
Play-based Learning in Teaching Literacy and Numeracy Among Kindergarten Learners in Modular Distance Learning During the Covid-19 Pandemic

Gengen G. Padillo¹, Evangeline G. Araula², Jovelyn L. Malinao³, Marife Q. Niere⁴, Ramil P. Manguilimotan⁵, Reylan G. Capuno⁶, Leonilo T. Araula⁷

¹Cebu Technological University – Main Campus, College of Education

²Cebu Technological University – Main Campus, College of Education

³Cebu Technological University – Main Campus, College of Education

⁴Cebu Technological University – Main Campus, College of Education

⁵Cebu Technological University – Main Campus, College of Education

⁶Cebu Technological University – Main Campus, College of Education

⁷Cebu Technological University – Main Campus, College of Education

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Abstract

This study determined the effectiveness of play-based learning in teaching literacy and numeracy among kindergarten learners in modular distance learning during COVID-19 pandemic at the identified schools in Mandaue City Division for school year 2021 – 2022 as the basis for enhancement plans. This study used the descriptive-quantitative research design that tested any significant difference between the effectiveness of play-based learning in teaching literacy and numeracy among kindergarten learners. Using the survey questionnaire, the data were collected from 38 respondents using universal sampling from all kindergarten teachers from the north district of Mandaue City Division. Results showed that the respondents rated "Excellent" to the play-based instructions in terms of its efficiency in teaching kindergarten learners during the COVID-19 pandemic for both literacy and numeracy. Findings revealed that there is no significant difference that existed between the variables. The most pressing issues and concerns encountered by the respondents were the lack of learning materials; teachers' supervision of the learners; parents' difficulty in guiding their child; lack of time allotment for the activities; and lack of space. The study found that play-based instructions effectively developed kindergarten learners' literacy and numeracy skills during the COVID-19 pandemic. It is further recommended that the output from this study be adapted to the schools in the north district of the Mandaue City division.

Keywords: early childhood education, play-based learning, literacy and numeracy enhancement, descriptive-quantitative research, Mandaue City, Cebu

1. Introduction

Education has always been subject to many changes, leading to its continuous growth. In times of COVID-19, the education sector again faced a great challenge, especially in the early childhood education sector, as it transitioned to remote learning(Bozkurt et al., 2020). According to Bryce et al., (2020) and Kim et al. (2021), formal schooling begins at this stage and is crucial to determine the children's academic performance. One of the pedagogical approaches that the Kindergarten teachers in the Philippines use is the play-based learning. Play-based learning is a pedagogical approach emphasizing using play to promote children's development and learning in various areas(Taylor & Boyer, 2020). Play-based learning could be used during modular distance learning by incorporating educational games into the routine activity of the family as they stay at home during the pandemic.

Despite play-based learning being a beneficial tool to help children, it is often only utilized in some countries. The UNICEF review of 37 countries' Early Learning and Development Standards revealed that playful learning was only well integrated with one-third of the standards(Lalani, 2020).

As it adopts the K to 12 Curriculum as the country's educational system, the Philippines follows the Kindergarten Education Act (Republic Act No. 10157). In this act, all five (5)-year-old Filipino children are offered mandatory and compulsory Kindergarten education that effectively promotes physical, social, cognitive, and emotional skills stimulation and values formation to prepare them for Grade One adequately(Magallanes et al., 2021). The Kindergarten Education Act highlights that kindergarten education is essential for Filipino children's development because, during this time, their mind's absorptive capacity is at its peak(Rana, 2022). However, with the thin line between play and learning, play-based learning in the Philippines is not widely implemented.

Undeniably, children's future depends on early childhood programs laying the groundwork for their learning and development. In Cebu, most of the young children enter the program with first-hand support from their parents as it has been seen to incur numerous positive effects on their child. Also, in this time, when children are playful in nature, parents and teachers are one in supporting play-based learning. Children learn best when they can make significant connections to their lives when they are engaged, mentally active, and social, all of which are traits of play.

