

Involvement of Home Facilitators and the Learners' Academic Performance in Science

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Abstract

The research intended to gauge the degree of engagement of home facilitators and how it is related to learners' academic success in Science in Grade 10. Descriptive-correlational research design and used convenience sampling were utilized. Epstein's model of parental participation, which consists of 30 items, was employed. The questionnaire was administered to 39 home facilitators and students from the designated drop-off point. The study's findings revealed that in parenting, volunteering, and decision-making, home facilitators showed high involvement. In terms of community collaboration, communication and home learning, home facilitators showed moderate involvement. Findings also suggested that there is no substantial difference in Grade 10 learners' educational results in Science when arranged in accordance to sex, monthly family income, and home facilitators' highest educational attainment; there is also no significant difference in the level of involvement of home facilitators when arranged in accordance by sex and educational level. Moreover, the findings suggested show there is no correlation between Grade 10 learners' academic success in Science and the extent of home facilitator participation. Based on these results, recommendations were made. School programs geared toward involvement and support of home facilitators may be enhanced and developed to strengthen the interaction of school, home, and community in pursuit of the betterment of the academic performance of the learners.

Keywords: level of involvement, academic performance, home facilitators

Introduction

Nearly every aspect of the world economy, society, culture, and education was impacted by the Covid-19 epidemic. The recent Covid-19 issue has compelled the majority of educational institutions to look for alternatives to direct instruction which involves learning in the sphere of teaching (OECD, 2020). The transition to modular distance education made things more challenging for the teaching staff, learners, and parents. In this case, employing home facilitators becomes of the utmost importance. Home facilitators' involvement is defined as the dedication of their time, effort, and goodwill to fostering learners' academic success (Sarrosa, 2017; Watson, 2019). By providing learning tools and overseeing learning at home, parents and guardians are expected to help their children study at home and take the role of instructors as home facilitators. Parents and guardians serve as important home facilitators of engagement, and schools

actively collaborate with homes to create settings that support academic achievement (Raftery, 2012; Lu & Mustafa, 2021). According to Cotton & Wikelund (2001; Kotirde & Yonus, 2014; Tuli & Tarekegne, 2019), home facilitators are the ones who help students improve their schoolwork by encouraging them, setting aside time and space for study, setting an example of the desired behavior (like reading for enjoyment), keeping an eye on their homework, and actively tutoring them at home.

For all types and ages of students, engagement in the learning process is favorably correlated with accomplishment (Cotton & Wikelund, 2001; Kotirde & Yonus, 2014; Tuli & Tarekegne, 2019). The outcomes are better the more intense this engagement is. Academic performance is the knowledge gained over a predetermined amount of time. According to studies, several elements help students' academic performance to improve (Narad and Abdullah, 2016; Mulinge, 2022). Daily study hours, parents' or guardians' socioeconomic position, and age all have a substantial impact on academic success Ali et al., 2013; Kaviyarasi & Balasubramanian, 2018). Similarly, parents' economic level, academic background, and encouragement are all factors that impact academic achievement (Farooq et al., (2011; Narad and Abdullah (2016; Mulinge, 2022). Proper parental and teacher leadership, Learning capacities, communication abilities, and other factors have all been noted as key determinants of academic achievement (Signh, & Signh, 2016; Munna & Kalam, 2021).

Negros Occidental Division has implemented modular distance learning as an alternative for face-to-face classes. The recent report of the School Monitoring, Evaluation, and Adjustment (SMEA) showed a low Mean Percentage Score (MPS) in Science brought about by a variety of factors. Learners struggle with self-studying, as emphasized by the study of Dangle and Sumaong (2020), and parents' inability to properly mentor their youngsters academically is revealed as a significant obstacle. Owing to the said experiences and situations, this research sought to ascertain the degree of home facilitators' participation. The findings would help to determine the relationship between the involvement of home facilitators as well as learning achievement of learners in science specifically when Covid-19 was in widespread usage.

