

Multi-Dimensional Engagement in Learning Vis-A-Vis Early Childhood Education Developmental Domains: Basis for Instructional Enrichment Program

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Abstract — This study employed the Descriptive-Correlational Research Design with 165 learner-participants and 6 teacher-respondents. This study aimed to describe and establish the level of relationship between the level of multi-dimensional engagement in learning of the kindergarten learners and their assessed ECE developmental domains at early childhood schools in Anao District during the school year 2022 – 2023. The computed grand mean of the cognitive engagement in learning of the kindergarten pupils is 2.93, indicative of “high engagement” level. The computed grand mean of the level of motivational engagement of the kindergarten pupils was in 3.00, “high engagement” level. The grand mean of the level of multi-dimensional engagement of the pupils on socio-emotional aspect is 3.35, indicative of “Very High Engagement”. Results also revealed that gross motor, fine motor, and cognitive domains were found to be significantly related to the level of cognitive engagement at 0.01 level of significance. While receptive language and expressive language were significantly related to the pupils’ level of cognitive engagement at 0.05 level of significance. Gross motor, fine motor, and cognitive domains were found to be significantly related to the level of cognitive engagement at 0.01 level of significance. Gross motor and cognitive domains were found to be significantly related to the level of socio-emotional engagement at 0.01 level of significance. 2. The study recommends that kindergarten teachers may design and implement relevant multi-dimensional engaging experiences and activities to the kindergarten pupils to improve their early childhood developmental skills. Policy makers may consider the necessity to impose multi-dimensional engagement learning as a good strategy implemented in ECE so that learners may achieve optimum level goals.

Keywords — *Multi-Dimensional Engagement, ECCD Developmental Domains, Instructional Enrichment Program, Early Childhood Education*

I. Introduction

Shreds of evidence are growing that it is getting harder for teachers to get students interested in learning. The conditions and effects of student engagement have been the subject of various research projects in response to this significant issue in daily education. The results of

these activities are, however, dispersed broadly, redundantly, or are challenging to utilize in instructional practice, creating a complex scenario.

Rising pressures are placed on the field of education by ongoing societal and technological advances. At all levels of education, a considerable emphasis is placed on quality and efficiency in order to deal with growing globalization, multi-disciplinary, mobility, and the complexity of present instruction. It is crucial that instructional strategies give students a broad knowledge and skill base they can use flexibly when confronted with new situations in everyday practice if they want to keep them interested in what they are studying. Frerejean, et.al. (2019) cited that this requires different instructional design approaches, including a shift away from objectives-based design approaches towards more task-centered approaches in an attempt to better address the learning of complex cognitive skills and professional competencies.

Early childhood education's significance for human development cannot be emphasized. The early years of a child's life lay the groundwork for all of their future development, including cognitive, social, and other areas that still need to be developed. Elements of educational settings with a higher level deep approaches are stimulated by student engagement to education. They have given it some eclectic thought. Consider the way that contextual elements interact such as the nature of the task, and observed contextual issues like workload, as well as learners' considerations like cognitive capacity.

They also provide a solid basis for lifelong learning and learning abilities. The value of early childhood education as a crucial foundation for a child's future success is still emphasized by reputable research. The importance of the teacher in determining a child's academic achievement makes it impossible to undervalue her role. She has the capacity to shape the future of children by giving them educational opportunities that will support the growth of their developmental domains.

Children should receive multidimensional learning in order to develop their developmental domains. Multi-dimensional learning involves exposing students to knowledge outside of the classroom, presenting them with many viewpoints, and educating them about concepts that will help them think more clearly. The cognitive, emotional, and social elements of learning are all addressed in the multidimensional approach.

In Early Childhood Education, there are other domains that need to be developed such as Gross-Motor, Fine Motor, Self-Help, Receptive Language, Expressive Language, Cognitive, and Social-Emotional. Such dimensions are being tested at the start of the school year, mid-year, and year-end. In this study, the mid-year assessment results are to be used.

Given this context, this study is to create instructional strategies that support multidimensional Kindergarten learners' learning engagement. The approach is based on the generalizations about how engagement develops step-by-step procedures and those various instructional. The strategies are required to foster various levels of commitment. The strategies

will lead to the conclusion that the instructional design approach should place a focus on three different types of engagement: cognitive, motivational, and social-emotional engagement.