This context proved that play-based learning is the key to effectively implementing early childhood education. Hence, the study determines the effectiveness of play-based learning in teaching literacy and numeracy among kindergarten learners in modular distance learning during the COVID-19 pandemic at the identified schools in Mandaue City Division as the basis for an enhancement plan.

1.1. Purpose of the study

This study determined the effectiveness of play-based learning in teaching literacy and numeracy among kindergarten learners in modular distance learning during the COVID-19 pandemic at the identified schools in Mandaue City Division for the school year 2021 – 2022 as the basis for enhancement plans.

Specifically, the study sought answers to the inquiries about the profile of the respondents in terms of age and gender, highest educational attainment, rank, length of service, and attendance to relevant training and seminars; the level of effectiveness of play-based learning during the COVID-19 pandemic in teaching kindergarten learners in terms of literacy, and numeracy; significant difference between the effectiveness of play-based learning in teaching literacy and numeracy among kindergarten learners; and the issues and concerns experienced by the kindergarten teachers in using play-based learning activities in teaching literacy and numeracy during modular instructions.

2. Method

This section presents the research design, respondents, instrument, data gathering procedure, and statistical treatment of the data.

2.1 Research design

This study employed the quantitative method of research following the differential design of testing the significant difference between the efficiency levels of teaching literacy and numeracy among kindergarten learners using play-based learning during the modular approach. A survey questionnaire was used to gather the necessary data such as the profile of the respondents and the level of effectiveness of play-based learning during the COVID-19 pandemic in teaching kindergarten learners in terms of literacy and numeracy. The study employed the universal sampling method, thus, automatically subjecting all kindergarten teachers from the Mandaue North district as sources of data. The data collected from the survey were treated appropriately using descriptive and inferential statistics through computer applications such as the spreadsheet programs and Statistical Package for Social Sciences (SPSS Version 24 for Windows) and the results from the analysis were interpreted accordingly.

2.2 Respondents

The research respondents of the study were kindergarten teachers from the north district of Mandaue City Division. For the purpose of the study, the universal sampling was employed, which qualifies all kindergarten teachers from the Mandaue North district as respondents to the survey. Thus, all 38 kindergarten teachers from the six schools that composed the Mandaue North district were subjected as survey respondents. The teachers were chosen as sources of data for the study since they are the ones who know about the play-based activities that they have provided to their learners. They are also the immediate contact of the parents of the kindergarten learners if the parents need technical support in administering play-based learning activities.

2.3 Instrument

The study employed a survey questionnaire to collect the necessary data. The questionnaire is adapted from Mardell et al. (2016). The survey questionnaire was composed of four (4) parts.

The first part identified the background information of the kindergarten teachers regarding age, gender, highest educational attainment, rank, and attendance to relevant training and seminars. There were options on each question where the respondents would provide the answer on the background information that applies to them.

The second and third parts of the questionnaire identified the efficiency level of teaching literacy and numeracy among kindergarten learners using play-based learning during the modular approach in terms of role-playing, exploratory, manipulative, small-world play, games with rules, physical games, and digital plays. The presentation of the questions was based on the five-point Likert scale in which the respondents selected the option that suited them best.

Moreover, the last of the questionnaire listed the issues and concerns experienced by the kindergarten teachers in using play-based learning activities in teaching literacy and numeracy during modular instruction.

2.4 Data Gathering Procedure

There were three (3) stages in the course of collecting the necessary data for the study: preliminary stage, data gathering stage, and post data gathering stage.

Preliminary Stage. Before the actual collection of the data through survey and interviews commences, the researchers sent transmittal letters to the Schools Division Superintendent (SDS) of Mandaue City Division and Cebu Province Division, asking for their approval to collect the quantitative and qualitative data in the schools under their supervision. Once the SDS granted the request, different letters were sent to the school heads of the pilot schools, and the approved letter from the SDS was embedded. Upon the approval of the school head, the respondents were provided with a survey questionnaire, and those who would opt for an online survey, a link to Google form was sent to them for the electronic version.