Objectives of the Study

The study attempted to ascertain the extent of involvement of home facilitators and the educational achievement in Science of the 10th Grade learners officially enrolled in the School Year 2021-2022. Moreover, his research attempted to provide an answer to the following objectives.

1. Determine the profile of 10th Grade learners according to sex, monthly income, home facilitator's highest educational attainment
2. Determine the profile of home facilitators according to sex, monthly income, highest educational attainment
3. Assess the level of participation of home facilitators when it comes to parenthood, communication, undertaking voluntary work, studying at home, making decisions, and collaborating with others
4. Evaluate whether there is a significant disparity in learning outcomes of 10th Grade learners in Science when they are divided into groups based on sex, monthly income, home facilitator's highest educational attainment
5. Evaluate if there is a significant variation in their degree of engagement when home facilitators are categorized by their educational attainment, sex, and income per month
6. Determine if there is an association between Grade 10 learners' academic achievement in Science and the level of home facilitator's participation.

Methodology

Study Design. The researchers utilized a descriptive-correlational design for this study. This design is the way to determine the level of involvement of the home facilitator in the academic performance in science. This entails employing closed-ended survey questions to quickly gather data from a group of respondents, typically in the form of statistics (Mugenda and Mugenda, 2003; Dacholfany & Nasikah, 2022).

Respondents. Home facilitators of Grade 10 learners were officially admitted in the course of study 2021-2022 and responded to the research. There remained 39 respondents which all belonged to the same drop-off point handled by the researchers. The researchers used convenience sampling as there were a lot of restraints in conducting the study due to the pandemic.

Research Instrument. The involvement of parents' questionnaire based on Joyce Epstein is the tool used in this research. There were three sections in the survey questions: 1.) *Part I* of the instrument surveyed learners' profiles in terms of sex, income per month of the family, and their home facilitators' educational achievement. 2.) *Part II* of the instrument surveyed home facilitators' gender demographics, monthly household income, and the highest level of education. 3.) *Part III* surveyed home facilitators' attitudes about their involvement in the six dimensions of the Epstein model namely: parenthood, interacting, giving back to the community, studying at home, and making decisions. Each dimension contains a five-point Likert scale: 5 as strongly agree, 4 as agree, 3 as undecided, 2 as disagree, and 1 as strongly disagree.

Data Collection. To obtain the data needed to determine the level of support and involvement of home facilitators and educational achievement in Science. The researcher initially submitted a letter of consent for the implementation of the research to the office of the principal. Once approved, the survey questionnaire utilized in the study was subjected to a validity test using Lawshe method and it obtained a CVI of 0.82 which deemed all items included as essential. Pilot survey involving fifteen respondents was then carried out to verify the validity of the survey, data gathered were then subjected to *Cronbach alpha* and it resulted to an *alpha coefficient* of 0.7 which was considered acceptable. The researchers then secured informed consent from parents to ensure ethical considerations. After the collection of all parent's consent, the researcher employed the survey on thirty-nine home facilitators and students at the designated drop-off point. All accomplished survey questionnaires were then gathered and prepared for data organization.

Results and Discussion

1. Profile of 10th-Grade Learners

Table 1
Demographic Profile of Grade 10 Students

Variable	n	%
Sex		
Male	19	48.7
Female	20	51.3
Income		
Less than 5,000	19	48.7
5,000 - 10,000	10	25.6
10,000 - 15,000	3	7.7
More than 15,000	7	17.9
Education		
Elementary Graduate	7	17.9
High School Graduate	25	64.1
College Graduate	6	15.4
Others	1	2.6
Total	39	100.0

The profile of Grade 10 students in terms of sex, monthly family income, and home facilitator’s highest educational attainment is presented in Table 1. Data shows that out of 39 students, who formed part of this study as respondents, 48.7% or 19 are male, and 51.3% or 20 are female. The majority of students, or 48.7%, have a family's monthly earnings of less than P5,000; 25.6%, or 10 students, have a family income of between P5,000 and P10,000; 7.7%, or 3 students, have a family revenue between P10,000 and P15,000; and 17.9%, or 7 students, have a family revenue of more than P15,000.

