

The Interaction Effect between Online Formative Reflection Log and Parental Involvement on Students' Self-Efficacy for Distance Learning Amidst Covid-19 Pandemic

Jobelle A. Gabayeron and Roger P. Turingan

Captain Albert Aguilar National High School
Schools Division Office Las Piñas City, Philippines
jobelle.gabayeron@deped.gov.ph, roger.turingan@deped.gov.ph

Abstract: *Acquiring positive self-efficacy for distance learning will help learners cope with the learning situations brought by the challenges of the Covid-19 Pandemic. The study aimed to investigate the interaction effect between online formative assessment log and parental involvement on students' self-efficacy for distance learning. Using quiziz.com as an online platform, the online formative reflection log was integrated into the online class of Grade 10 students for the entire first quarter. Parental Involvement Questionnaire and Self-efficacy for Distance Learning Questionnaire were developed and administered. Using Factorial Two-way Analysis of Variance (ANOVA II), it is found that both online formative assessment log and parental involvement have a significant effect on students' self-efficacy for distance learning. A significant interaction effect between online formative assessment log and parental involvement on students' self-efficacy for distance learning was also found. These findings indicate that the effect of online formative assessment log on self-efficacy for distance learning of students is more evident when their parents are highly involved in their studies. The study recognized the role of parents in any educational intervention in the new normal education.*

Keywords— interaction, reflection log, self-efficacy, parental involvement

1. INTRODUCTION

For past decades, self-influence factors and their effect on the learning process have received much attention from previous researchers. Of these factors, self-efficacy, one's belief that he or she can do things based on his or her abilities, stands out (Usher & Pajares, 2006). According to Yıldırım & Guler (2020), self-efficacy is among the psychological factors associated with the mental health of individuals during the COVID-19 pandemic. In a classroom setting, students with higher levels of self-efficacy do not avoid challenging tasks, show persistence during difficult situations and find their learning strategies to cope with failure (Mega et al., 2013). This notion explains how important self-efficacy is especially in this time of the pandemic. Although there are already existing interventions about students' self-efficacy for learning, the context of enhancing self-efficacy through reflecting on the result of formative assessment has been barely explored. The assessment practice in this context is highlighted in the *Policy Guidelines for Assessment and Grading in light of the Basic Education Continuity Plan* (DepEd Order No. 31, series of 2020). Once this is put into practice, teachers can ensure the progress of the quality of learning. Unfortunately, providing formative assessments and asking students to reflect on the results will be challenging for the teachers. One of the ways to cope with these is through utilizing available online websites that can provide platforms for formative assessment and reflection. Among the online websites, the researchers opted to use quiziz.com because it has features suitable for formative assessment activities.

Another factor that may contribute to self-efficacy is parental involvement. According to Adimora et. Al (2019), the involvement of parents in the learning process of their children significantly contributes to their children's self-efficacy for learning. Aside from the positive relationship found between parental involvement and self-efficacy for learning, the researchers strongly believe that during this pandemic, parents play a very crucial role in the success of any educational intervention. For this reason, the researchers were driven to investigate the interaction effect between online formative reflection log and parental involvement on students' self-efficacy for learning amid Covid-19 Pandemic.

2. RESEARCH QUESTIONS:

In recent years, several local studies have started investigating reflective learning because the Department of Education encourages teachers to find ways to guide students in developing reflective thinking skills (de Leon & Prudente, 2018). Aligned with this inquiry, this study aims to investigate if the effect of online formative reflection log on students' self-efficacy for distance learning depends on parental involvement.

Specifically, it sought to answer the following research questions:

1. (Main Effect) Does online formative reflection log have a significant effect on students' self-efficacy for distance learning?
2. (Main Effect) Does parental involvement have a significant effect on students' self-efficacy for distance learning?

3. (Interaction Effect) Is there an interaction effect between online formative reflection log and parental involvement on students' self-efficacy for distance learning?

3. INNOVATION, INTERVENTION, AND STRATEGY

After receiving formative assessment during an online class, students are expected to reflect on the strengths and weaknesses of the result, make plans for improvement, and extensive efforts in integrating the new experience with previous learning. But in a real-life classroom setting especially during the pandemic, students failed to take the learning opportunities like reflection. When students reflect on the result of formative assessment and find various learning strategies to attain their goals, self-regulation is developed (Clark, 2012). Unfortunately, a lack of directed and structured tools hinders students, regardless of their demographic profiles, from reflecting effectively (Guleker, 2015). To provide intervention for this, an online formative reflection log was developed to provide students with a structured tool to guide them on how to consistently reflect on the outcomes of the formative assessments given by the teacher. This online tool consists of three dimensions: student's response; corrective feedback; and reflection. Using this, students will record their selected incorrect responses and will do self-feeding back through reflection. This process will make them reflect on the discrepancy in their response to the corrective feedback provided by the teachers. By consistently doing this, students will be more self-regulated which will eventually lead them to have a higher self-efficacy for distance learning. The figure below illustrates the routine of how the intervention was conducted.

