selection, effort level, perseverance, and task completion. Actual performances, vicarious (observational) experiences, persuasion techniques, and physiological indicators (such as heart rate) are all used to communicate effectiveness information [3]. Students who have a high level of self-efficacy can finish a challenging task. Students who have high self-efficacy also have a strong belief that they will always be able to handle all the changes and responsibilities they have to deal with in dealing with life’s stages of development.

In the City College of Calapan, a number of students has been reported to drop out of their class due to academic difficulties and personal psycho-emotional problems [5]. These data came from the oral and written reports of assigned teachers who facilitated and handled them during their classes. The teachers noted that these students would no longer proceed in their academic studies because of numerous causes such as family problems, lack of self-esteem and self-confidence, financial constraints, academic incapacities, and many more. These reasons mentioned earlier are also applicable to the issue of students lacking self-efficacy. It is evident that many students hold the belief that attending school and engaging in academic endeavors will only lead to failure and embarrassment. This demonstrates their lack of confidence in their academic abilities and their perception that they are incapable of effectively organizing and carrying out the necessary actions to achieve academic success.

In the Bachelor of Science, Major in Hospitality Management alone, 53 students were registered who did not anymore continue their academic studies after the first wave of the first semester [6]. The school system is under the wave system where the semester is divided into two waves or two divisions for the purpose of lessening the burden or subject loads of students. The students only take 4 subjects in the wave system compared to 8 subjects normally taken in a semestral set-up.

The 53 students who dropped out comprise the 11.62% of the total population of BSHM first year students (456) [7]. This has been the largest number of drop outs recorded in the department since the peak of the COVID-19 pandemic. According to self-efficacy studies, dropout rates are connected to the number of issues and concerns in low self-efficacy level of students [8]. It is noted that students with low self-efficacy have a weak belief that they will be able to handle all the changes, challenges, and responsibilities they have to deal with in dealing with academic studies. Consequently, these students will opt to drop out of their subjects and will not continue their studies. It is for this reason that the study seeks to investigate what mechanism and intervention that can help to mitigate the increasing number of

Aldrin Logdat is with City College of Calapan, Philippines (e-mail: aldrinlogdat@gmail.com).

Marianne Christine Jane B. Capio is with City College of Calapan, Philippines (e-mail: madammaryanabels@gmail.com).
drop-outs in BSHM department of City College of Calapan. To this end, modelling techniques in group counselling is deemed to address appropriately the situation especially to students experiencing low self-efficacy levels which eventually have a huge influence to their academic performance and abilities to sustain their efforts in handling difficulties and challenges in school [4].

Given the context and background presented above, it is crucial to explore ways to reduce the number of dropouts by addressing students’ self-efficacy. This research aims to enhance the self-efficacy levels of first-year Bachelor of Science students majoring in Hospitality Management at the City College of Calapan, who are struggling with low self-efficacy, using modelling techniques. The goal is to improve their academic performance by increasing their effort level, perseverance, and task completion.

II. MODELLING TECHNIQUES IN GROUP COUNSELLING

Utilizing modeling techniques is considered as a suitable approach for group settings because students often work in groups with their peers, which can facilitate interaction and adoption of positive values that arise from group dynamics. Additionally, modeling techniques can enable students to learn and imitate exemplary behavior. Through group counselling, modeling techniques can also enhance potential and mitigate issues related to self-efficacy and learning discipline by implementing various models during the different stages of group counseling activities [5].

In this research, two types of models were utilized to enhance self-efficacy and learning discipline: live models and symbolic models. The live models were presented as peers who exhibit high levels of self-efficacy and learning discipline, and the observers can directly interact with them to observe and imitate their behaviors. On the other hand, symbolic models make use of symbols or images, such as films or stories of successful individuals, to teach appropriate behavior, influence attitudes and values, and impart social skills. The use of symbolic models is effective in enhancing students’ attitudes towards learning discipline, and it motivates them to learn from successful characters or models. Through the process of observation, individuals can acquire new behavior patterns, and the modeling can serve as a signal for individuals to respond to certain situations. Additionally, the modeling process can either strengthen or weaken the barriers to learned behavior [6].

The implementation of group counseling with modeling techniques requires various stages so that the counseling process can run systematically. The following are the stages of modeling techniques in group counseling, namely: The first stage is the initial stage which refers to the period of time used for introductions and discussion of topics such as group goals, what to expect, group rules, comfort level, and group content. At this stage, members check other members and their own comfort level with sharing in the group. Second, the Working Stage is the stage when members benefit in a group. During this stage, many different dynamics can occur, as the members interact in several different ways. Leaders should pay special attention to the interaction patterns and attitudes of members towards each other and the leader. After the group leader explores the problems of each group member, the group leader presents a live and symbolic model. And the third is the closing stage wherein members share what they have learned, how they have changed and how they plan to put what they have learned into practice [12].