The instructional strategies that were unraveled served as an impetus to create an enrichment program that will be used for the multi-dimensional engagement in early childhood education.

The instructional enrichment program that the teacher crafted were based on the results of the first (start of the school year) and mid-year assessments using the ECD Checklist. Organizing a supportive educational environment that will enable Kindergarten pupils to learn from mistakes, and develop gradually self-directed capabilities, learning management, and reflection on their own learning, is an essential condition of instruction. The enrichment program should develop the holistic child, thus, the provision of developmentally appropriate multi-dimensional learning is very imperative.

Literature Review

The theoretical foundation of this study is anchored on the Self-determination Theory represented on the multidimensional engagement in learning which is put forth by Reeve (2012). Engagement, according to this theory, "refers to the extent of a student's active involvement in a learning activity" and is broken down into four categories: "behavioral engagement" (based on concentration, attention, and effort), "emotional engagement" (with the presence of task-facilitating emotions and the absence of task-withdrawing emotions), "cognitive engagement" (with the use of sophisticated rather than superficial learning strategies), and "agentic engagement" (about to enrich the leaning).

Idealists think that education should provide people with the skills they need to live happy, fulfilling lives. Multi-dimensional education develops curiosity and creativity amongst Kindergarten pupils by building bridges between subjects and not isolating them into silos. It is an expression of the real world as a whole and the interactions between different subjects and topics. It, therefore, will lead to a better appreciation of things and therefore, better learning outcomes.

The majority of existing conceptualizations of student engagement are predicated on the idea that interaction between the learner and the educational situation is where engagement arises. An increasing body of research indicates that taking part in learning communities increases learner engagement, which may have a favorable impact on educational attainment and more seamless educational advancement (Pike et al., 2011, 2012).

Illeris' (2002) multidimensional theory of learning takes into account the cognitive, emotional, and social aspects of learning. *The Three Dimensions of Learning: Modern Learning Theory in the Intersection of the Cognitive, Emotional, and Social Domains.*

Astleitner (2018) assumed that cognitive, emotional, and motivational subsystems relate to the world in three different ways. He, further, stated that the term cognition is reserved for those processes that mediate the acquisition and representation of knowledge about the world, i.e., processes that have a representative relation to the world of objects and facts. Emotional (affective) processes evaluate the personal significance of those objects and facts. Moreover, he alluded that motivational processes related to the world in an actional way, e.g., they relate to the goal states of the organism in its attempt to produce desired changes in its environment.

Statement of the Problem

This study aimed to describe and establish the level of relationship between the level of multi-dimensional engagement in learning of the kindergarten learners and their assessed ECE developmental domains at early childhood schools in Anao District during the school year 2022 – 2023. Thus, results were the basis for the development of instructional enrichment program to improve the level of multi-dimensional engagement in learning of early childhood education.

Specifically, the study sought to find answers to the following questions:

1. What is the level of multi-dimensional engagement in learning of the kindergarten learners in terms of:
 - a. Cognitive engagement;
 - b. Motivational engagement; and
 - c. Socio-emotional engagement?
2. What is the level of assessment do the early childhood education development of the kindergarten learners be evaluated in terms of the following domains:
 - a. Gross motor;
 - b. Fine motor;
 - c. Self-help;
 - d. Receptive language;
 - e. Expressive language;
 - f. Cognitive; and
 - g. Social-emotional?
3. Is there a significant relationship between the level of multi-dimensional engagement in learning of the kindergarten learners and their assessed ECE developmental domains?

II. Methodology

Research Design

This study employed the Descriptive-Correlational Research Design. Descriptive research design is a research method that tries to describe a phenomenon, occurrence, or event, that happens in the present. Creswell (2012) stated the descriptive method of research is to gather information

about the present existing conditions. Correlational research designs as defined by Creswell (2002) are used by investigators to describe and measure the degree of relationship between two or more variables or sets of scores.

Participants

The study was conducted in the Pre-elementary Level schools in Anao District, Division of Tarlac Province during the school year 2022 – 2023.

