EVALUATION OF STUDENT REIMBURSEMENT SYSTEM FOR RESEARCH PROTOTYPES: ADOPT-A-PROTOTYPE PROGRAM

Juan Kristopier D. Angeles[1]
[1]*Bataan Peninsula State University, Philippines*
Email ID: *jukristopier@gmail.com*

ABSTRACT

Educational institutions worldwide were forced to temporarily close and rely on distance education as a substitute for face-to-face instruction. With the aim to continue the provision of quality education, numerous educational institutions preferred the online delivery mode. Apart from online learning, most public schools, particularly those in rural areas, use modular learning modalities. One of the United Nation's Sustainable Development Goals is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" learners. However, studies revealed that this intervention showed that there is a decline in the quality of education meant for students. The lack of financial capability of students from rural areas challenges this goal of providing quality education. To address this gap, the researcher of the current study examined the current financial status of students of two subjects in the Senior High School K-12 Program: Inquiries, Investigations, and Immersion (I3) and Practical Research I. Upon determining the lack of financial support to making the subject's required output (research prototype), the researcher initiate an innovative student reimbursement program, Adopt-a-Prototype, in which private linkages has become part of the research process through sponsorship (adoption) of their work-in-progress (WIP) research prototypes. The innovative reimbursement program has been evaluated by the SHS learners and presented in this descriptive mixed-method research.

Keywords: Reimbursement System, Education, Prototyping, Student Research, Index of Successes Model

INTRODUCTION

Educational institutions worldwide were forced to temporarily close and rely on distance education as a substitute for face-to-face instruction. With the aim to continue the provision of quality education, numerous educational institutions preferred the online delivery mode. Apart from online learning, most public schools, particularly those in rural areas, used modular learning modalities. For instance, it was found that Filipino students prefer modular learning modality instead of any other distance learning (Manlangit et al., 2020). However, this intervention showed that there is a decline in the quality of education meant for students.

The pandemic has compelled teachers to play a critical role in encouraging and monitoring students' progress in the new educational platform. The demand for continuing education despite the health threats has been the challenge hurdled by the Department of Education amid the COVID-19 pandemic. Along with their adaptation to the new mode of learning, teachers face a variety of difficulties due to the sudden changes in the mode of

instruction. For instance, Cardullo et al. (2021) posited that teachers were caught off guard for the distance learning instruction due to a lack of training.

Along with the threats brought by coronavirus to our health are the financial problem arising globally. For instance, it was found that there has been a substantial decline in remittances in the Philippine because of the COVID-19 crisis (Yamada, Shimizutani, & Murakami, 2021). Due to the economic adversities during the pandemic, most of the students from rural areas in the country have limited access to technology that are important in distance learning (Agaton & Cueto, 2021). This global dilemma demands new ways for educators to connect with their students. Innovation in the delivery of the lessons has been a challenge among educators, especially, to applied subjects like Research.

One of United Nation's Sustainable Development Goal is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" learners. However, the lack of financial capability of students from the rural area challenge this provision of quality education. To address this gap, the researcher of the current study examined the current financial status of students of two subjects in Senior High School K-12 Program: Inquiries, Investigations, and Immersion (I3) and Practical Research I. Upon determining the lack of financial support to making the subject's required output (research prototype), the researcher initiate an innovative student reimbursement program, Adopt-a-Prototype, in which private linkages has become part of the research process through sponsorship (adoption) of their work-in-progress (WIP) research prototypes.

The Adopt-A-Prototype Program is initiated to help student researchers of Inquiries, Investigations, and Immersion (I3) and Practical Research I in financing their research prototypes. The adoption of the prototype was initiated in the social media platform, Facebook. Initially, the researcher utilized posters of each WIP prototype of various groups of student researchers posted on Facebook. Sponsorship and pledges give the private individual/group a chance to choose which among the prototypes to be adopted. Adoption of the prototype starts at P300, as it was the minimum budget allotted to each group of students for prototyping. The fund will be consolidated and the actual expenditure of each group of student researchers will be reimbursed. The remaining fund for the Adopt-A-Prototype Program will be used in the Innovative Expo, that is, a research congress, a culminating activity for Grade 11 and Grade 12 students where they exhibit their research prototypes (Innobition: Innovative Exhibition) and defend their conducted research (Data Unveiled: Research Defense)

Purpose of the research

The goal is this research is to determine the effectiveness of the Adopt-A-Prototype Program as a reimbursement system for research prototypes of i3 and PR1 students. Specifically, it will seek to answer the following questions:

