British Journal of Multidisciplinary and Advanced Studies:
Education, Learning, Training & Development, 4(5),104-111, 2023
Print ISSN: 2517-276X
Online ISSN: 2517-2778
https://bjmas.org/index.php/bjmas/index
Published by the European Centre for Research Training and Development UK

Learning Spaces and Teacher's Support: Implications to Students' Academic Performance in The TLE Subject During Modular Learning Modality

***Esan Sanchez Palasan**
[1]Lourdes College, Inc., Cagayan de Oro City, Misamis Oriental, Philippines
(esan.palasan@lccdo.edu.ph)

Raquel J. Dael
[2] Lourdes College Inc., Cagayan De Oro City, Misamis Oriental, Philippines
(raquel.dael@lccdo.edu.ph)

doi: https://doi.org/10.37745/bjmas.2022.0330 Published October 22 2023

Citation: Palasan E.S. and Dael R.J. (2023) Learning Spaces and Teacher's Support: Implications to Students' Academic Performance in The TLE Subject During Modular Learning Modality, *British Journal of Multidisciplinary and Advanced Studies:* Education, Learning, Training & Development, 4(5),104-111

ABSTRACT: *A good and conducive learning environment coupled with supportive teachers enhances students' academic performance. The influence of students' assessments in learning spaces, teacher support levels on their academic performance in TLE during modular distance modality was investigated in this study. A concurrent-nested mixed methods design was used to confirm, cross-validate, or corroborate findings within a study. A total of ninety-four participants participated in the study to respond to the questionnaire. Six groups with ten members joined in a focus group discussion (FGD) in the qualitative analysis part to describe their experiences in their learning spaces and teachers' support in the modular learning modality. Descriptive statistics such as frequency, means, percentages, and standard deviation were used to determine the students' learning spaces and the level of teacher support. Multiple regression analysis was used to determine the influence of learning spaces and teacher support on students' academic performance. Furthermore, four themes emerged from the qualitative analysis part of the study, namely: Conducive Environment; Enabling resources; Motivating and Making a follow up with students; and Providing clear instruction and explanation. The study recommends further empirical investigation on the challenges of the students during modular learning.*

KEYWORDS: learning space, modular distance modality, teachers' support, academic performance

INTRODUCTION

COVID-19 pandemic has caused profound changes in various dimensions of people's lives. With the mandate on physical distancing and community quarantine as the common measures to prevent the spread of COVID-19 virus, the basic education is one of the many sectors that is heavily impacted because of school closures. According to UNESCO (2020), the current health crisis has affected around 87% or about 1.5 billion of the global student population because of school closures. This scenario had an impact on all learners, teachers, and schools (Ocal et. Al 2021) as they adjusted to the new learning setting, that is, moving from the four corners of the classroom to the four walls of their homes, and from face-to-face to distance-learning platforms.

The transition to distant learning is vital in sustaining the delivery of learning among students, to which the main goal is to provide easy access to reliable and promptly available education during the pandemic (Hodges et al., 2020). As embodied in Section 2, Article XIV of the 1987 Constitution, and emphasized in RA No. 10533, or the "Enhanced Basic Education Act of 2013", the state is mandated to institute, maintain as well as support the provision of a complete, sufficient, and an integrated system of education that meets the needs of the country as a whole. Thus, the Department of Education has shown its commitment to ensure the unhampered provision of the

basic education services to the learners and the community at large even in the midst of this public health emergency. UNESCO (2017) also shares the same belief that strengthening the quality, access and system of education should not be compromised in critical times like the pandemic.

As cited by Elfirdoussi (2020), numerous researches were conducted in multiple countries aiming at assessing modular distance learning during the COVID-19 pandemic. However, less is known about students' perspectives on learning spaces and teacher support and its impact on their academic performance. Obtaining knowledge on students' perceptions is assumed to greatly aid in examining the impact of this unprecedented learning arrangement on their academic performance during the implementation of distance modular learning. Hence, in light of the extreme emergency distance learning event, it is interesting to investigate how students have experienced the new learning environment, shaped mainly by their parents and teachers (Garrote, A. et al., 2021). Thus, this study focuses on how the new learning space considering spatial, sensory, social and instrumental; and teacher support considering informational, instrumental and emotional / appraisal are perceived and experienced by the students during modular distance learning and its influence on the academic performance. Finally, this study would be used as the basis in structuring school-based intervention programs.