2. Profile of Home Facilitators

Table 2
Demographic Profile of Home Facilitators

Variable	N	%
Sex		
Male	4	10.3
Female	35	89.7
Income		
Less than 5,000	19	48.7
5,000 - 10,000	10	25.6
10,000 - 15,000	3	7.7
More than 15,000	7	17.9
Education		
Elementary Graduate	7	17.9
High School Graduate	25	64.1
College Graduate	6	15.4
Others	1	2.6
Total	39	100.0

As shown in Table 2, the profile of the home facilitators according to sex, monthly family income, and highest educational attainment are presented. In terms of sex, the majority or 89.7 of home facilitators are female while only 10.3% are male. Data shows that 48.7% of the participants have a family income of less Php 5, 000 per month. 25.6% of those surveyed have family earnings of between Php 5,000 and Php 10,000 per month; 7.7% have a family income between Php 10,000 and Php 15,000 per month; and 17.9% have a family income of over Php 15,000 per month. However, these results contradicted Borrromeo's (2021) assertion that the majority of learning facilitators make up to P20,000 per month in total income. According to this, instructors can fulfill the learners' fundamental needs (Borrromeo, 2021).

In terms of educational attainment, home facilitators who are elementary graduates garnered a percentage of 17.9%; 64.1 % are high school graduates; 15.4% are college graduates; and only 2.6% attained an elementary level of education. Borrromeo (2021) distinguished the findings by stating that the education implementers with the highest educational success are university alumni. As a result, all learning mediators are qualified, knowledgeable, capable, and able to support and direct learners as they complete the tasks.

3. First Quarter Educational Achievement of 10th-Grade Learners in Science

Table 3 illustrates the educational accomplishment of learners in 10th grade in Science during the first quarter. When categorized by gender, male learners had a mean score of 82.74 and a standard deviation of 1.91, while female students had a slightly higher mean score of 83.25 and a standard deviation of 2.51.

Table 3
First Quarter Educational Achievement of 10th Grade Learners in Science

Parameter	M	SD	Interpretation
Sex			
Male	82.74	1.91	Satisfactory
Female	83.25	2.51	Satisfactory
Monthly Family Income			
Less than 5,000	82.53	2.22	Satisfactory
5,000 - 10,000	82.60	0.84	Satisfactory
10,000 - 15,000	84.33	3.51	Satisfactory
More than 15,000	84.29	2.75	Satisfactory
Whole	83.00	2.22	Satisfactory

This means that regardless of monthly family income, learners still obtained a satisfactory academic performance in Science. As a whole, the mean recorded is 83.00 with a standard deviation of 2.22 with its equivalent interpretation as satisfactory.

4. Level of Involvement of Facilitators

Table 4
Level of Involvement of Home Facilitators

Variable	M	SD	Interpretation
Parenting			
Overall Mean	2.15	0.63	High
Communicating			
Overall Mean	2.65	0.53	Moderate
Volunteering			
Overall Mean	2.12	0.42	High
Learning at Home			
Overall Mean	2.61	0.65	Moderate
Decision Making			
Overall Mean	2.02	0.56	High
Collaborating with Community			
Overall Mean	2.64	0.48	Moderate

Table 4 deals with the level of involvement of home facilitators in the context of parenthood, decision-making, cooperating, helping others, household learning, and interacting in public. In terms of parenthood, the total mean attained is 2.15, with a standard deviation of 0.63, indicating a high degree of involvement. The majority of home facilitators have moderate involvement in communication, as evidenced by an overall mean of 2.65 and a standard deviation of 0.53. with regards to volunteering, results suggest home facilitators are typically highly involved. In particular, home facilitators are highly involved (1.72) in understanding teachers’ jobs and parents’ roles and supporting volunteers at school, however, the majority of them were undecided (2.64) if they were confident with the skills that they can use for school volunteerism programs. In terms of learning at home, the overall mean obtained is 2.61 which is construed as a moderate level of involvement. Although home facilitators generally agreed that they made sure to reduce environmental distractions at home and provide a corner at home for the learner to study they were still undecided on the extent of their involvement in terms of guiding the learner in understanding