What is the evaluation of the Adopt-A-Prototype Program in terms of:

1.	Relevance

2.	Fiscal Efficiency

3.	Effectiveness

4.	Impact, and

5.	Sustainability

Evaluation of Student Reimbursement System for Research Prototypes: Adopt-A-Prototype Program

RESEARCH METHODOLOGY

Innovative ideas among student researchers must be harnessed to actualization. Prototyping is one of the processes in research where students can create an actual model or representation of their solutions or Ideas to solve the research problem they are examining. This study aims to evaluate the Adopt-A-Prototype Program using the Index of Success Model, guided by the following criteria in assessing both the Implementation and outcomes of an educational program: Relevance, Fiscal Efficiency, Effectiveness, Impact, and Sustainability. Specifically, the researcher of this descriptive research study utilized a concurrent mixed-method research design through an electronic survey platform, Google Forms. The researcher presented the quantitative data through frequency tables and graphs, while the qualitative data from the open-ended questions in the survey, were analyzed using thematic analysis and presented through themes.

Participants of the study

Thirthy-two (32) student researchers from SY. 2021-2022 answered the online survey questionnaire using Google Forms, while fourteen (14) of the 32 respondents answered the open-ended questionnaire voluntarily.
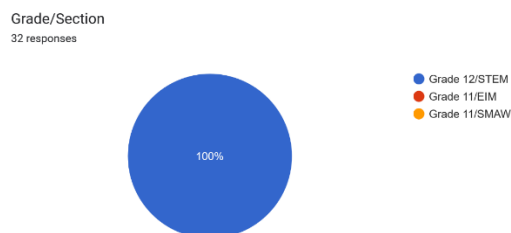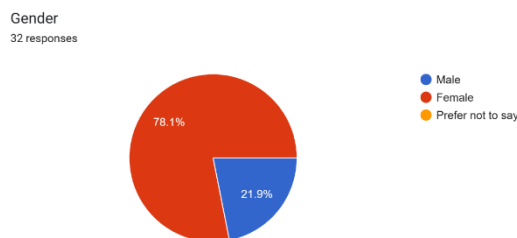
Figure 1
Grade/Section of Respondents

Figure 1 above shows the grade and sections of the respondents. Out of the thirty-two student researchers representing three (3) SHS Strand: One (1) from Academic Track (STEM12) and two (2) from Technical, Vocational, and Livelihood Track who were the grantees of the Adopt-A-Prototype Program, one hundred percent (100 %) of the respondents came from the Grade 12 STEM.

Figure 2
Gender of Respondents

Additionally, Figure two shows the gender of the respondents. Almost eighty percent (80%) came are Female, while more than twenty percent (20%) are Male. None among the respondents answered the "Prefer not to say" option.

Research Instruments

Quantitative Data

The researcher of the current study utilized a 25-item self-made survey questionnaire. The researcher based the evaluation tool on the Index of Success (IOS) Model (Fisher, 2010). There are subthemes in the survey questionnaire, namely, Relevance, Fiscal Efficiency, Effectiveness, Impact, and Sustainability. Each of the subthemes of the quantitative questionnaire is composed of five questions that are face-validated and

content-validated by experts in the field of education.

Qualitative Data

Along with the 25-item quantitative survey questionnaire, the researcher included two (2) open-ended questions for qualitative data gathering. According to the recent review by Opara, Spangsdorf, and Ryan (2023), the use of the online platform Google Docs is particularly useful in addressing time, financial or geographical constraints in empirical investigations. Examining two cases (Ph.D. dissertation) using the online platform as their mode of data gathering for qualitative data, the authors concluded that the use of Google Docs has other advantages such as the generation of insights about the thinking process of the participants as well as the flexibility it offers among users, specifically its capability be used for synchronously and asynchronously data gathering. Thus, the researcher of the current study utilizes the online platform for a deeper understanding of their experiences with the educational program, Adopt-A-Prototype.

Data Analysis

The electronic survey is conducted using the platform, Google Forms. There are two parts to the survey questionnaire: quantitative and qualitative part. The quantitative part is presented through a Likert scale type of question, where the five (5) indexes were measured. The first part of the evaluation tool (quantitative) is presented and interpreted using a frequency distribution table and bar graphs to describe the responses of the respondents. Simultaneously, the second part, which is composed of open-ended questions was then interpreted using thematic analysis.

Ethical Consideration

To acknowledge the rights of the respondents who participated in the research, the researchers carefully prioritized the ethical considerations in conducting the research study. Before the conduct of the two-part questionnaire, the researcher presented the informed consent which the respondents must confirm before participation. To secure anonymity and confidentiality, the researcher allocated codes to the respondents. Moreover, it is only the researcher who has access to the results of the online survey.