Conceptual Framework

This study is anchored on the assumption that learning spaces and the level of teacher support influence the student's academic performance in Technology and Livelihood Education (TLE) subjects during modular distance modality. This study is anchored on the theories of Vygotsky on Sociocultural Theory and Moore on the Theory of Transactional Distance.

Vygotsky (1962) offered a lens of how social environments influence learning. He suggested that learning takes place through students' interactions with their peers, teachers, and other experts. The teacher, or local topic expert, plays the vital role of facilitator, creating the environment where direct and guided interactions occur. Vygotsky's socio-cultural theory believes that social interaction plays a fundamental role in developing cognition. A child's cultural development function appears twice; first, on the social level, on the individual level and social level, between people and then inside the child (intrapsychological). This applies to voluntary attention, logical memory, and the formation of concepts. All the higher functions originate as relationships between individuals (Vygotsky, 1978). Learning is considered a social process based on group interactions (Swan & Shea, 2005).

Another theory is the Transactional Distance Theory of Michael G. Moore, that proposed that in distance learning scenarios, the separation between the teacher and students can "lead to communication gaps, psychological space of potential misunderstanding between the behaviors of the learners and those of the instructors" (Moore & Kearsley, 1996). The transaction known as distance education occurs between teachers and learners in an environment that separates teachers from learners. The transactional distance between teacher and learner is potentially more problematic at a distance and may have contributed to students' feelings of isolation, reduced motivation and engagement, and eventually attrition in early Distance Learning (Delgaty, 2018).
In the new normal, teachers and students are being separated, leading to communication gaps, which would be challenging for the teachers to transfer knowledge to the students. This profoundly affects the students' learning, as mentioned by Moore in his transactional distance theory. However, research findings reveal that if there is strong support from the teachers to their students during distance learning, this gap might be eliminated or minimized, helping the students in their studies during modular distance learning. According to Skaalvik (2013), perceived teacher support positively relates to students' academic self-concept and intrinsic motivation in learning. Showing care and concern for students and spending time knowing them will positively influence students' participation and effort in learning (Tucker et al., 2002). This was also confirmed by research conducted by Chen (2005), averring that affective teacher behaviors gain more importance for students' well-being and academic functioning.

The first variable of this study assumed to influence students' academic performance is learning space. When the Covid-19 pandemic started, home learning space was the talk of the town among parents, students, and teachers when the Department of Education decided to continue education amidst the pandemic. Learning space is not only about the chair and table at home. It also involves different factors that provide a blueprint for learning (Inquirer, 2020). Learning needs space to take place; hence, whether digital or physical, it is an essential requirement for the 21st century (Uduku, 2015). The home learning environment plays a crucial role in students' academic progress, as it may positively or negatively impact the learning process.

The second component of a learning space is sensory. The sensory basket includes air quality, temperature, visibility (lightning), and audibility (soundscape). This includes natural lighting from windows or light from lamps. Few studies have shown that natural lighting in learning spaces boosts performance, well-being, and creativity. The lighter, the more conducive the learning space is for learning. It is also essential to have a learning space with no distractions. According to Higgins (2005), there is a shred of robust and consistent evidence for the effect of essential physical variables (air quality, temperature, noise) on learning. The third component of learning space is social**.** Teacher-students' interaction, instructional methods, group size, and tidiness of the place belonged to the social basket. Learners learn best when their spaces are organized and clutter-free. It will be more motivating and focused if the learning space is clean and tidy. An ideal learning space provides order that is simple for any learner to grasp; for example, their modules are organized on shelves so they will not get dirty and wet (Hendrix, 2019).