At this point, informed consent was likewise expedited to allow the latter to contemplate and decide on such invitation to participate in the survey. In such letter is the information on the current endeavor of the researchers in their graduate teacher education, specifically, on thesis writing and defense. The informed consent includes the articulations of the probable benefits and the absence of risks that the respondents may know should he/she pursues joining the recent study.

Part of the letter explicitly ascertains that the Data Privacy Act be considered in the process. Hence, the respondents were assured that such an Act, which articulates to protect the fundamental human right of privacy of communication while ensuring the free flow of information to promote innovation and growth, be observed. Given this mandate, the researchers ensured that the anonymity of the respondent's name was given due consideration during the proper presentation of the empirical results. However, their responses from the given survey were disclosed at the succeeding part. On the other hand, should a respondent decline to participate in the study, his/her decision was respected.

Data Gathering Stage. Those kindergarten teachers who confirmed their joining to this recent study were briefed on the details and dynamics in filling in the questionnaire through various orientation modes (e.g., video conference, mobile phone calls, emails, messenger, etc.). From the completion of this phase, the transmittal (e.g., through emails, messenger, and other equivalent forms) and administration of the questionnaire was accordingly made. For those respondents who would like to answer the survey using the online method, a link to Google form was sent to them. Those who would opt to answer the survey using the traditional printed questionnaire were also provided. During data collection using the survey method, the researchers further observed the SOPs in new normal against COVID – 19 during data collection, such as observing proper social distancing and wearing protective equipment.

Post Data Gathering Stage. Once the survey was done, the questionnaires were collected while the raw data were collated and tabulated. Accordingly, the gathered data were after that statistically treated using the appropriate tools. After this, the whole procedure in data gathering eventually culminated with the scientific results being presented, analyzed, and interpreted in the succeeding chapter.

2.5 Statistical Treatment

For a faster and more accurate quantitative data analysis, the study employed computer applications such as spreadsheet programs like MS Excel and Statistical Package for Social Sciences (Version 25 for windows) to treat the data using descriptive and inferential statistics. The statistical measures used in treating the quantitative data were Frequency Count, Percentage, Ranking, Weighted Mean, Standard Deviation, and *t-test* (paired two samples for means).

3.0 Results

3.1 Profile of the Respondents

Table 1 presents the age and gender of the respondents.

Table 1
Age and Gender of the Respondents

Age (in years)	Female		Male		Total	
	f	%	f	%	f	%
46-50	3	7.89	0	0.00	3	7.89
41-45	5	13.16	0	0.00	5	13.16
36-40	9	23.68	0	0.00	9	23.68
31-35	11	28.95	0	0.00	11	28.95
26-30	9	23.68	0	0.00	9	23.68
21-25	1	2.63	0	0.00	1	2.63
Total	38	100.00	0	0.00	38	100.00

Results revealed that in terms of the age distribution, almost one-third (28.95%) of the respondents are 31 to 35 years. The kindergarten teachers who were 36 to 40 years old and 26 to 30 years old comprised almost one-fourth (23.68%) of the total population. More than one-fifth (13.16%) of the respondents belonged to the age category of 41 to 45 years old. Few of the respondents (7.89%) were aged between 46 to 50 years old. A lone respondent is aged between 21 to 25 years old which is new to the teaching profession.

Table 2 presents the highest educational attainment of the respondents.

Table 2
Highest Educational Attainment of the Respondents

Educational Attainment	f	%
Master's Degree	4	10.53
With Master's Units	30	78.95
Bachelor's Degree	4	10.53
Total	38	100.00

Table 2 showed the survey results on the background information of the kindergarten teachers of north district of Mandaue City division in terms of their highest educational attainment. Results revealed that almost four-fifth (78.95%) of the population were able to gain units from master's degree. More than one-tenth (10.53%) of the total population were able to graduate from the master's degree and another same number of teachers were not able to gain any units from a graduate program.