RESEARCH FINDINGS

This descriptive concurrent mixed-method study aims to evaluate the reimbursement system for research prototypes, Adopt-A-Prototype Program using the Index of Success (IOS) Model (Fisher, 2010). The results of the quantitative survey through Google Forms are presented below in Table 1 while the themes generated in the qualitative questions in the online survey are presented in Table 2. Furthermore, the scores of each subscale of the IOS Model are presented through graphs, that is, Figure 3, Figure 4, Figure 5, Figure 6, and Figure 7.

Indexes of Success for Adopt-A-Prototype Program

Table 1 shows the percentage of the responses of student researchers about their evaluation of the Adopt-A-Prototype Program, a student reimbursement program for student research prototypes. Based on the data of the Indexes of Success (Fisher, 2010), almost 70% of the respondents reported "Strongly Agree" in all five (5) indexes. Furthermore, it can also be described that the respondents rated the Adopt-A-Prototype Program as very

Evaluation of Student Reimbursement System for Research Prototypes: Adopt-A-Prototype Program

relevant, very fiscally efficient, very effective, very impactful, and very sustainable.

Tabel 1

Table 1. *Indeces of Success (Adopt-A-Prototype Program)*

Index	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Standard Deviation	Description
Relevance	0%	0%	2%	32%	66%	0.291916	Very Relev
Fiscal Efficiency	0%	0%	6%	29%	65%	0.279264	Very Effici
Effectiveness	0%	0%	2%	30%	68%	0.29768	Very Effect
Impact	0%	1%	3%	31%	65%	0.281701	Very Impac
Sustainability	0%	0%	3%	29%	68%	0.292784	Very Sustain

To better examine the responses of the respondents to the online survey, the researcher utilizes graphs. Specifically, Figure 3 below shows the frequency of their responses for questions 1 to 5 under the Relevance subscale. The graph shows that the highest frequency (24) for Strongly Agree responses is Question 1 while the lowest frequency (19) for Strongly Agree responses came from Question 3 and Question 5 (See Appendix 1). Overall, as indicated in Table 1, the respondents have positive feedback on the overall relevance of the Adopt-A-Prototype Program with 98% of the tallied responses being for Agree and Strongly Agree.

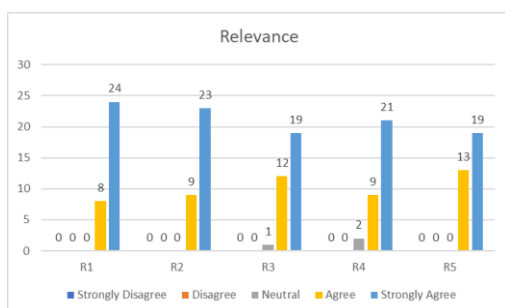Figure 3. Frequency of Responses for Relevance Subscale

Figure 4 below shows the frequency of their responses for questions 6 to 10 under the fiscal Efficiency subscale. It is shown in the graph that the highest frequency (22) for Strongly Agree responses is tallied under Questions 3 and 4 for the Fiscal Efficiency subscale, while the lowest frequency (18) is tallied for Question 1 (See Appendix 1). The respondents have positive feedback for the overall fiscal efficiency of the Adopt-A-Prototype Program with 94% of the responses ais tallied to Agree and Strongly Agree.

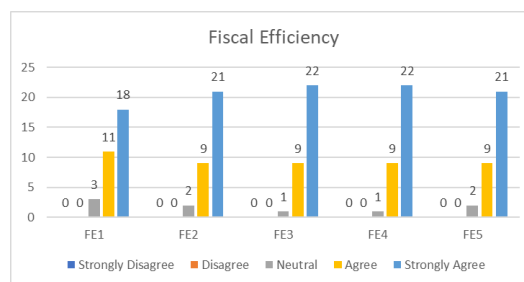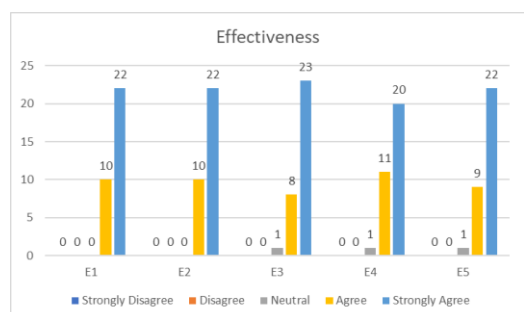Figure 4. Frequency of Responses for Fiscal Efficiency Subscale

Figure 5 below shows the frequency of their responses for questions 11 to 15 under the Effectiveness subscale. It is shown in the graph that the highest frequency (23) Strongly Agree responses is tallied under Question 3 for the Effectiveness subscale, while the lowest frequency (20) is tallied for Question 4 (See Appendix 1). The respondents have positive feedback for the overall effectiveness of the Adopt-A-Prototype Program with 98% of the responses ais tallied to Agree and Strongly Agree.