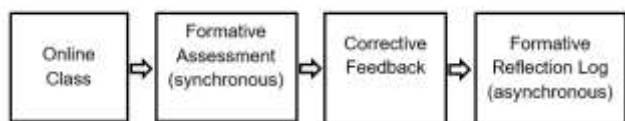


Figure 1: Flowchart of the Intervention

After the teacher conducted an online class, a synchronous formative assessment through quiziz.com will be provided. The participants' report, a feature of quiziz.com that provides corrective feedback, will be sent to students via email together with the link containing the formative reflection log. The reflective questions of the online formative reflection log were modified for each lesson. After reading the formative reflection logs, the teacher selects one and shares it with the class in the next online class.

4. METHODOLOGY

This study used a factorial design to investigate the main and interaction effect of online formative reflection log and parental involvement on students' self-efficacy for distance learning.

4.1 Sources of Data

The study was conducted in Captain Albert Aguilar (CAA) National High School, located in CAA Road Corner, Balikpapan Street, BF International Village, Las Piñas City. The participants of the study were Grade 10 students of CAA National High School chosen through cluster sampling. Twenty-five students from each of the four clusters were randomly selected. The clusters were formed based on the factorial design of the study

4.2 Data Gathering Procedure

The following data procedures were undertaken in the gathering of data relative to the conduct of the study.

The researchers sought the permission of the school principal of Captain Albert Aguilar National High School. A self-report instrument scale, Self-Efficacy for Distance Learning, is developed and administered through google form to measure the students' self-efficacy for distance learning. Items were written in accordance with the current learning situation during this pandemic and are also suitable for high school students. As part of the pilot testing, the questionnaire was administered to 120 students who are not participants of the study to examine internal consistency. The computed internal consistency reliability value is 0.76 (Cronbach's alpha) which implies that the instrument was reliable. Using this, the overall self-efficacy for learning is obtained by adding the corresponding value for each response in the 10-item instrument. Since the purpose of administering this instrument is to measure self-efficacy for distance learning during the time of the pandemic, it was noted in the survey that the items pertaining to their self-efficacy for distance learning during COVID-19.

The researchers also developed and administered a parental involvement questionnaire consisting of 10 parental involvement items to the participants through a google form. The questionnaire was administered to 120 students who are not participants in the study to examine internal consistency. The computed internal consistency reliability value is 0.73 (Cronbach's alpha) which implies that the instrument was reliable. It was emphasized in the questionnaire that parental involvement is not only limited to parents but also to any family member or guardian who helps them in their study. Based on the interval formula for the Likert scale, the mean score from 1.00 to 3.00 was considered as having low parental involvement while the mean score from 3.01 to 5.00 is considered as having high parental involvement.

The teacher-researchers integrated online formative reflection log in his online class for the entire first quarter.

The two questionnaires were administered to the students. Using JAMOVI Statistical Software (Version 1.2.27), a Two-way Analysis of Variance was used to analyze the data.

5. RESULTS AND DISCUSSION

Table 1. Descriptive Statistics

	Intervention	Self-efficacy for Distance Learning	
Mean	Not exposed to OFRL	28	
	Exposed to OFRL	33.6	
Standard deviation	Not exposed to OFRL	5.79	
	Exposed to OFRL	6.39	
	Parental Involvement	Self-efficacy for Distance Learning	
Mean	High	31.8	
	Low	29.9	
Standard deviation	High	7.4	
	Low	5.9	
	Parental Involvement	Intervention	Self-efficacy for Distance Learning
Mean	High	Not exposed to OFRL	27.3
	High	Exposed to OFRL	37.1
	Low	Not exposed to FRL	28.7
	Low	Exposed to FRL	30.9
Standard deviation	High	Not exposed to FRL	5.14
	High	Exposed to FRL	6.06
	Low	Not exposed to FRL	6.38
	Low	Exposed to FRL	5.31

Table 2. Results of Two-way Analysis of Variance

	Sum of Squares	df	Mean Square	F	p	η^2p
OFRL	887	1	886.7	22.05	<.001	0.22

Parental Involvement	140	1	139.5	4.26	0.042	0.042
OFRL * Parental Involvement	362	1	362	11.04	0.001	0.103
Residuals	3147	96	32.8			