The last component of learning space is instrumental. An instrumental basket includes equipment, availability of tools, and ergonomic considerations regarding the chairs and desks. Learning spaces designed according to students' needs improve student motivation and success by using various materials. For example, the availability of technology equipment such as cellphone, laptops, and computers will help the students do their modules. As Vinales (2015) mentioned in her study, learning spaces are vital for student learning. It creates crucial exposure for the students and helps students develop their skills, knowledge, attitudes, and behaviors to meet 21st-century competencies.

Teacher support is another independent variable assumed to affect academic performance. The first type of teacher support is informational support which includes the giving of tangible support to augment learning (Tennant et al., 2015), which can be shown when teachers will spend or dedicate extra time with students to discuss unknown or difficult concepts. This can also be done in terms of a teacher sharing advice, offering guidance or information in a particular content area that can be used to solve a given problem (Malecki et al., 2000; Suldo et al., 2009).

The second type of teacher support is instrumental support which is commonly identified in terms of the teachers providing tangible resources to promote learning of students such as the giving of enrichment activities or possible activities for students to collaborate, and expending extra amount of time to ensure that learning takes place (Suldo et al., 2009). When teachers provide that instrumental support and students perceive it, they are more inclined to participate in tasks that are assigned to them (Strati, Schmidt & Maier, 2017). Thus, the relationship between instrumental support afforded by teachers to students and the different components of learning has clearly established a potential relationship between teachers' provision of instrumental support and academic achievement (Wong et al., 2018).

The last major type of teacher support is emotional/appraisal support. This is a kind of support provided by teachers to students in the form of giving affirmations, feedback, and social comparison. Lei et al. (2017) viewed this support as a show of love, empathy, trust, and giving of evaluative feedback by the teachers to their students. In the environment for learning, one important measure of such teacher support is through the teachers' provision of student feedback (Kelly & Antonio, 2016). Feedbacking, according to Andersson & Palm (2017), provides students

with relevant information on their performance on a specific topic, intending to empower them to become self-regulated learners.

The last variable of the study is on students' academic performance, which is assumed to be influenced with learning space and teacher support. There are researches that showed a significant requirement to motivate and challenge students is to create or foster an environment that is emotionally supportive for academic learning (Turner & Meyer, 2004). Students in an emotionally supportive environment would oftentimes feel joyful and relaxed (Patrick, Turner, Meyer, & Midgley, 2003). Research findings have also shown academic self-concept and motivation in the learning process relate highly to the perceived affective behaviors of teachers (Skaalvik & Skaalvik, 2013). Teachers' behaviors such as exhibiting concern and care for students and giving extra time on getting to know more about them may have an important bearing on the positive influences on the way by which students participate and exert effort to learn (Tucker et al., 2002).

In this study, the students' academic performance was measured in Technology and Livelihood Education (TLE) subject during the second quarter. The TLE academic performance was assessed using two components only as opposed to the three components utilized prior to the pandemic. Considering the fact that learners were left to themselves and / or to the care of their parents or guardians during the learning process without the presence of the teacher, the conduct of periodical examinations was eliminated, leaving two components to be assessed only as highlighted in DepEd Order 031, s. 2020 issued last October 2, 2020 entitled Interim Guidelines for Assessment and Grading in light of the Basic Education Learning Continuity Plan to adapt to the new educational learning modality. In the aforesaid guidelines, schools are encouraged to consider assessments and grading practices that will provide opportunities that will meaningfully support learner development and at the same time provide for more flexibility to better respond to varied contexts at this time of crisis. Thus, given the new context, performance tasks are given the most weight of 70% and written works weighted 30%, respectively.

METHODS

This study employed a concurrent-nested mixed methods research design to confirm, cross-validate, or corroborate findings within a study. Generally, two methods were used to overcome a weakness in using one method with the strengths of another (Creswell, 2003). This design was deemed appropriate as it can provide strength from the results drawn from the quantitative analysis, along with the explanatory descriptions elicited from the qualitative analysis. A total of ninety four Grade 8 students from a Public High School in the Municipality of Lagonglong participated in this study.