Table 3 presents the rank of the respondents.

Table 3
Rank of the Respondents

Rank	f	%
Teacher III	13	34.21
Teacher II	3	7.89
Teacher I	22	57.89
Total	38	100.00

Table 3 shows the survey results on the profile of the respondents from the north district of Mandaue City division based on their rank or position in DepEd. Results revealed that almost three-fifth (57.89%) of the respondents have a position in DepEd as Teacher I. Over one-third (34.21%) of the total respondent population claimed to be Teacher III. Less than one-tenth (7.89%) of the respondents, which has a frequency of three respondents, are Teacher II in DepEd.

Table 4 shows the data from the survey in terms of the profile of the kindergarten teachers from the six schools under the north district of the Mandaue City division.

Table 4
Length of Service of the Respondents

Length of Service (in years)	f	%
11 and above	3	7.89
9-10	8	21.05
7-8	8	21.05
5-6	2	5.26
3-4	13	34.21
2 and below	4	10.53
Total	38	100.00

Data showed that more than one-third (34.21%) of the respondents have been teaching kindergarten learners for "3 to 4 years". The length of service categories of "9 to 10 years" and "7 to 8 years" have an equal number of respondents which comprised more than one-fifth (21.05%) of the total population. The new teachers with a teaching experience of less than two years comprised only slightly more than one-tenth (10.53%) of the population. The tenured teachers teaching kindergarten classes for more than a decade are less than one-tenth (7.89%). Lastly, some respondents claimed their teaching experience is 5 to 6 years.

Table 5 shows the data on the attendance of the respondents to trainings, seminars and workshops that are related to early childhood education.

Table 5
Relevant Trainings and Seminar Attended by the Respondents

Trainings and Seminar Attended	f	Rank
Understanding Kindergarten Teaching and Learning	9	2
Training Workshop on Schools Learning Resources	6	3
In-Service Training for Teachers 2021	2	4.5
Kindergarten Remote Teaching and Learning	2	4.5
Training Workshop on Classroom Assessment	1	8.5
Play-based Related Training	1	8.5
INSET and Design Thinking K to 3 Math and Science Teaching	1	8.5
Training on Kindergarten Pedagogies	1	8.5
INSET for Teachers in SPED and Kindergarten	1	8.5
Mid-year INSET Training	1	8.5
None	12	1

Results revealed that most of the respondents claimed that they were able to attend a relevant training since 12 out of 38 respondents said that they have never ever attended any relevant trainings and seminars. Among those teachers who claimed that they were able to attend a relevant training, 9 of them said the they attended the "Understanding Kindergarten Teaching and Learning". The "Training Workshop on Schools Learning Resources" was the second most attended training since 6 respondents claimed that they attended to it. A couple of respondents were able to attend both trainings on "In-Service Training for Teachers 2021" and "Kindergarten Remote Teaching and Learning". The following trainings were attended by only one teacher: "Training Workshop on Classroom Assessment"; "Play-based Related Training"; "INSET and Design Thinking K to 3 Math and Science Teaching"; "Training on Kindergarten Pedagogies"; and "Mid-year INSET Training."

3.2 Level of Efficiency of the Play-Based Learning during Covid-19 Pandemic In Teaching Kindergarten Learners

Table 6 presents the results.