The study was conducted to determine if online formative reflection log and parental involvement will have a significant effect on students' self-efficacy for distance learning. Moreover, the study also intends to test the moderating role of parental involvement in the causal relationship between online formative reflection log and students' self-efficacy for distance learning. To test this, a between-subjects two-way analysis of variance was used. Results for the test of main effect of online formative assessment revealed that students who were exposed to it ($M = 33.6 SD = 6.39$) had a significantly higher self-efficacy for learning than those students who were not. ($M = 28.0 SD = 5.79$), $F(1,96) = 22.05, p < .001$. Online formative assessment accounts for 22% of the variance of the students' self-efficacy for distance learning which is considered a large effect size. On the other hand, the result of main effect of parental involvement indicated a significant difference in self-efficacy for distance learning between students who experienced high parental involvement ($M = 31.8 SD = 7.40$) and low parental involvement ($M = 29.9 SD = 5.90$), $F(1,96) = 4.26, p = .042$. Parental involvement accounts for 4.2% of the variance of students' self-efficacy for distance learning which is considered a small effect size. As for the test of moderation, the result showed that there is a significant interaction between online formative reflection and level of parental involvement, $F(1,96) = 11.04, p = .001$. The interaction explains 10.3% of the variance of students' self-efficacy for learning which is considered as approaching to large effect size.

Table 3. Post Hoc Comparisons - Intervention * Parental Involvement

Intervention	Parental Involvement	Intervention	Parental Involvement	SE	df	t-value	P-Tukey
Not exposed to OFRL	High	Not exposed	Low	1.6	96	-0.91	0.802

Not exposed to OFRL	High	Exposed	High	1.69	96	-5.79	<.001
Not exposed to OFRL	High	Exposed to FRL	Low	1.58	96	-2.29	0.107
Not exposed to OFRL	Low	Exposed to FRL	High	1.68	96	-4.98	<.001
Not exposed to OFRL	Low	Exposed to FRL	Low	1.56	96	-1.39	0.511
Exposed to FRL	High	Exposed to FRL	Low	1.65	96	3.753	0.002

Note. Comparisons are based on estimated marginal means

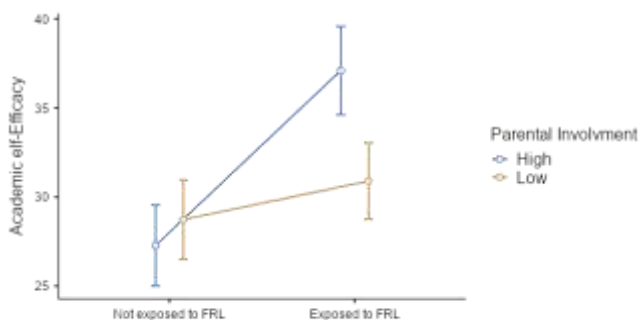


Figure 2: Estimated Marginal Mean Plot

Looking at post hoc comparisons, the self-efficacy for distance learning of students who were exposed to online formative assessment log is significantly higher when parental involvement is high ($M = 37.1$ $SD = 6.05$) than when it is low ($M = 30.9$ $SD = 5.31$), $p = .002$. These findings indicate that the effect of online formative assessment log on self-efficacy for distance learning of students is more evident when their parents are highly involved in their studies. This indication is illustrated by the estimated marginal mean plot (Figure 2).

6. CONCLUSION

Based on the findings, the following conclusions were drawn:

1. Online formative reflection log has a significant large effect on students' self-efficacy for distance learning.
2. Parental involvement has a significant small effect on students' self-efficacy for distance learning.
3. There is a significant interaction effect between online formative reflection log and parental involvement on students' self-efficacy for distance learning. Thus, the effect of online formative assessment log on self-efficacy for distance learning of students is more evident when their parents are highly involved in their studies.

6.1 Reflection

Acquiring positive self-efficacy for distance learning will help them cope with the learning situations brought by the challenges of Covid-19. A student with high self-efficacy will have the ability to make necessary and appropriate actions in response to various situations such as abrupt shifts from face to face to distance learning. Students nowadays seem to demonstrate low self-efficacy and no interest in formative assessments. They are greatly affected by the result of the assessment and this either increases or decreases self-efficacy. This happens because students view assessment as the end process of learning. Such belief hinders them to reflect and take action after the result was given to them. Teachers are accountable for this if they will not make a move to change this misconception. Although doing this is more challenging in this time of the pandemic, teachers should at least find a way to help learners cope with the current educational setting amid Covid19 by innovating their assessment practice. There are available online platforms that can be used like quiziz.com for giving formative assessments and for providing students the opportunity to reflect on the results of formative assessments. Furthermore, it is also important to recognize the role of parents in distance learning during this time of the pandemic. The empirical findings of this study support the researchers' belief that parents play a very crucial role in the success of any educational intervention during this pandemic.

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