The questionnaire on Learning Spaces (OECD, 2018) and Teachers' Support and the scale for Teacher Support (Frostad et al, (2015): Implications to Students Academic Performance in the TLE Subject during Modular Distance Modality was utilized in the study. The researcher distributed the questionnaire during the students' retrieval of modules. The participants were grouped into six consisting ten (10) members for a focus group discussion to generate their qualitative responses. The following statistical tools were used to facilitate the data analysis of the study: descriptive statistics such as frequency, means, percentages, and standard deviation were utilized to determine the students' learning spaces and the level of teacher support. Multiple regression analysis was also employed to determine whether the learning spaces and the level of teacher support would influence students' academic performance in TLE subjects during the modular distance learning. Themes were created to analyze and organized the qualitative data from the FGD.

DISCUSSION OF RESULTS

Table 1 depicts the frequency, means and standard deviation of the participant's assessment of their learning spaces in terms of spatial, sensory, social and instrumental dimensions. Results

reveal that generally they assessed all these dimensions as good having the mean scores of M=3.77, M=3.68, M=3.65, and M=3.65 respectively, which denote evidences that in terms of spatial dimension, students are provided with a good learning spaces at home as these are safe from rain, spacious for studying and for completing their modules although these spaces are multipurpose

Table 1. Frequency, Percentage, and Mean Distribution of the Participants' Assessment of their Learning Spaces
(Spatial, Sensory, Social and Instrumental)

Components of Learning Space	M	Interpretation	SD
Spatial	3.77	Good	.46
Sensory	3.65	Good	.50
Social	3.65	Good	.56
Instrumental	3.68	Good	.96

Legend: 4.51-5.00 Very Good; 3.51-4.50-Good; 2.51-3.50 Fair; 1.51-2.50 Poor and 1.00-1.50 Very Poor

When sensory dimension was considered, findings showed that learning spaces of the participants are conducive for answering their modules and these spaces provide for good ventilation and lighting. The social dimension of the participants' learning space also indicates that teacher-student interaction, instructional methods and tidiness of the place are favorable. While the instrumental dimension showed evidence that their home learning space favorably considers their needs regarding the availability of learning equipment, tools, instructional materials, and ergonomic considerations.

Table 2 presents the frequency, percentage, and mean distribution of the participants' assessment of the teachers' support in terms of the informational dimension. Data show that students generally assessed the informational, instrumental and emotional dimensions of the teachers' support as *high* bearing the average mean scores of : M=3.91, M=3.88, and M=4.06 respectively. In the informational dimension, teachers have highly demonstrated tangible support to augment students' learning, as shown in terms of spending time with students in explaining and clarifying difficult concepts, readiness to respond to their concerns and questions, and conduct of consultation and remediation activities as needed. The instrumental dimension also provides a high evidence of teacher support as shown in their availability to accommodate and reach out to students' academic concerns even during weekends through home visits or using phone. Finally, students were also found to have a high regard of the emotional support provided by teachers as demonstrated in the form of showing trust, care, giving of affirmations and feedback.

Table 2. Frequency, Percentage, and Mean Distribution of the Participants' Assessment of Teacher Support
(Informational, Instrumental, and Emotional / Appraisal)

Components of Teacher Support	M	Interpretation	SD
Informational	3.91	High	.51
Instrumental	3.88	High	.73
Emotional / Appraisal	4.06	High	.50

Legend: 4.51-5.00 Very Good; 3.51-4.50-Good; 2.51-3.50 Fair; 1.51-2.50 Poor and 1.00-1.50 Very Poor

Table 3 reflects the frequency, percentage and mean distribution of the participants' level of academic performance in TLE subject during modular distance modality. Data reveal that the

participants' level of academic performance is *satisfactory* with an average grade of 84.97. Gleaning from the tabular presentation, it can be noted that the grades between 80-86 got the highest frequency of 64 with 68.09% while grades between 87-94 got the frequency of 28 with 29.79% and the lowest frequency of 2 with 2.13% is on the grade 75-79. This result implies that most of the participants have a satisfactory academic performance during the modular distance modality given the good provision of learning spaces at home and the high teacher support in terms of informational, instrumental, and emotional support. The satisfactory academic performance may have implications on improving the provision of learning spaces at home to consider spatial, sensory, and instrumental components.