In identifying the multi-dimensional engagement of learning, the kindergarten learners were assessed by the teachers. In identifying this multi-dimensional engagement and early childhood care and developmental progress of the Kindergarten pupils, the kindergarten teachers are the target respondents, but the pupils are the subjects of the study. The distribution of the respondents is described through the table below:

Table1. Participants of the Study

Schools	Learners		Teachers	
	Population	Sample	Population	Sample
Bantog Elementary	34	34	1	1
Casili Elementary	21	21	1	1
Dagundon Elementary	7	7	1	1
Dolores Ongsiako Central Elementary	65	65	2	2
San Francisco Elementary	27	27	1	1
San Jose Elementary	11	11	1	1
Total	165	165	6	6

Data Gathering Tool

Instrument/s

This study used two research instruments which were carefully adopted from different research and valid and standardized assessment tools.

The first part measures multi-dimensional engagement in learning. The second part was the Early Childhood Development (ECCD) Checklist by the Department of Education.

The first tool is a Likert Scale adopted from Astleiner (2018). This tool was validated, with validity coefficient of 4.96, indicative of high validity level through the help of experts from Ramos District, which is the nearest to Anao District. The first tool is to be answered by the teachers based on their assessment of the kindergarten learners and their instructional procedures.

The second instrument is the validated and standardized tool Early Childhood Care and Development (ECCD) Checklist developed by the Department of Education.

The second tool measured the following domain: (1) Gross Motor, (2) Fine Motor, (3) Self-Help, (4) Receptive Language, (5) Expressive Language, (6) Cognitive, and (7) Social-Emotional.

Data Collection Procedure

The researcher, first, sought permission from the Public Schools District Supervisor and the Schools Division Superintendent thru the recommendation of the Senior Education Program Specialist in Research of SDO-Tarlac Province and the Education Program Specialist in Kindergarten.

After the approval, the researcher provided a letter of communication and informed consent to the teachers involved in the study. Then, a general orientation was conducted for the respondents and target schools of implementation. Afterwards, the target participants were assured with a signified and voluntary participation by returning a signed informed consent to the researcher.

A day was set after a week of orientation for the data gathering of data needed for the first questionnaire through the google form survey, then the researcher will collect data on the early childhood education care and development through the checklist from the kindergarten teachers.

Ethical Considerations

All data were collected with utmost confidentiality and anonymity. And since the learner-participants are considered minors, an informed and parent's consent was sought and obtained before the formal conduct of the study. Thus, results of the study, and participation of the learners do not directly affect their academic standing and performance.

III. Results and Discussion

Level of Multi-dimensional Engagement in Learning of the Kindergarten Learners

Cognitive Engagement

Table 2. Level of Multi-dimensional Engagement in Learning Engagement in Learning of the Kindergarten Learners Along Cognitive Engagement

Cognitive Engagement Domains	Mean	Verbal Interpretation
1. The student can retrieve contents from memory.	2.95	High Engagement
2. The student can summarize, explain, or classify contents.	2.95	High Engagement
3. The student can solve problems by the application of learned procedures.	2.88	High Engagement
4. The student can find mistakes, criticize, or defend contents based on standards.	2.95	High Engagement
5. The student can develop new ideas, plan projects, or design products	2.91	High Engagement
Grand Mean	2.93	High Engagement

Table 2 shows the cognitive engagement, its descriptive statistics through mean, and level of engagement based on verbal interpretations. Table 2 shows that the computed mean statistic of

the professional judgement of the kindergarten teachers on the level of cognitive engagement of their pupils in knowledge, comprehension, convergent thinking, evaluation, and synthesis domains were 2.95, 2.95, 2.88, 2.95, and 2.91, respectively. Clearly, all the domains were described to be performed by the kindergarten pupils with “high engagement” level. The domain that was described by the teachers to be the level with the greatest level of cognitive engagement is the “Comprehension” domain ($\bar{x} = 2.95$). This level of cognitive engagement clearly includes the skill on summarizing, explaining, and classifying contents. This clearly describes that the kindergarten teachers observe concretely that the learners performed well in realizing and figuring out the significance of what they are learning during the ECE stage. However, among the 5 domains in cognitive engagement, it has been found through the means with the lowest value statistic, signify that kindergarten teachers find the learners to have a bit lower in level of engagement when it comes to “Convergent Thinking” ($\bar{x} = 2.88$). Based on the operational definitions, this domain refers to the ability of the learner to solve problems by the application of learned procedures.