instructions on how to answer assignments and lessons, monitoring speed and output in the performance of home works and encouraging learners to make a regular plan on compliance of curriculum related activities. In terms of decision-making, the result implies an overall mean of 2.02, interpreted as a high level of involvement. In collaborating with the community, data reveals that the overall mean obtained is 2.64 which is interpreted as a moderate level of involvement. That implies that home facilitators generally agreed that they are aware of the community’s contribution to the school, they share experiences and connect with other families regarding concerns on school-related decision-making activities, and they are well acquainted with their youngster’s subject teachers and advisers about their youngster’s academic knowledge. In the context of parenthood, home facilitators are unsure of their willingness to work with instructors, collaborators, volunteers from the community, and other people to support them and enhance the teaching strategies used at the school. In addition, home facilitators are also undecided if they are trained as persons who can be referred to suffice the community’s needed services.

In line with parental involvement, and education in the context of parenthood, they spent more time with their children, who also devoted more time together wherein Math and Science are being practiced. They received more formal instruction and spent more time and have stronger math and science scores and more developed writing numerals in practice (Cheong & Kwan, 2021). However, parents of high school students frequently did not participate in Science instruction for the kids. This is in line with the corpus of research literature that contends that parental involvement declines by the time children reach secondary school (Simon, 2001; Epstein, 2018). Nonetheless, with our observations, parental engagement continues to be an essential multidimensional component in adolescents' high school transition.

5. Difference in the Educational Achievement of 10th-Grade Learners in Science

Table 5
Difference in the Educational Achievement of 10th Grade Learners in Science

Variable	U	df	p
Sex	179.000	-0.330	0.742
Variable	χ^2	df	p
Monthly Family Income	5.215	3	0.157
Parent's Highest Educational Attainment	3.759	3	0.289

Note: *when $p < 0.05$ is used, the difference is substantial

The Mann Whitney U test was employed to evaluate whether there was a significant difference in the academic performance among Grade 10 students in Science when they are grouped according to sex, while Kruskal Wallis when grouped according to monthly family income and home facilitators highest educational attainment. When learners in 10th grade are categorized according to sex, there is no substantial difference in their grades in Science [$U=179.0$, $p=0.742$], monthly family income [$\chi^2(3)=5.215$, $p=0.157$], and home facilitators’ highest educational attainment [$\chi^2(3)=3.759$, $p=0.289$].

In contrast, El Rafae et al. (2021) discovered that at least 7.4% of the variance in the academic achievement of learners in both F2F and distance learning can be accounted for by gender, educational level, and student status. Although these results seem tentative, they do suggest a causal relationship between factors like demography and educational success.

6. Variation in degree of engagement of Home Facilitators

Table 6
Variation in degree of engagement of Home Facilitators

Variable	U	df	p
Sex	68.000	-0.093	0.926
Variable	χ^2	df	p
Monthly Family Income	7.160	3	0.067
Parent's Highest Educational Attainment	0.620	3	0.892

Note: *when $p < 0.05$ is used, the difference is substantial

Results reveal that the Grade 10 students' academic performance in Science is independent concerning their sex and their home facilitators' educational attainment. Studies support that students' sex has no significant difference in learners' academic performance (Fabunmi, 2004; Dania, 2014; Mwihiya, 2020). Moreover, this research challenges the notion that adolescents' academic success is influenced by their parents' educational attainment (Marzano, 2003; Martin & Collie, 2019).

