

Examining the Moderating Role of Parental Involvement on the Relationship between Self-Efficacy for Blended Learning and Academic Performance amidst Covid-19 Pandemic

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Abstract: *The study aimed to investigate the moderating role of parental involvement on the relationship between self-efficacy for blended learning and academic performance. Parental Involvement Questionnaire (PIQ) and Self-efficacy for Blended Learning Scale (SEBLS) were developed and administered. The psychometric properties of both instruments were established using Rasch Analysis. A moderation analysis using hierarchical regression was conducted to determine the significant increase in variance in academic performance explained by the addition of an interaction term between parental involvement and self-efficacy for blended learning. Results indicate that parental involvement moderated the effect of self-efficacy for blended learning on academic performance. Simple slopes analysis revealed that the higher the parental involvement received by the students, the stronger the relationship between self-efficacy for blended learning and academic performance. However, at low level of parental involvement, self-efficacy for blended learning did not predict academic performance. The findings suggest that schools should conduct programs that aim to promote parental involvement to enhance self-efficacy of students amidst Covid-19 pandemic.*

Keywords—self-efficacy, parental involvement, academic performance, moderation analysis

1. INTRODUCTION

The Department of Education described blended learning as a combination of online and modular learning. Although it is not new in educational perspectives, its sudden implementation in the new normal brought a lot of challenges to teachers, parents and most especially to students. According to Bandura (1977), students with high self-efficacy will have the ability to make necessary and appropriate actions as response to various situations like the abrupt shift from face to face to blended learning. This implies that despite that change of learning modality, students with higher self-efficacy will perform better. However, a number of contradicting studies about the relationship of self-efficacy and academic performance were discussed by Tus (2020). Using linear regression, he found that self-efficacy does not significantly contribute to academic performance. Regardless of this, the literature is still dominated by a vast number of studies claiming that self-efficacy is significantly related to academic performance. Nevertheless, most of these studies are in particular to academic self-efficacy and performance in face to face learning set-up. With regards to blended learning, limited studies have focused on self-efficacy. Yokoyama (2019) emphasizes the influential role of self-efficacy in enhancing students' academic performance in a distance learning environment. In spite of the opposing claims about the relationship between these two both on face to face and distance learning, educational psychologists have given emergent attention on self-efficacy of students during this COVID-19 pandemic (Li & Lalani, 2020). One reason behind this is that self-efficacy is among the psychological factors

associated with mental health of individuals during COVID-19 pandemic (Yildirim & Guler, 2020).

Aligned with the recommendation of Yokoyama (2019), the present study aims to investigate a moderating factor in the relationship between self-efficacy and academic performance amidst COVID-19 pandemic. The researchers have chosen parental involvement as the moderating factor in this study because in the current educational set-up, parents play a very crucial role. According to Abulon & Saquilabon (2016), regardless of grade level, parental involvement will still strongly contribute to academic achievement of students. Aside from this, parental involvement is found to be a significant contributor to students' self-efficacy for learning (Adimora et al., 2019). No local study that has been conducted yet in exploring the potential moderating role of parental involvement on the relationship of self-efficacy for blended learning and academic performance. Hence, this study would like to investigate if parental involvement moderates the relationship of self-efficacy for blended learning and academic performance amidst COVID-19 pandemic.

A local study of Dullas (2018) explored academic self-efficacy of high school students in the Philippines. He developed and validated a 62-item academic self-efficacy scale that is specifically intended for Filipino junior high school students. Using principal component analysis, he found that academic self-efficacy has four dimensions such as perceived control, competence, persistence and self-regulation. Based on his findings, he pointed out the significant influence of academic self-efficacy on academic performance. Even though Dullas (2018) provided good evidence of validity and reliability of his academic self-

efficacy scale, it is too lengthy to be administered using online survey. Moreover, self-efficacy for blended learning is conceptually different from academic self-efficacy. On the other hand, Zimmerman and Kulikowich (2016) developed and validated the 22-item Online Learning Self-Efficacy Scale (OLSES) which aims to measure the self-efficacy of students in online environment in terms of three dimensions such as learning in the online environment; time management; and technology use. The framework of OLSES is centered to online learning which is only an aspect of blended learning. Up to date, no scale measuring self-efficacy particularly in the context of blended learning is published. This shortcoming drives the researcher to use researcher-made instrument measuring students' self-efficacy for blended learning in this time of pandemic based on aforementioned studies of Dullas (2018) and Zimmerman and Kulikowich (2016).