Table 6
Efficiency Level of Teaching Literacy among Kindergarten Learners Using the Play-Based Learning during the Modular Approach

S/N	Indicators	WM	Verbal Description
1	Role-playing	4.47	Excellent
2	Exploratory	4.45	Excellent
3	Manipulative	4.66	Excellent
4	Small World Play	4.18	Very Satisfactory
5	Games With Rules	4.58	Excellent
6	Physical Games	4.50	Excellent
7	Digital Plays	4.18	Very Satisfactory
Aggregate Weighted Mean		4.43	Excellent

Legend: 4.21- 5.00- Excellent 3.41-4.20- Very Satisfactory; 2.61– 3.40-Satisfactory ;1.81 – 2.60-Needs Improvement; 1.00 – 1.80–Poor

Table 6 presented the survey results as to the perceptions of the Kindergarten teachers in the north district of Mandaue City division in terms of the level of effectiveness of the play-based learning during COVID-19 pandemic in teaching the kindergarten learners, particularly in literacy. The data suggested that the respondents rated five play-based learning during COVID-19 pandemic as "*Excellent*" in teaching literacy and these are the: "Role-playing" with a mean of 4.47; "Exploratory" with a mean of 4.45; "Manipulative" with a mean of 4.66; "Games With Rules" with a mean of 4.58; and "Physical Games" with a mean of 4.50. The play-based instructions that were rated by the respondents as "*Very Satisfactory*" in improving the literacy skills of the kindergarten learners are the "Small World Play" with a mean of 4.18; and "Digital Plays" with a mean of 4.18.

Generally, based on the perspective of the respondents, the level of effectiveness of the play-based learning during COVID-19 pandemic in teaching the kindergarten learners in terms of literacy fell under the categorical level of "*Excellent*" since the **aggregate weighted mean is 4.43**, which is considerably high based on the five-point Likert scale.

Table 7
Efficiency Level of Teaching Numeracy among Kindergarten Learners Using
the Play-Based Learning during the Modular Approach

S/ N	Indicators	WM	Verbal Description
1	Role-playing	4.42	Excellent
2	Exploratory	4.42	Excellent
3	Manipulative	4.53	Excellent
4	Small World Play	4.34	Excellent
5	Games With Rules	4.42	Excellent
6	Physical Games	4.47	Excellent
7	Digital Plays	4.34	Excellent
Aggregate Weighted Mean		4.42	Excellent

Legend: 4.21- 5.00- Excellent 3.41-4.20- Very Satisfactory; 2.61– 3.40- Satisfactory ;1.81 – 2.60-Needs Improvement; 1.00 – 1.80–Poor

Table 7 shows the survey results from the data provided by the respondents regarding the level of effectiveness of the play-based learning during COVID-19 pandemic in teaching the kindergarten learners in terms of numeracy. Results demonstrated that the respondents perceived that all play-based pedagogical approaches are "*Excellent*" in teaching numeracy skills to kindergarten learners. The three play-based learning on "Role-playing", "Exploratory", and "Games with Rules" have a mean of 4.42. The play-based learning on "Manipulative" has a mean of 4.53, while "Physical Games" has a mean of 4.47. The play-based learning on "Small World Play" and "Digital Plays" have the same mean of 4.34.

In general, the kindergarten teachers from the north district of Mandaue City division perceived the that the play-based learning is "*Excellent*" during COVID-19 pandemic in teaching the kindergarten learners in terms of numeracy since the aggregate weighted mean was 4.42. Based on the established scoring procedures that followed the five-point Likert scale, this result could be considered relatively high.

3.3 Test of Significance of the Difference

This study hypothesized no significant difference between the efficiency levels of teaching literacy and numeracy among kindergarten learners using play-based learning during the modular approach. Table 8 presents the results.

Table 8
 Test of Difference between the Efficiency Levels of Teaching Literacy and Numeracy among Kindergarten Learners using the Play-Based Learning During the Modular Approach

Source of Difference	Mean	Standard Deviation	Mean Difference	Computed t- value	p- value	Decision	Result
Literacy	31.03	3.54	0.08	0.098	0.922	Do not reject Ho	Not Significant
Numeracy	30.95	3.46					

*significant @ $p < 0.05$

Table 8 presented the *t*-test results in testing the null hypothesis. Results showed that no significant difference existed between the variables since the *p*-value is 0.922, which is greater than the < 0.05 level of significance. The study, therefore, do not reject the null hypothesis.