This research paper utilized the Mann Whitney U test to ascertain the level of significance for the variation in the engagement of home facilitators when they are grouped according to sex, while Kruskal Wallis when categorized by household income each month and home facilitators' highest educational attainment. There is no significant difference in the involvement of home facilitators when they are arranged in groups based on sex [$U=68.0$, $p=0.926$], monthly family income [$\chi^2(3)=7.160$, $p=0.067$], and home facilitators' highest educational attainment [$\chi^2(3)=0.620$, $p=0.892$]. Supporting research looked at data from parents and learners in secondary schools but found no connections between how often parents include their learners in different learning activities at home and how well they study math and science. (Powell, Son, File & San Juan, 2010; Galindo and Sheldon, 2012; Park & Holloway, 2018). Powell and the company also found that parental involvement at home did not influence youngsters' interpersonal abilities. Surprisingly, the investigators discovered a large, favorable correlation connecting parental engagement and ratings of learners and their academic performance in science and math.

7. Association Between Educational Achievement of 10th-Grade learners in Science and the Degree of Engagement of Home Facilitators

Table 7
Association Between the Educational achievement of 10th Grade Learners in Science and the Level of Participation of Home Facilitators

Source of Relationship	Computed R	p-value	Decision	Interpretation
Academic Performance	0.009	0.954	Null Hypothesis	There is no correlation
Level of support and involvement			Accepted	

Legend: Description of the strength of the correlation for the absolute value of r :

Negative	Positive	
-1	1	Perfect
-0.9 to -0.7	0.7 to 0.9	Strong
-0.6 to -0.4	0.4 to 0.6	Moderate
-0.3 to -0.1	0.1 to 0.3	Weak
0	0	Zero

The degree of home facilitator's participation and the academic achievement of Grade 10 children in Science are not significantly correlated; this is indicated by the p-value of 0.954 (0.05), which demonstrates the association is not statistically remarkable (at the 5% level). This shows that the educational achievement of learners is independent of the extent of their home facilitators' participation. This result

contradicts the study of Desforges and Abouchaar (2003; Novianti & Garzia, 2020). Evidence suggests that if parents are involved, there will be a high degree of accomplishment. This emphasizes how supportive and loving environments at home and school should cooperate to produce effective learners (Zedan, 2011; Zadok Boneh et al., 2022).

Conclusions

According to the study's findings, the demography of the students revealed that there were a majority of female students as respondents, the majority of them hailed from households with monthly incomes of less than 5,000 pesos. Additionally, almost all of the home facilitators for the children were high school graduates. The majority of learners received an acceptable academic achievement in Science in their initial grading period. In terms of the demographic profile of the home facilitators, a higher percentage of the respondents were females coming from families with less than five thousand as monthly income, and most of them were high school graduates.

According to the results, the home facilitators were highly involved in their student's education about of parenthood, doing volunteer work, and making decisions. Moreover, there is moderate participation in terms of community involvement, at-home learning, and communications.

When categorized by learner profile, it can be seen that there are no appreciable differences in the educational achievement of Grade 10 science learners. This suggests that learners' achievement in science is unrelated to their sex, monthly family income, or the level of education of their home facilitator.

It was also resolved that there is no substantial disparity in the amount of support and participation of home facilitators when grouped according to their profiles. This suggests that the level of support and involvement of home facilitators is independent concerning sex and educational attainment. Additionally, results supported the idea that there is no connection between the degree of home facilitator participation and the educational outcomes of grade 10 learners in Science. This implies that the learner's academic achievement in Science is unrelated to the extent of home facilitator participation.

Recommendations

The suggestions that arose from the study's findings based on its outcomes and inferences are as follows:

The School administration should craft or enhance school programs to strengthen the school, home, and community involvement in terms of support and parent engagement in pursuit of the academic performance of their learners. Science teachers can formulate action plans and interventions to foster the active involvement of home facilitators and to improve the academic performance of students. Parents must reassess their involvement and participation in facilitating the learning of their children. Moreover, the favorable influence of responsiveness to cultural differences on parental education must be maintained. Future researchers should utilize larger and less homogenous groups and may revise survey questions as necessary.

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