III. THEORETICAL FRAMEWORK

This research employs the Modelling Technique as its main theoretical framework. This serves as the fundamental conceptual structure or frame of the paper [13].

This study proposes that selecting a role model can increase self-efficacy by creating expectations of competence and motivating success in a particular field. Observing successful role models can improve self-efficacy, reduce anxiety, and encourage imitation of successful behavior, according to the concept of vicarious experience proposed by Bandura. This type of modeling technique is considered the most effective way of learning behavior, values, attitudes, and thought patterns through observation and imitation of others. Effective teaching should involve allowing students to observe successful role models to learn appropriate behaviors.

IV. CONCEPTUAL FRAMEWORK

Fig. 1 showcases the study’s conceptual framework, which defines and applies the Modelling Technique concept discussed in the theoretical framework. The framework illustrates the study’s position on the issue at hand, including the pre-test and post-test outcomes for both the experimental and control groups. In this study, the independent variable is the modelling technique intervention, and the dependent variable is the students’ low self-efficacy levels. The study findings indicate that the intervention of modelling techniques can effectively improve students’ low self-efficacy levels, as evidenced by the significant improvement in the experimental group’s post-test results compared to the control group.

Fig. 1 Conceptual Framework of the Study

V. STATEMENT OF THE PROBLEM

This study aims to find out how effective modelling techniques in increasing self-efficacy of first year Bachelor of
Science, Major in Hospitality Management (BSHM) College students with low self-efficacy levels at City College of Calapan, Oriental Mindoro. Specifically, it seeks to answer the following questions:

1. What is the level of self-efficacy of the respondents in the experimental and control group in the pre-test?
2. What is the level of self-efficacy of the control group and experimental group in the post-test?
3. Is there a significant difference between the level of self-efficacy of the controlled group in pretest and posttest?
4. Is there a significant difference between the level of self-efficacy of the experimental group in pretest and posttest?
5. Based on the results, is there a significant difference between the level of self-efficacy of the experimental group and the control group?

VI. SCOPE AND LIMITATION

This paper is limited to the study about the effect of modelling techniques in improving self-efficacy levels of first year BSHM College students of City College of Calapan, identified with low self-efficacy levels using General Self-Efficacy Scale (GSS) by Schwarzer & Jerusalem [9]. It is also delimited with the number of students who voluntarily participate and answer the survey questionnaire about self-efficacy. Moreover, the study does not delve into other interventions but only with modelling techniques in enhancing the self-efficacy levels of first year college student respondents.

This study does not also deal with how the other factors contribute to the low efficacy levels of students but only refer and rely on the results of the GSS which become the respondents for both the experimental and controlled group of this action research. It does not comprehensively inquire on the complexities of self-efficacy and its some specificities like the academic self-efficacy scale and the like.

VII. METHODS

A. Research Design

This study employed an experimental research design with a non-equivalent control group design pattern. This design is a type of quasi-experimental design in which the experimental and control groups are selected without random placement procedures. In this study, both the experimental and control groups received a pretest and posttest, but only the experimental group was given the treatment of modeling techniques to improve self-efficacy. This design is commonly used when randomization is not feasible or when the study involves pre-existing groups. It further emphasized that the first step in a non-equivalent control group design is to administer pretests to both groups, followed by the treatment condition (experimental intervention) given to the experimental group. This design is frequently used in educational research to evaluate the effectiveness of interventions or programs in real-world settings where randomization is not possible.

B. Population Sampling

In this study, we carefully selected their participants from a larger pool of first-year college students majoring in Hospitality Management. From the 456 students, only those who had low self-efficacy were chosen to participate in the study. Then, we randomly divided the students into two groups: the experimental group and the control group. The experimental group received an intervention in the form of modelling technique, while the control group did not receive any group positive modelling technique. It is important to note that the randomization of the students into the two groups ensures that any differences in the results obtained are not due to factors such as gender or academic ability, but rather are a result of the intervention given to the experimental group.

The sample in this study is 107 first year Bachelor of Science, Major in Hospitality Management (BSHM) students of City College of Calapan. The sampling technique is purposive sampling. The criteria for determining the sample are 1st year BSHM students on City College of Calapan, which indicated that they had low self-efficacy based on measurement with self-efficacy scale instruments.

C. Sources of Data

The concept and parameter of self-efficacy scale adopted and modified from Generalized Self-Efficacy Scale by Schwarzer, R., & Jerusalem [14]. Self-efficacy scale consisted of 20 items with some criteria, namely: (a) low validity value (0.396); (b) high validity value (0.780); and (c) reliability test ($\alpha = 0.903$).