The data suggests that play-based instructions in Kindergarten increase both the literacy and numeracy of the learners simultaneously since both variables do not vary.

3.4 Issues and Concerns Experienced by the Kindergarten Teachers in Using Play-Based Learning Activities in Teaching Literacy and Numeracy during Modular Instructions

Table 9 presents the survey results as to the issues and concerns experienced by the respondents on using play-based learning activities in teaching literacy and numeracy during modular instruction.

Table 9
 Issues and Concerns Experienced by the Kindergarten Teachers in Using Play-Based Learning Activities in Teaching Literacy and Numeracy during Modular Instructions

Issues and Concerns	f	Rank
Lack of learning materials	11	1
Lack of teachers' supervision of the learners	6	2
Parents' difficulty in guiding their child	5	3
Lack of time allotment for the activities	4	4.5
Lack of space	4	4.5
Learners lack of interest	3	6
Lack of time allotment for the activities	1	8
Handling learners with different learning styles	1	8
Complicated instructions in the module	1	8

*multiple response

Results revealed that the most pressing problem the respondents encountered involved the "Lack of learning materials" since 11 complained about it. The second most pressing issues and concerns in using play-based instructions was the "Lack of teachers' supervision of the learners" since 6 teachers experienced it. The third most pressing problem was "Parents' difficulty in guiding their child" since five respondents complained about it. The problems of "Lack of time allotment for the activities" and "Lack of space" shared the 4.5th rank. The sixth more pressing issue was about the "Learner's lack of interest". The problems on "Lack of time allotment for the activities", "Handling learners with different learning styles" and "Complicated instructions in the module" were the least problem that the respondents considered since only one respondent claimed that said problem existed.

4. Discussion

Amidst the challenges posed by the COVID-19 pandemic, the transition to modular distance learning for kindergarten learners, this study determined the effectiveness of play-based learning in teaching as a transformative strategy to enhance literacy and numeracy among kindergarten learners in modular distance learning during the COVID-19 pandemic

As to the profile of the respondents, all of the kindergarten teachers from the north district of Mandaue City division mostly are aged between 26 to 40 years old, are females; with master's units, and teacher 1 has been teaching in kindergarten for 3-4 years; and majority signified that they were not able to attend relevant seminars related to ECE.

Regarding gender distribution, the kindergarten teachers from the north district of Mandaue City division are all females. This could be attributed to more females taking up college early childhood education courses than their male counterparts. Early childhood education is heavily gendered since more female teachers handle the early stages of learning (Yang & McNair, 2021). Despite the advent of time, in early childhood education, males are still barred from entering the field of early childhood education and are still dominated by women.

The results as to the age of distribution of the kindergarten teachers of the north district of Mandaue City division could also be interpreted that since most of the respondents could be considered as young, they could be able to adapt to play-based instructions since they could be able to relate to the new trends that the young learners know. The age of the teachers is a factor that needs to be considered on the subject they would handle (Joshi et al., 2021). In connection with this study, the teacher's age needs to be considered if they will be assigned to kindergarten levels.

The data could be interpreted that the respondents were equipped with the necessary technical skills in teaching that they have obtained from higher level of education. It is expected that teachers who were able to pursue graduate studies are more likely to have gained the necessary skills that they could use in their teaching profession. Exposure to new trends in teaching could help them develop new skills that would improve their pedagogical approaches. Thus, they could effectively employ game-based instructions for early childhood education.

This result supports the claims of Kirsch and Aleksic (2018) that the more years rendered for studying incurs more knowledge of teachers that are beneficial towards their application in class. Courses such as pedagogical learning positively influenced Early childhood education practitioners' knowledge of what language learning entails and their attitudes and practices.