Four types of parental involvement were provided by Epstein (1994) as cited by Gomes (2015) such as basic obligations; school-to-home communications; parent involvement at school; and parent involvement in learning at home. In the Philippine context, Nierva (2009) described parental involvement as vague and needs to be improved which is essentially true up to the present time. According to Jabar et. al (2020), a uniform way of defining parental involvement does not exist but it can only be described as "any action taken by a parent that can theoretically be expected to improve student performance or behavior" (McNeal, 2014 as cited by Jabar et. al, 2020).

For this study, the definition of parental involvement is guided by the definition given by Harris and Goodall (2007). According to them, parental involvement is reflected on education-related behaviors, practices, aspirations, participation, communication with their children, and giving rules at home. Generating items for the researcher-made Parental Involvement Questionnaire was based on the said definition. Jabar et. al (2020) noted that depending on the degree of parental involvement, parents can bring success or failure on the academic performance of their child. This notion makes parental involvement as a good moderating variable for the relationship between any variable and academic performance.

By investigating the moderating role of parental involvement on the relationship between self-efficacy for blended learning and academic performance, this study can provide further evidences of the influence of the two said predictor variables on academic performance especially in this time of pandemic. It can also provide possible explanation in the opposing claims regarding the relationship between self-efficacy and academic performance. Thus, this study hypothesized that both self-efficacy for blended learning and parental involvement will positively predict academic performance. Moreover, parental involvement will moderate the relationship between self-efficacy for blended learning

and academic performance of students in the new normal setting.

2. METHODOLOGY

2.1 Participants and Procedure

The respondents for this study were Junior High school students of Captain Albert Aguilar National High School who were recruited through convenience sampling. Initially, there were 185 respondents but 63 students (34%) were removed based on exclusion criteria. These criteria include students with unengaged responses, those who did not want their data to be used in this study and those who provided false information. A priori power analysis using GPower 3.1 software indicated that a sample size of 88 would be sufficient to detect a significant interaction effect with a power size of .90, an alpha of .05 and a medium size effect. Thus, the sample size is more than adequate for the main objective of this study.

Out of 122 who were remained, 56% (n = 68) were females and 44% (n = 54) were males. In terms of grade level; 43% (n= 52) were in Grade 10, 40% (n= 24) were in Grade 9, 24% (n= 30) were in Grade 8 and 13% (n= 16) were in Grade 7. The average age is 14.67 years old (SD = 1.88).

The survey was administered during the second quarter of school year 2020-2021. Prior to the conduct of data collection, permission was sought from the school head. The instruments were administered by the researcher via google form. Informed assent and permission to obtain the students' general average in the first quarter were also included in the online survey.

2.2 Measure

The academic performance of the respondents was measured using the first quarter general average. On the other hand, Self-Efficacy for Blended Learning Scale (SEBLS) and Parental Involvement Questionnaire (PIQ) were developed by the researches and pre-administered to 111 students. According to Kean et al. (2018), 100 to 150 respondents were adequate sample size to obtain reasonable precision when using Rasch analysis on simple data structures.

Both instruments underwent peer evaluation to confirm their content validity. Using JAMOVI Statistical Software (Version 1.2.27), two separate Principal Component analyses (PCA) were conducted to confirm the unidimensionality of both instruments. Prior to PCA, suitability of the data sets and sampling adequacy were confirmed using Bartlett's Test of Sphericity ($p > .001$), and KMO (.818 and .871) respectively. Results of PCA indicated that both scales are unidimensional. The total variance explained for SEBLS was 40.7% while the total variance explained for PIQ was 50.6%. Rasch analysis was then performed for each instrument using jMetrik software to examine the item difficulty, item fit, item

separation and reliability. Table 1 displays item difficulty estimates and item fit statistics of the two instruments.