D. Data Gathering and Procedure

The research conducted consisted of various stages in order to ensure that the study was thorough and comprehensive. Firstly, a pre-test was conducted to determine the profile of the category of self-efficacy among the participants. This was done using Google forms and the GSS. This was an important step in order to understand the participants' level of self-efficacy before the implementation of the modeling technique intervention.

Next, the sample of students who were experiencing low self-efficacy was determined. This was done in order to focus the intervention on the group of students who needed it the most. This selection process was critical to ensure that the intervention was targeted and effective.

The third stage involved the implementation of modeling technique interventions to improve self-efficacy. This involved group counseling sessions using modeling techniques to help students gain new knowledge and experiences. The use of modeling techniques taught students how to persevere in their studies and develop into more responsible task-completers. The aim of this stage was to increase the self-efficacy levels of the selected participants and help them gain confidence in their abilities.

Finally, a report was presented on the implementation of modeling techniques to improve self-efficacy. This report included a detailed analysis of the outcomes and findings of the study, including any changes in self-efficacy levels among the participants. This stage was important in order to ensure that the findings of the study were properly documented and presented for further research and application. Overall, the research was conducted through a systematic and rigorous process, with each
stage serving an important purpose in achieving the study’s objectives.

E. Data Analysis

The data analysis technique in this research is non-parametric statistics with Wilcoxon Signed Rank Test. The purpose of using this data analysis technique is to see changes in self-efficacy before and after getting treatment of modelling techniques.

In addition to the nonparametric statistics with the Wilcoxon Signed Rank Test used for data analysis to observe changes in self-efficacy before and after treatment of modeling techniques, a t-test for independent samples was also employed to analyze the data. This statistical test was used to compare the mean scores of the experimental and control groups and determine whether there was a significant difference between the two groups in terms of self-efficacy levels. The t-test for independent samples is a commonly used statistical method for comparing the means of two groups and is often used in research studies to evaluate the effectiveness of an intervention or treatment.

VIII. RESULTS & DISCUSSIONS

A. Results

Fig. 2 represents the self-efficacy profiles of 107 first-year BSHM college students. Among the students, 35.51% of them fall in the high self-efficacy category, 49.53% of them fall in the moderate self-efficacy category, and 14.95% of them fall in the low self-efficacy category. After analyzing the data, we selected 16 students who were categorized as having low self-efficacy and divided them randomly into two groups. The experimental group consisted of 8 students who received a modelling group intervention, while the control group also consisted of 8 students but received no group exercises intervention. This selection was based on the researchers’ intention to test the effectiveness of modelling techniques as an intervention to improve low self-efficacy levels in students.

![Fig. 2 General self-efficacy results of 1st year BSHM college students](image)

Table I

<table>
<thead>
<tr>
<th></th>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>M (Mean)</td>
<td>54.00</td>
<td>55.50</td>
</tr>
<tr>
<td>Sd (Standard deviation)</td>
<td>3.162</td>
<td>2.669</td>
</tr>
<tr>
<td>n (Sample size)</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

A t-test for independent samples was conducted with a sample size of 8 for each group to compare the self-efficacy scores of the two groups. The t-test did not find any significant difference between the means of the two groups (t = -1.14, p > 0.05).

These findings suggest that the two groups had similar self-efficacy levels before the intervention was introduced. This information is important to include in the research because it helps establish the baseline for the study. By knowing the pre-test scores, we can determine if any changes in self-efficacy scores are due to the intervention or simply due to chance.

The post-test results show the scores of two groups of students (experimental and control) who were identified as having low self-efficacy levels. The experimental group received an intervention in the form of modelling technique in counselling, while the control group did not receive any intervention.

The mean score for the experimental group is 64.00, while the mean score for the control group is 56.375. The standard deviation for the experimental group is 3.162, while the standard deviation for the control group is 2.669.

The data suggest that, on average, the experimental group had higher self-efficacy levels than the control group after the intervention. The mean score for the experimental group is 7.625 points higher than the mean score for the control group. Additionally, the standard deviation for the experimental group is slightly higher than the control group, which may suggest that there is more variability in the scores for the experimental group.

The difference between the means of the two groups could be statistically significant, indicating that the intervention had an effect on self-efficacy levels.

To determine if there is a significant difference in the post-test scores between the experimental and control groups, t-test for independent samples was conducted.

The null hypothesis (H0) is that there is no significant difference between the mean post-test scores of the two groups, while the alternative hypothesis (Ha) is that there is a significant difference.