Results showed that the kindergarten teachers in the north district of Mandaue City division are dominated by Teacher I position, which is the entry level in public schools. An implication could be made from this result that although there are more Teacher I, they could ask for assistance and guidance from Teacher III on the matters that pertain to pedagogical approach and teaching methods. Teachers could gain mastery of their crafts by collaborating with other tenured and more experienced professionals (Somers & Terrill, 2022). The environment offered in the actual field of teaching as the teacher render their services could provide opportunity among the teachers to gain mastery with this job.

An interpretation from the results could be made that the kindergarten teachers from the north district of Mandaue City division are equipped with the necessary experiences that could be used in implementing play-based instructions since more of them have been teaching for more than 3 consecutive years. That length of time would be more than enough to equip the teachers with the technical know-how in using variety of game-based teaching methods. This result is supported by the claims of Guoyan et al. (2023) that the teaching experience of teachers is one of the most important factors towards improving the scores of learners that carries an impact on the well-being and growth of learners. With experience comes knowledge, and such pedagogical knowledge is in line with the quality of teaching and the result of learner learning.

This result could be interpreted that the kindergarten teachers from the north district of Mandaue City division need to be exposed to seminars, training, and workshops relevant to teaching kindergarten classes. Seminars and training could be feasible to empower kindergarten teachers. Teachers could also learn teaching techniques from the resource speakers and the other participants. The more exposure to the teaching community, the more excellent the opportunity for the teacher to be proficient in doing her tasks. (Donitsa-Schmidt & Ramot, 2020).

Regarding the effectiveness of play-based learning during the COVID-19 pandemic in teaching kindergarten learners, the respondents rated ***“Excellent”*** for literacy and numeracy. Furthermore, the hypothesis test revealed no significant difference between the variables.

This result could be interpreted that the kindergarten teachers from the north district of Mandaue City division do have a high confidence that play-based method of teaching could help the Kindergarten to improve their literacy skills during the new normal. This result be caused by the belief of the kindergarten teachers that it is a natural characteristic of the kindergarten learners that they would love to play, it would be better that literacy skills would be incorporated in the games. The learner would not be bored during lockdowns while they learn worthwhile things. This result support the claims of Rubens et al. (2020) that play-based learning has positive outcomes such as increased enjoyment, engagement, and motivation, all of which contribute to a child's healthy development that they could use in a life-long learning process. The result could be interpreted that the respondents have a very high confidence that the numeracy skills of the

kindergarten learners could be improved during the new normal using the play-based instructions. An implication, therefore, could be drawn that there is a need to equip the parents with the necessary technical know-how in administering play-based learning activities at home since they are the ones who are dealing with the learners daily. Play-based learning promotes the ability of the child to understand the concepts of numbers. Playing a store setting in which children use materials such as shells, flowers, bottle caps, and the like to create a simulation of buying and selling at store could help the learners gain numeracy skills.(Lee-Cultura et al., 2022)

Lastly, the most pressing problem raised by the respondents was the lack of learning materials; the lack of teachers' supervision of the learners; the parents' difficulty in guiding their child; the lack of time allotment for the activities; and the lack of space. . An implication, therefore, could be made that both literacy and numeracy skills need to be promoted by the school administrators as they are deemed equally important for the child's development. This claim is supported by the mandates of DepEd order number 12 series of 2020 otherwise known as, "Adoption of basic education learning continuity plan for school year 2020 – 2021 in light of the COVID – 19 public health emergency" that reiterates that the schools must continue its mandates to provide quality education despite the threat and danger that is brought forth by COVID – 19. Under the said order, the schools are mandated to continue its task in honing literacy and numeracy skills among the Filipino learners.

4. Conclusion and Recommendation

Based on the findings of the study, it is concluded that the kindergarten teachers from the north district of Mandaue City division have a strong confidence that the play-based instructions could be effective in developing the literacy and numeracy skills of kindergarten learners during the COVID-19 pandemic. It is advised that the utilization of play-based pedagogical approaches in kindergarten classes be intensified. The parents need to be provided with technical assistance as to how they will do it to ensure that employing game-based learning at home is done correctly. The researchers further recommend that the output from this study, entitled "Enhancement Plans To Improve Play-Based Approach in Kindergarten Instruction," be adapted to the schools in the north district of Mandaue City division.