Motivational Engagement

Table 3. Level of Multi-dimensional Engagement in Learning Engagement in Learning of the Kindergarten Learners Along Motivational Engagement

Motivational Engagement Domains	Mean	Verbal Interpretation
1. The student efficaciously concentrates on contents.	2.98	High Engagement
2. The student regards contents as personally important.	2.95	High Engagement
3. The student re-engages voluntarily and repeatedly with contents.	3.02	High Engagement
4. The student is committed to goals that are related to contents.	3.04	High Engagement
5. The student engages with contents for his or her own sake with high satisfaction.	3.04	High Engagement
Grand Mean	3.01	High Engagement

Table 3 shows that mean statistic of the professional evaluation of the kindergarten teachers on the different domains of motivational engagement of the pupils on a multi-dimensional perspective. The mean evaluation of the kindergarten teachers on the attention, relevance, interest, identification, and intrinsic motivation domain were 2.98, 2.95, 3.02, 3.04, and 3.04, respectively. All domains were verbally described to have a “high engagement” level among the kindergarten pupils. With a grand mean of 3.005, the level of motivational engagement of the kindergarten pupils was in “high level”. Visibly, this describes that the pupils’ level of stimulation for active learning with information processes and products throughout the acquisition of knowledge and skills in the class.

Socio-Emotional Engagement

Table 4. Level of Multi-dimensional Engagement in Learning Engagement in Learning of the Kindergarten Learners Along Socio-Emotional Engagement

Socio-Emotional Engagement Domains	Mean	Verbal Interpretation	
1. The student experiences feelings of freedom or autonomy in learning.	3.33	Very Engagement	High
2. The student experiences feelings of freedom or autonomy in learning.	3.38	Very Engagement	High
3. The student feels community or loyalty in learning.	3.34	Very Engagement	High
4. The student is sensible or emphatic in relation to elements of learning.	3.30	Very Engagement	High
5. The student feels secure or sheltered in learning.	3.41	Very Engagement	High
Grand Mean	3.35	Very Engagement	High

In table 4, the data reveals that the overall mean of the level of multi-dimensional engagement of the pupils on socio-emotional aspect is 3.35, indicative of “very high engagement”. However, the mean of the evaluation of the kindergarten pupils on their level of engagement on self-assertion, entertainment, belongingness, adaptiveness, and security domains were 3.33, 3.38, 3.34, 3.30, and 3.41, respectively, at which all domains were verbally interpreted with “Very High Engagement” level.

Clearly, among the three realms of multi-dimensional engagement, teachers find socio-emotional domain to be of greatest and most perceptible behavior among the kindergarten pupils. Thus, Security domain, as the domain with the highest mean ($\bar{x} = 3.41$), evidently induce the idea that pupils have already a great feeling of security or sheltered-like experience of learning in their school. Brukner (2022) supports the idea that fostering a feeling of security in young students in the class and school makes them feel at ease and open to learning. Childcare or kindergarten would always be pupil’s second homes since they need environments that help them feel comfortable and secure. Therefore, it is critical to ensure kindergarten and childcare safety as well as preventing the young ones from encountering domestic threats. Injury risk can be lowered by providing a high-quality environment for kindergarten pupils.

Table 5. Summary Table of Multi-Dimensional Engagement in Learning of Kindergarten Pupils

Multi-Dimensional Engagement	Mean	Verbal Interpretation
Cognitive Engagement	2.92	High Engagement
Motivational Engagement	3.00	High Engagement
Socio-Emotional Engagement	3.35	Very High Engagement
Grand Mean	3.09	High Engagement

Table 5 shows the summary table of the obtained means in each domain of the multi-dimensional engagement in learning of the Kindergarten pupils. The table shows that the highest level of engagement that takes place among the Kindergarten pupils was the socio-emotional engagement ($\bar{x} = 3.35$), indicative of “very high engagement” level, followed by the motivational engagement ($\bar{x} = 3.00$), indicative of “high engagement” level, and lastly, the cognitive engagement ($\bar{x} = 2.92$), indicative of “high engagement” level as well. In totality, the level of multi-dimensional engagement of the Kindergarten pupils in Anao District is described by the grand mean of 3.09, indicative of “high engagement” level.