Table 1. Item Difficulty and Item Fit of the Items

| Scale Items | D | I | O |
|--|-------|------|------|
| Self-Efficacy for Blended Learning Scale | | | |
| I can finish all the worksheets before the deadline. | 0.04 | 0.92 | 0.85 |
| I can stay focus on my tasks despite having distractions | 0.82 | 0.98 | 1.00 |
| If I have trouble understanding the lesson, I use the internet to find other sources and/or materials. | -1.22 | 1.27 | 1.26 |
| I communicate with my teacher about my concerns regarding my studies. | 0.68 | 1.13 | 1.13 |
| I can be an effective online study partner. | 0.84 | 1.12 | 1.07 |
| If I was not able to attend an online class, I look for alternative ways to learn the lesson. | -0.33 | 0.84 | 0.79 |
| I can follow all my teacher's instruction regarding accomplishing and submitting tasks. | -0.25 | 0.67 | 0.64 |
| As much as I can, I overcome technical difficulties on my own. | -0.24 | 0.97 | 1.03 |
| During hard times in my studies, I can motivate myself not to give up. | 0.07 | 1.19 | 1.26 |
| Regardless how boring and/or difficult the topic is, I still do my best. | -0.42 | 0.98 | 0.84 |
| Parental Involvement Questionnaire | | | |
| My parents motivate me to develop good study habits. | -0.63 | 0.82 | 0.83 |
| My parents do their very best to help me accomplish all the tasks. | 0.03 | 0.70 | 0.66 |
| My parents care about my performance in school. | -1.09 | 0.98 | 0.97 |
| My parents are aware if I am having a hard time understanding the lesson. | 0.19 | 1.09 | 1.01 |
| My parents make it sure that there will be no distractions when I am studying. | 0.02 | 0.96 | 0.99 |

| | | | |
|---|-------|------|------|
| My parents monitor my progress in accomplishing all assigned task. | 0.45 | 0.77 | 0.72 |
| My parents initiate conversation with me about my study. | 0.46 | 0.80 | 0.80 |
| My parents always remind me the importance of education. | -1.07 | 1.14 | 1.19 |
| My parents talk with other parents regarding school-related concerns. | 0.84 | 1.31 | 1.29 |
| My parents set rules that I need to obey during study time. | 0.81 | 1.18 | 1.25 |

*D – Difficulty; *I – INFIT; *O – OUTFIT

Self-Efficacy for Blended Learning Scale (SEBLS) is a 10-item self-reported scale used to assess the self-efficacy for blended learning of students. It was noted in the survey that the items pertain to their self-efficacy for blended learning during COVID-19 pandemic. The items of SEBLS are rated on a 5-point Likert scale (1 = *definitely not me* to 5 = *definitely me*).

Parental Involvement Questionnaire (PIQ) is a 10-item self-reported scale used to measure the parental involvement received by the students with regards to their study. 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 blended learning. The items of PIQ are rated on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*).

Table 2. Summary of Result of Rasch Analysis

| Psychometric Properties | SEBLS | PIQ |
|--|---------------|--------------|
| Item Difficulty | -1.22 to 0.84 | -1.09 – 0.84 |
| INFIT | 0.67 to 1.27 | 0.77 to 1.31 |
| OUTFIT | 0.64 to 1.26 | 0.66 to 1.29 |
| Item Separation/Person Separation | 4.76/2.07 | 5.63/2.44 |
| Item Reliability/RMSE | 0.95/0.12 | 0.97/0.12 |
| Person Reliability/RMSE | 0.81/0.45 | 0.86/0.44 |

Table 2 summarizes the results of Rasch analysis. Item difficulty for SEBLS ranges from -1.22-0.84, while the item difficulty for PIQ ranges from -1.09 – 0.84. Both scales have an adequate number of easy and difficult items. There are no misfit issues for both scales as indicated by the range of infit and outfit value. According to Wright & Linacre (1994) as

cited by David (2015), acceptable values for item fit values ranges from 0.6 to 1.4. The two scales exhibit an acceptable level of separation as indicated by the value of item and person separation. Both item and person reliability estimates indicate high internal consistency. The values of RMSE are not very high which suggest an acceptable level of measurement precision.