Table 3. Frequency, Percentage, and Mean Distribution of the Participants' Academic Performance in TLE Subject

Range	Description	Frequency	Percentage
95-100	Outstanding	0	0.00
87-94	Very Satisfactory	28	29.79
80-86	Satisfactory	64	68.09
75-79	Fairly Satisfactory	2	2.13
Below 75	Did not meet expectations	0	0.00
	Total	**94**	**100.0**
Average Grade		**84.97**	
Interpretation		**Satisfactory**	
SD		**3.21**	

Table 4 shows the regression analysis of the influence of learning spaces and teacher support on academic performance in TLE subject. Results reveal that the whole model is significant (F = 7.80, p = .001). Thus, the null hypothesis can be rejected. Findings in this study show that the combination of good learning spaces and the support of teachers contribute to the students' academic performance in TLE, although only 12.8 percent of the variability of their academic performance is accounted for by a combination of the predictor variables (Adjusted R2 = .128). The remaining 77.2 percent may be due to other factors not covered in this study, such as their competence, motivation, and other contributory factors. This implies that when students will be provided with a good and conducive learning spaces at home and supported by the teachers well, the learnings of the students will be impacted and their academic performance will be improved.

Table 5. Regression Analysis of the Influence of Learning Spaces and Teacher Support on Academic Performance in TLE Subject

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	71.44	3.84		18.62	.000
Learning Spaces	.906	1.008	.095	.899	.371
Teacher Support	2.58	.813	.335	3.18**	.002
Model Summary					
R = .382	R2 = .146	Adjusted R2 = .128	F = 7.80**	p = .001	

**significant at 0.01 level

Thus, addressing the challenges mentioned by the students during the FGD will also contribute positively to the overall performance of the students during modular learning modality. Despite the challenges reported by the participants, they still find silver linings out from the challenges they encounter in the practice of distance learning.

To determine how students' learning spaces and teacher's support aid them in their performance in TLE subject, the domains generated from the responses of the focus group discussion (FGD) has produced two themes on learning spaces, while the last two themes were related to teacher

support. These themes are as follows: *conducive environment; enabling resources; motivating and following-ups the students; and providing clear instructions and explanations.*

CONCLUSIONS AND RECOMMENDATIONS

This study has established the evidence that learning spaces and the level of teacher's support contribute to the students' academic performance in TLE subject. Although students showed satisfactory academic performance in TLE, it can be inferred that a combination of good learning spaces and high teacher support impact students' learning and improve academic performance. This result would have implications to strengthen the quality of teacher support considering informational, instrumental, and emotional support. Numerous empirical studies have found that students provided by the teachers with more teacher support bear higher positive academic emotions which may affect academic achievements. Hence, students afforded more support from their teacher may have more interest, pride, enjoyment, relief, or hope (Ahmed et al., 2010; King et al., 2012; Tian et al., 2013).

Furthermore, the findings confirm the assumption of the study on the influence of learning space and the level of teacher support on the student's academic performance in TLE subjects during modular distance modality. This study also finds consonance with what Vygotsky's Socio-cultural theory emphasized that students' learning is highly affected by their learning environment and with Moore's transaction theory on strong teacher support during distance learning may have a bearing in eliminating or minimizing the gap between teacher and students; hence, helping students in their academic performance during modular distance learning.

In the light of the findings and conclusions of the study, the researcher presents the following recommendations: Administrators may develop interventions designed for students who are considered as learners at risk of dropping out (LARDO) and non-compliant; Parents and guardians may consider addressing the challenges of the students in their learning spaces at home during modular learning, ensuring that students have a good learning space at home during the modular distance modality will improve and motivate students; Teachers shall strengthen teacher-student interaction by providing immediate assistance to students with difficulties in answering their modules, facilitating the learning needs of the students during the modular distance modality by reaching them whenever necessary and conducting remediation and enhancement activities for low performing students; and For future researchers to conduct a further empirical investigation on the other contributory factors not included in this study such as the competence, motivation and parents contribution to students' academic performance during the modular distance modality.

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