Early Childhood Education Development of the Kindergarten Pupils

Table 6. Post-Assessment Results of the Early Childhood Education Development of the Kindergarten Learners

Early Childhood Education Development Domains	Maximum Score	Raw Scores	Mean Raw Scores	Maximum Scaled Score	Mean Scaled Scores	Verbal Interpretation
Gross Motor	13	12.87	19	10.52	Average Development	
Fine Motor	11	10.88	19	11.79	Average Development	
Self-Help	27	26.19	19	12.25	Average Development	
Receptive Language	5	4.92	19	10.69	Average Development	
Expressive Language	8	7.90	19	10.75	Average Development	
Cognitive	21	20.42	19	12.38	Average Development	
Social-Emotional	24	23.63	19	12.45	Average Development	
Grand Mean	11.55				Average Development	

Table 6 shows and describes the early childhood development of the kindergarten pupils based on the Early Childhood Development Checklist (ECCD). The ECCD checklist have 7 specific domains that measures the holistic development of a kindergarten learner. Each domain has its respective maximum raw score mechanism, thus the study utilized the scaled score mechanism to describe the development of the learners. Using the standard maximum scaled score of 19, the average scaled scores achieved by the kindergarten pupils are gross motor ($\bar{x} = 10.52$), fine motor ($\bar{x} = 11.79$), self-help ($\bar{x} = 12.25$), receptive language ($\bar{x} = 10.69$), expressive language ($\bar{x} = 10.75$), cognitive ($\bar{x} = 12.38$), and social-emotional ($\bar{x} = 12.45$). All computed mean scaled scores on the different domains were interpreted under the “average development” level. This

means that at this early stage, kindergarten pupils have an average development stage in all the domains of the early childhood development checklist of DepEd.

Relationship Between the Level of Multi-dimensional Engagement and ECE Developmental Domains

Table 8. Relationship Coefficients of Variables

Variables Correlated	Cognitive Engagement		Motivational Engagement		Socio-Emotional Engagement	
Gross Motor	0.36*	Low correlation	0.35*	Low correlation	0.26*	Low correlation
Fine Motor	0.25*	Low correlation	0.22*	Low correlation	0.09	No correlation
Self-Help	0.14	No correlation	0.13	No correlation	0.10	No correlation
Receptive Language	0.18	No correlation	0.12	No correlation	0.12	No correlation
Expressive Language	0.17	No correlation	0.09	No correlation	-0.03	No correlation
Cognitive	0.25*	Low correlation	0.22*	Low correlation	0.20*	Low correlation
Social-Emotional	0.04	No correlation	0.02	No correlation	-0.02	No correlation

As shown in the table under the cognitive engagement, the computed relationship coefficient with respect to the domains of ECE developmental skills are: gross motor ($r = 0.360$), fine motor ($r = 0.25$), self-help ($r = 0.14$), receptive language ($r = 0.18$), expressive language ($r = 0.17$), cognitive ($r = 0.25$), and social-emotional ($r = 0.04$). Among these domains, five of them were found to be significantly related to cognitive engagement, namely: gross motor, fine motor, receptive language, expressive language, and cognitive domains. Gross motor, fine motor, and cognitive domains were found to be significantly related to the level of cognitive engagement at 0.05 level of significance.

With respect to the motivational engagement, the computed relationship coefficient to the domains of ECE developmental skills were: gross motor ($r = 0.35$), fine motor ($r = 0.22$), self-help ($r = 0.13$), receptive language ($r = 0.13$), expressive language ($r = 0.09$), cognitive ($r = 0.22$), and social-emotional ($r = 0.02$). Among these domains, only three of them were found to be significantly related to motivational engagement, namely: gross motor, fine motor, and cognitive domains. Gross motor, fine motor, and cognitive domains were found to be significantly related to the level of cognitive engagement at 0.01 level of significance.

IV. Conclusion

In this study, the following recommendations were proposed to give light on the problems raised in the study. Since gross motor and social-emotional skills were found to be significantly related to cognitive, motivational, and socio-emotional engagement, kindergarten teachers should focus on developing the young learners by integrating all the facets of multi-dimensional engagement in learning and in teaching ECE. Kindergarten teachers may design and implement relevant multi-dimensional engaging experiences and activities to the kindergarten pupils to improve their early childhood developmental skills. The school heads need to help the teachers in developing their skills in providing a multi-dimensional engagement strategy to help the learners improve the different domains of the ECCD checklist to achieve better outcomes on learners' development stage. Policy makers may consider the necessity to impose multi-dimensional engagement learning as a good strategy implemented in ECE so that learners may achieve optimum level goals.

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