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References

- Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S., Al-Freih, M., Pete, J., & Olcott Jr, D. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, 15(1), 1–126.
- Bryce, C. I., Goble, P., Swanson, J., Fabes, R. A., Hanish, L. D., & Martin, C. L. (2020). Kindergarten school engagement: Linking early temperament and academic achievement at the transition to school. In *Moving Forward in the Study of Temperament and Early Education Outcomes* (pp. 162–178). Routledge.

<https://www.taylorfrancis.com/chapters/edit/10.1201/9780429344466-11/kindergarten-school-engagement-linking-early-temperament-academic-achievement-transition-school-crystal-bryce-priscilla-goble-jodi-swanson-richard-fabes-laura-hanish-carol-lynn-martin>

- Donitsa-Schmidt, S., & Ramot, R. (2020). Opportunities and challenges: Teacher education in Israel in the Covid-19 pandemic. *Journal of Education for Teaching*, 46(4), 586–595.
- Guoyan, S., Khaskheli, A., Raza, S. A., Khan, K. A., & Hakim, F. (2023). Teachers' self-efficacy, mental well-being and continuance commitment of using learning management system during COVID-19 pandemic: A comparative study of Pakistan and Malaysia. *Interactive Learning Environments*, 31(7), 4652–4674. <https://doi.org/10.1080/10494820.2021.1978503>
- Joshi, A., Vinay, M., & Bhaskar, P. (2021). Impact of coronavirus pandemic on the Indian education sector: Perspectives of teachers on online teaching and assessments. *Interactive Technology and Smart Education*, 18(2), 205–226.
- Kim, M. H., Ahmed, S. F., & Morrison, F. J. (2021). The effects of kindergarten and first grade schooling on executive function and academic skill development: Evidence from a school cutoff design. *Frontiers in Psychology*, 11, 607973.
- Lalani, A. P. (2020). *Play-based Curriculum and the Holistic Development of the Child*. <https://spark.bethel.edu/cgi/viewcontent.cgi?article=1378&context=etd>
- Lee-Cultura, S., Sharma, K., & Giannakos, M. (2022). Children's play and problem-solving in motion-based learning technologies using a multi-modal mixed methods approach. *International Journal of Child-Computer Interaction*, 31, 100355.
- Magallanes, K., Chung, J. Y., & Suyeon, J. (2021). A policy analysis of Philippine school system reform using advocacy coalition framework. *Eurasian Journal of Educational Research*, 96(96), 136–152.
- Mardell B., Wilson D., Ryan J., Krechevsky M., Ertel K., & Baker M. (2016). Towards a pedagogy of play: A Project Zero working paper. Harvard Graduate School of Education. <https://pz.harvard.edu/sites/default/files/TowardsaPedagogyofPlay.pdf>
- Rana, D. M. (2022). Developing Socio-Emotional Domain of Kindergarten Pupils Using Aesthetic/Creative Activities. *Psychology and Education: A Multidisciplinary Journal*, 3(4), 279–298.
- Somers, L. J., & Terrill, W. (2022). Confidence in their craft: Assessing the relationship between officer work experiences and their perceptions of self-efficacy. *Criminal Justice and Behavior*, 49(11), 1656–1675.
- Taylor, M. E., & Boyer, W. (2020). Play-Based Learning: Evidence-Based Research to Improve Children's Learning Experiences in the Kindergarten Classroom. *Early Childhood Education Journal*, 48(2), 127–133. <https://doi.org/10.1007/s10643-019-00989-7>

Yang, Y., & McNair, D. E. (2021). Chinese male early childhood education teachers' perceptions of their roles and professional development. *Gender and Education*, 33(4), 468–482.