Figure 5. Frequency of Responses for Effectiveness Subscale

Evaluation of Student Reimbursement System for Research Prototypes: Adopt-A-Prototype Program

Figure 6 below shows the frequency of their responses for questions 16 to 20 under the Effectiveness subscale. It is shown in the graph that the highest frequency (23) of Strongly Agree responses is tallied under Question 2 for the Impact subscale, while the lowest frequency (19) is tallied for Question 3 (See Appendix 1). The respondents have positive feedback for the overall effectiveness of the Adopt-A-Prototype Program with 97% of the responses ais tallied to Agree and Strongly Agree.

However, it occurs that both Question 1 and Question 2 have a tallied response under Disagree which comprise 1% of the total responses. Moreover, Questions 3 4 and 5 has incurred 2, 1, and 2 responses, which comprise 3% of the total responses under the neutral category. Through insignificant, it shows that not all of the respondents have positive feedback on the impact of the Adap-A-Prototype Program

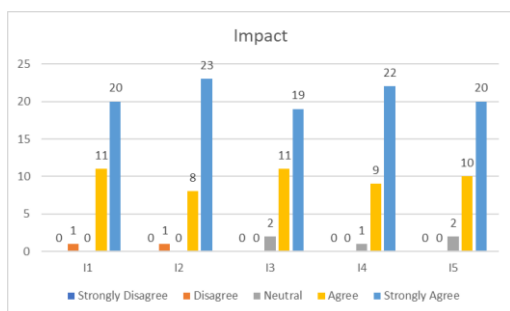Figure 6. Frequency of Responses for Impact Subscale

Figure 7 below shows the frequency of their responses for questions 21 to 25 under the fiscal Sustainability subscale. It is shown in the graph that the highest frequency (24) for Strongly Agree responses is tallied under Questions 3 and 4 for the Sustainability subscale, while the lowest frequency (18) is tallied for Question 1 (See Appendix 1). The respondents have positive feedback for the overall fiscal efficiency of the Adopt-A-

Prototype Program with 97% of the responses ais tallied to Agree and Strongly Agree.

Figure 7. Frequency of Responses for Sustainability Subscale
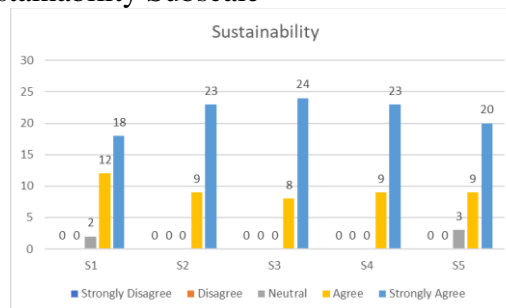
A total of 14 respondents from the 32 participants independently answered the qualitative survey together with the evaluation form using the online platform, Google Forms. The transcribed data from the platform were then analyzed using thematic analysis. Through careful coding, categorizing, and interpretation, the following themes were generated:

Table 2. Themes generated from the open-ended questions

Question: What aspects of this educational program were most useful or valuable?	Question: How would you improve the educational program?
The Adopt-A-Prototype Program is valuable because of the knowledge and skills development it provides the student researchers.	The Adopt-A-Prototype Program can be improved by engaging more student resea
The Adopt-A-Prototype Program is valuable because of its resource utilization and sustainability that can be used by the next batch of researchers.	The Adopt-A-Prototype Program can be improved by modifying the SHS Research Curriculum
The Adopt-A-Prototype Program is impactful to both students and the community because of the financial and moral support it provides the student-researchers	The Adopt-A-Prototype Program can be improved by extending information dissen in social media platforms.