Rasch-Andrich thresholds for each scale were also examined to determine if respondents used the response categories properly. Average step calibrations were -0.98, -1.17, 0.73, 1.42 for self-efficacy for blended learning and -1.31, -0.53, 0.55, 1.30 for parental involvement. Monotonicity was observed only in parental involvement scale. However, the distances between threshold estimates are not within the recommended distance of 1.4 to 5 (Linacre, 1999 as cited by as cited by David, 2015). These shortcomings may due to the inclusion of neutral option in the two scales. According to Linacre (1999), disordered thresholds are minor issue for polytomous Rasch models. Thus, the result of Rasch analysis are sufficient to provide evidence that the two scales are reliable measures but further calibration is still recommended.

2.3 Data Analysis

Prior to the analysis, assumptions of multiple regression were checked. The scores among the variables were transformed to z-scores for standardization. A moderation analysis using hierarchical regression was then conducted to determine the significant increase in variance in academic performance explained by the addition of an interaction term between parental involvement and self-efficacy for blended learning. Moreover, simple slope analysis was conducted to determine the conditional effect of self-efficacy for blended learning to academic performance across different levels of parental involvement (low, average, high). All these were performed using JAMOVI Statistical Software (Version 1.2.27).

3. RESULTS

3.1 Assumption Checks

Assumption of multicollinearity is not violated as indicated by the values of variance inflation factors (VIF = 1.22, 1.22, 1.02) tolerance scores (statistics = .823 and .81). According to (Hair et al., 2010), the assumption of multicollinearity is violated when values of VIF exceed 4.0 and tolerance scores are less than 0.2. The Durbin-Watson statistic indicated that showed values of the residuals are independent (Durbin-Watson = 1.35). Values of Durbin-Watson statistic outside the range of 1 to 3 can cause concerns (Field 2009). Assumption of homoscedasticity was not violated as illustrated by no apparent signs of funneling of the Residuals Plot. Moreover, the values of the residuals are normally distributed (Shapiro-Wilk = 0.14). Lastly, the maximum cook's distance value ($D_i = 0.15$) is less than the

cut-off value of 1 which indicates that no influential case causes bias on the model.

Table 3 shows the results of descriptive statistics and correlations among the variables in this study. Both parental involvement ($M = 3.33$, $SD = 0.79$) and self-efficacy for blended learning ($M = 3.81$, $SD = 0.61$) are correlated to academic performance ($M = 86.2$, $SD = 5.19$) at moderate level ($r = .48$, $p < .001$; $r = .38$, $p < .001$).

Table 3. Means, standard deviations, and correlations of the study variables

| | Mean | SD | 1 | 2 | 3 |
|---------------------------------------|------|------|---------|---------|----|
| 1. Self-Efficacy for Blended Learning | 3.81 | 0.79 | -- | | |
| 2. Parental Involvement Questionnaire | 3.33 | 0.61 | 0.41*** | -- | |
| 3. Academic Performance | 86.2 | 5.19 | 0.38*** | 0.48*** | -- |

* $p < .05$; ** $p < .01$; *** $p < .001$

One of the objectives of this study is to determine if self-efficacy for blended learning and parental involvement predict academic performance. As shown in Table 4, self-efficacy for blended learning and parental involvement positively predicted academic performance ($\beta = .24$, $SE = .08$, $p = .004$; $\beta = .36$, $SE = .08$, $p < .001$). This shows that students who have a high self-efficacy for blended learning and/or received more parental involvement are more likely to perform better in the new normal education.

Table 4. Result of Moderation Analysis using Hierarchical Multiple Regression

| Predictor | β | SE | t | p |
|--|---------|--------|-------|--------|
| Intercept | -0.102 | 0.0803 | -1.27 | 0.207 |
| Self-Efficacy (Z) | 0.241 | 0.0824 | 2.92 | 0.004 |
| Parental Involvement (Z) | 0.368 | 0.0826 | 4.45 | < .001 |
| Self-Efficacy (Z) * Parental Involvement (Z) | 0.249 | 0.0738 | 3.38 | < .001 |

Table 5. Model Comparisons

| Model | | | | | | |
|------------|---|--------------|----------|------------|------------|----------|
| Comparison | | ΔR^2 | <i>F</i> | <i>df1</i> | <i>df2</i> | <i>p</i> |
| 1 | 2 | 0.063 7 | 11.4 | 1 | 118 | < .001 |

A moderation analysis using hierarchical regression was conducted to determine the significant increase in variance in academic performance explained by the addition of an interaction term between parental involvement and self-efficacy for blended learning. As shown in Table 5, parental involvement moderated the effect of self-efficacy for blended learning on academic performance, as evidenced by a statistically significant increase in total variation explained of 6.4%, $F(1, 118) = 11.4, p < .001$.