The t-value was calculated as follows: t = (mean of experimental group - mean of control group) / (pooled standard deviation * sqrt(2/n)) where n is the sample size for each group. The pooled standard deviation can be calculated as: s_pooled = sqrt( [(n1-1)s1^2 + (n2-1)s2^2] / (n1 + n2 - 2) ) where n1 and
Students face increasing demands and challenges that are integral to their lives, but these high expectations can discourage them and make them feel incapable of meeting those demands. As such, college students require a high level of self-efficacy, which influences their level of effort and perseverance towards their goals. Those with high self-efficacy put in the necessary effort and persist through obstacles, responding less defensively to feedback in a dynamic work environment that requires ongoing learning and performance improvement. Conversely, individuals with low self-efficacy often interpret poor results as further evidence of their incapacity, leading to a vicious cycle of poor self-efficacy, effort, and subsequent performance [10].

Students need self-efficacy to deal with a variety of learning challenges. High self-efficacy students preferred performance goals that included getting good grades and outperforming peers over mastery goals that required challenges and new information. Students should be exposed to self-efficacy intervention programs so that they can develop the confidence to believe that they can successfully complete all academically related tasks, which will ultimately improve students’ academic achievement [11].

In this study, the low self-efficacy students were randomly assigned to either the experimental group, which received modeling techniques, or the control group, which received discussion. Modeling is a frequently recommended counseling approach for addressing self-efficacy issues [12]. One counseling technique that involves using models or examples not related to the client is modeling. The goal is for the client to observe the model's behavior and use it as a template for their own behavior. The use of group counseling services, specifically through role-playing, was effective in increasing students' self-efficacy levels. The students were able to improve their ability to handle various situations or conditions, were confident in their ability to perform well, and were sure that they could handle exams [13].

Through the vicarious experiences offered by live models, self-beliefs of efficacy can be developed and strengthened. Observers' beliefs that they have the abilities to master comparable activities to succeed increase when they see people who are similar to themselves succeed through consistent effort. More than just a social benchmark against which to assess one's own abilities is offered by modeling influences. People look for competent role models who have the skills they want. Competent role models teach observers practical skills and strategies for handling environmental demands through their behavior and verbally expressed ways of thinking. Better resources increase one's perception of their own efficacy. Social models allow for the acquisition of other people’s experiences, which increases self-efficacy when people see others with similar abilities.

The use of live modeling techniques by researchers in information services is viewed as a learning process based on observation, in which the actions of individuals or groups that serve as model figures can stimulate the thoughts, attitudes, or behavior of other people who are watching the character of the model. According to the above explanation, the live modeling technique is one of the most successful ways to increase self-

<table>
<thead>
<tr>
<th>TABLE II</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE DIFFERENCE OF EXPERIMENTAL AND CONTROL GROUP</td>
</tr>
<tr>
<td>Measurement</td>
</tr>
<tr>
<td>Pretest M</td>
</tr>
<tr>
<td>SD</td>
</tr>
<tr>
<td>Posttest M</td>
</tr>
<tr>
<td>SD</td>
</tr>
<tr>
<td>Z</td>
</tr>
<tr>
<td>P</td>
</tr>
</tbody>
</table>

The previous data indicated that the Wilcoxon test results in the experimental group’s self-efficacy showed that Z is -2.371 and probability p = 0.018. This shows that the value of p = 0.018, less than 0.05 (5% error level); it can be concluded that there are differences in the results of experimental group self-efficacy before and after treatment is given. While the Wilcoxon test results of self-efficacy in the control group that Z equal to -0.987 and probability p = 0.323, this shows that the value of p = 0.323 is greater than 0.05 (5% error level), so it can be concluded that there is no difference in the results of self-efficacy in the control group before and after treatment is given.

Students face increasing demands and challenges that are
efficacy. The figure presented heavily influences whether live modeling techniques are successful. Given the use of modeling techniques in this study, the experimental group's size increased significantly. This implies that after using modeling techniques to treat low self-efficacy, students’ levels can be raised.

IX. CONCLUSION

Based on the results and its discussions, it has been established that using modeling techniques is an effective way to enhance the self-efficacy of first-year BSHM college students. The experimental group showed a significant increase in self-efficacy levels after receiving treatment, while there was no such change observed in the control group.

During group counseling sessions, students learned new skills and gained valuable experiences through modeling techniques. By observing role models who demonstrated a high level of discipline and perseverance in their studies, students learned how to become responsible and efficient learners themselves. This, in turn, helped to boost their self-efficacy levels and gave them the confidence to face exams and other challenging situations.

The use of group guidance services through modeling proved to be a valuable tool for helping students to develop their self-efficacy and prepare for academic success. With increased confidence in their abilities, students were better equipped to handle the demands of their coursework and other areas of their lives. The findings of this research demonstrate the effectiveness of modeling techniques in supporting student success and promoting positive academic outcomes.

REFERENCES

[7] Data percentage concerning the number of drop-outs in City College of Calapan, 2022.