DISCUSSIONS

Traditionally, evaluating education programs is hierarchical (Fisher, 2010). That is, a superior evaluates the subordinates. White this hierarchical nature is oftentimes seen in school settings today, there are been various approaches to systematizing the evaluation of the educational program. Slavin (2020) added that to the long period of education disruption due to the COVID-19 pandemic,

there is a demand for evidence-based educational programs derived from educational policies. This demined initiates the creation of the Adopt-A-Prototype Program

Based on the Indexes of Success model of Fisher (2010), evaluating educational programs is anchored to the school policy being implemented. School policies are then derived from the school's vision. Through these school policies, goals and objectives of the educational institutions can be derived, where the educational program can then be drawn up to achieve these two factors. This understanding can explain the results of the current study. The positive feedback from the quantitative data can be explained by the nature of the Adopt-A-Prototype Program which aims to improve the competence of students-researcher, an objective derived from the post-pandemic theme of the implementing senior high school which is, Together, We Move Forward. The clear linkage of this innovative reimbursement system for student prototypes to the school policies and academic vision of being a competitive research school explains the positive feedback from the student researchers.

Karalis (2020) added that in the evaluation of an educational program, the most important lesson learned is not whether the urgent solutions or interventions, such as the Adopt-a-Prototype Program worked or were effective. What is more essential is how the student researchers adjust and how their experiences can be used to reflect on the conditions of the formal education system. The themes about the value of the education program in terms of the development of knowledge and skills, sustainability, and support provided by the program as well as their suggestions for improvement such as engaging more students in the educational program,

modifying the research curriculum, and extending information dissemination of the educational program are direct results of the student researchers' reflections on the current education system.

CONCLUSION

This concurrent mixed-method study evaluates the Adopt-A-Prototype Program, a reimbursement system for research prototypes. Based on the index of successes model by Fisher (2010), the respondents have positive feedback towards this educational program. It was also revealed in the qualitative data that the educational program is a valuable program because of the development of knowledge and skills, sustainability, and the financial and moral support it provides the student researchers. Furthermore, it is also shown in the findings that student researcher suggests engaging more students in the educational program, modifying research curriculum, and extending information dissemination of the educational program.

Recommendations

It is noteworthy to consider Patton's (2011) notion of developmental evaluation for complex programs as well as those programs without a fixed model. Patton (2011) argued that there is a need to move beyond the formative and summative approaches in evaluating educational programs, rather, the aim must be capturing the lessons derived from the program in real time. Developmental Evaluation is a way of being useful in innovative settings where goals are emergent and changing rather than predetermined and fixed, time periods are fluid…" (Patton, 2011, p. viii).

Based on these concepts, there is a need for further improvement of the evaluation tool utilized by the researcher by utilizing the concept of developmental

evaluation. Essentially, it should be noted that in the derivation of the evaluation tool, rather than having the judgment to the aim of the educational program, the constantly changing nature of the program should be considered which then contributes to the creation of the solution. For instance, instead of focusing on critically examining the main objective of the Adopt-a-Prototype Program through empirical evaluations, the acknowledgment of the dynamic nature of the reimbursement system for research prototype, specifically, how it is processed by different stakeholders (students, teachers, sponsors) in the different timeframe in the post-pandemic setting should be considered. This means the contents of the evaluation may be based on the real-time lessons derived from the educational program within fluid time periods.

REFERENCES

[1] Agaton, C. B., & Cueto, L. J. (2021). Learning at Home: Parents' Lived Experiences on Distance Learning during COVID-19 Pandemic in the Philippines. International Journal of Evaluation and Research in Education, 10(3), 901-911.

[2] Cardullo, V., Wang, C. H., Burton, M., & Dong, J. (2021). K-12 teachers' remote teaching self-efficacy during the pandemic. Journal of Research in Innovative Teaching & Learning.

[3] Karalis, T. (2020). Planning and evaluation during educational disruption: Lessons learned from Covid-19 pandemic for treatment of emergencies in education. European Journal of Education Studies.

[4] Manlangit, P., Paglumotan, A. M., & Sapera, S. C. (2020, October 5). Nanay, handa na ba kayong maging tagapagdaloy? Supercharging Filipino parents is key for successful modular distance learning. Flip Science. https://www.flipscience.ph/news/featuresnews/tagapagdaloy-modular-distance-learning/

[5] Opara, V., Spangsdorf, S., & Ryan, M. K. (2023). Reflecting on the use of Google Docs for online interviews: Innovation in qualitative data collection. Qualitative Research, 23(3), 561-578.

[6] Slavin, R. E. (2020). How evidence-based reform will transform research and practice in education. Educational Psychologist, 55(1), 21-31.

[7] Yamada, E., Shimizutani, S., & Murakami, E. (2021). The COVID-19 pandemic, remittances and financial inclusion in the Philippines. Philippine Review of Economics, 57(1), 18-41.