Table 6. Result of Simple Slope Analysis at Different levels of Parental Involvement

| | β | <i>SE</i> | <i>p</i> |
|-------------|----------|-----------|----------|
| Average | 0.24053 | 0.077 | 0.002 |
| Low (-1SD) | -0.00748 | 0.104 | 0.943 |
| High (+1SD) | 0.48854 | 0.1088 | < .001 |

Table 6 shows the conditional effect of self-efficacy for blended learning on academic performance at different level of parental involvement. The result of simple slope analysis revealed that self-efficacy for blended learning predicted academic performance only when parental involvement is average ($\beta = 0.24, p = .002$) or high ($\beta = 0.48, p < .001$). However, at low level of parental involvement, self-efficacy for blended learning did not predict academic performance ($\beta = -0.007, p = .943$).

4. DISCUSSION

The main goal of this study is to determine whether parental involvement can moderate the impact of self-efficacy for blended learning on academic performance. As expected, both self-efficacy for blended learning and parental involvement predicted academic performance. The findings about the significant relationship between self-efficacy for blended learning on academic performance were aligned to the findings of Zimmerman and Kulikowich (2016) that in online learning, students who have higher online self-efficacy are more likely to perform better. On the other hand, results on the relationship between parental involvement and academic performance surprisingly revealed that parental involvement was a better predictor of academic performance than self-efficacy for blended learning. This finding may due to the fact that in blended learning, parents were regarded as

home facilitators and serve various role as partners of teachers in new normal education. Furthermore, result of moderation analysis indicates that parental involvement enhances the relationship between self-efficacy for blended learning and academic performance. This supports the claim of Gomes (2015) that parental involvement is the missing link in the academic performance of students.

With regards to simple slope analysis, results indicated that students with higher self-efficacy for blended learning tend to have better academic performance provided that they receive average to high parental involvement. It is also revealed that when student received a higher parental involvement, his/her self-efficacy for blended learning becomes a better predictor of academic performance. On the other hand, if a student received low parental involvement, his/her self-efficacy for blended learning was not related to his academic performance. This finding provides possible enlightenment on the non-significant relationship between self-efficacy and academic performance found by Tus (2020). The respondents of his study were senior high school students who possibly received low parental involvement since it is found that parents think that they are incapable of helping their children in higher grade levels (Gomes 2015).

Based on the findings, important implications to education can be drawn. Given that parental involvement predicted academic performance and moderated the relationship between self-efficacy for blended learning and academic performance, schools and policy makers should give a better acknowledgement on its role in the new normal education. As recommended also by Abulon & Saquilabon (2016), schools should have consistent and progressive programs/ interventions where partnership with parents involve two-way communication. It should also be noted that the influence of parents on their children's academic performance should be positively maximized. A study exploring the potential barriers of parental involvement should be conducted to inform/train parents with possible parental strategies to cope with it. Teachers should also find ways on how to enhance students' self-efficacy for blended learning. Although a number of interventions in improving self-efficacy are published in literature, most of them are conducted in face-to-face set-up. It is highly recommended that they find new localized innovations that will enhance their students' self-efficacy for blended learning.

The threat of COVID 19 pandemic also brought some limitations in this study. First, it was only conducted in one public junior high school in Las Piñas City which may affect the applicability of the findings to other populations. Moreover, the study used self-reported instruments which are vulnerable to social desirability bias. Data gathering is also done using online survey which may bring potential issues on coverage since only those who have access to the internet were given the chance to respond. Despite these limitations, the findings of this study could possibly contribute exiting

gaps in literature about the relationship between self-efficacy and academic performance. This may also be used as basis for future studies in exploring this relationship or planning programs in promoting self-efficacy for blended learning and parental involvement in the new normal. Above all, the study recognizes the role of parents in the academic performance of their children amidst COVID 19 pandemic.

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