THE USE OF INTERACTIVE STORYBOOK WITH DEMONSTRATION AS A SUPPLEMENTAL TOOL IN TEACHING THEORIES OF CHILD DEVELOPMENT: AN ACTION RESEARCH

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Abstract:

This study aims to measure the effectiveness of an interactive storybook with demonstrations as a supplemental tool in teaching theories of child development. The researchers implemented their own storybook and a sixty (60) item questionnaire, with ten (10) questions for each theory of Freud's 3 Components of Personality and Psychosexual Stages, Erikson's psycho-social stages of development; Piaget's stages of cognitive development; Kohlberg's stages of moral development; Vygotsky's language and zone of proximal development; and Bronfrenbrenner's ecological system theory. The participants of this study are the students from the Bachelor of Secondary Education of UM Digos College for the School Year 2022-2023 who have already taken EDUC 101: Child and Adolescent Development subject. The result of the study revealed that there is a significant difference in the pre-test ($\bar{x}$=19.84, SD=11.44) and post-test ($\bar{x}$=52.36, SD=2.72) scores of students; t(21) = -13.389, p = 0.000. In addition, the innovation increased students' overall performance by 62.15%, indicating that the created innovation is effective. Overall, the result revealed that using a storybook with demonstration allows students to increase their performance in child development theories. Based on the findings, the researchers concluded that using the aforementioned supplemental tools would aid the teachers in delivering the concepts of child development theories.

Keywords: child development theories, storybook, demonstration

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1. Context and Rationale

The foundation of education is considered to be one of the most crucial components in approaching the entire education system since it acts as the root of all branches in the medium and teaching. While discussing the roots of education, it is considered that child and adolescent development is essential to its basis. Also, it sets the stage for how a child develops over the course of their years in terms of not only their physical traits but also their social, emotional, mental, and many other aspects. Moreover, early childhood education and child development have been closely linked for many years (Gerald, Kay, & Vilma, 2022). Child development knowledge is essential for early childhood educators because it helps determine the students' developmental stage and informs decisions about how to teach them. In addition, providing excellent childcare and preschool opportunities during the crucial developmental years would yield substantial and lasting advantages for children while also contributing positively to the overall betterment of society (Britto et al., 2017). On the other hand, the field of child development is not uniform, does not have a single integrated collection of theories, and does not have a dominant theory or group of theories. Instead, the subject is dominated by a wide range of opposing theories (Saracho, 2021).

In the CHED Memorandum Order number 75 series of 2017, the subject "Child and Adolescent Development" is covered in professional education subjects, with a focus on the biological, linguistic, cognitive, social, and emotional elements of development (Commission on Higher Education, 2017). This course contains factors associated with learners' developmental advancement and appropriate educational concepts suitable for each developmental stage. From this view, we can imply that certain roles of child development theories greatly impact how one learns. Today and for sure in the future, the whole education system is integrated with technology. In this case, the amalgamation of technological tools in the learning of the child is inevitable, but on the other hand, no matter how advanced our education system is, we still need these child development theories in the sense that they serve as the root and basis of biological, cognitive, and psychological learning that happens to individuals. These theories of child development will be crucial in the future because, as Cherry (2007) claims, they provide a useful framework for considering how people develop, interact with others, and grow as individuals. It is vital to comprehend these notions, especially while helping children navigate the socializing process. Waller (2009) also noted that adults would benefit from a framework for recognizing children as unique people with their own rights and rational thinking, which should be fostered by exposing them to pleasant experiences. Therefore, from this vantage point, we can infer that these child development theories are still crucial for the future of education, especially in the study of and formulation of educational policies, despite the fact that the curriculum is dynamic and the medium of instruction is continuously changing over time.

Due to a variety of factors, every student has a distinctive way of learning and gathering information. It is considered that knowing your students' current conditions is essential for effective teaching, just as knowing your audience is essential for effective speaking. The reasons why understanding child development theories is important for teachers and how they relate to education are provided in the paragraphs that follow. To start with, Freud's 3 Components of Personality and Psychosexual Stages. With the help of Freud's scientific study of the unconscious, we now know better how the unconscious influences learning motivation, how intrinsic human valuation functions, and how important emotional motivation is as a factor in learning success. The learning theory and, by extension, the educational theory are both greatly impacted by this. In the so-called paradigm of education for the development of the whole person, one of the key tenets of educational philosophy is the emotional character of motivation for learning (Wardani, 2020).

The second is Erikson's Psychosocial Stages of Development. Teachers should have a broad knowledge of children and their students in particular since they significantly impact a child's psychosocial development. They must comprehend that every kid learns differently, at their own pace, and in their own time. Instructors must acknowledge that this learning process is based on social, physical, and individual aspects (Pradeep & Ravidra, 2017) Erikson's psychosocial theory is an extremely effective tool for increasing self-awareness and improving oneself since it clarifies how each person learns differently based on their unique personalities. As a result, it is essential to academics because it aids in teaching and providing for others. The third is Piaget's Stages of Cognitive Development. It's possible that not every student in a class is functioning at the same rate. Understanding the cognitive levels at which their student's function would be advantageous for teachers, who should also try to ascertain these levels to modify their instruction. Results also revealed that students prefer using the constructivist approach in teaching, thus indicating the importance of this theory in education (Languita et al., 2023). The teacher gives the students important guidance so they can explore concepts independently by stressing different reasoning methods (Ojose, 2008). When the teacher examines the student's work to fully comprehend his thinking, the student should be encouraged to self-check, approximate, reflect, and reason.

The fourth is Kohlberg's Stages and Sub-stages of Moral Development. Students at various stages of moral understanding can be understood well by using Kohlberg's six-stage model of moral development. Teachers may help mold their students' moral character and help them become the best versions of themselves by knowing this philosophy of moral development (Isaksson, 2006). The fifth is Vygotsky's Language and Zone of Proximal Development. Lev Vygotsky considered peer interaction to be a powerful means of acquiring abilities and methods. In the zone of proximal development, he recommends that teachers adopt cooperative learning activities in which less-skilled children learn with the assistance of more-skilled peers. Effective teaching involves scaffolding, in which the teacher continuously modifies the amount of assistance provided in accordance with the student's performance. In the classroom, scaffolding can

involve acting out a skill, offering hints or cues, and modifying content or activities that the students would find useful (Copple & Bredekamp, 2009). The sixth and last theory is Bronfenbrenner's Ecological System Theory. The work of Bronfenbrenner was crucial to developing a methodical approach to social and human development. His bioecological theory has made connections between the reasons why children develop in unique ways and the features of development that are under the control of the child and those that are not. It examines not only the biological side of development but also its ecology and the surrounding environment. His approach is crucial for educators to comprehend because it enables them to establish solid bonds with their students and run an open-door, parent-involved classroom (Patel, 2011).

This research was conducted in Digos City, Davao del Sur, specifically at the UM Digos. The place lies on the western shores of the Davao Gulf and the southern foothills of Mount Apo on the island of Mindanao, centrally located between the three major cities in Mindanao: Davao City in the north, General Santos City in the south, and Cotabato City in the west. First-year students who took the Bachelor of Secondary Education Major in General Science in the school year 2022–2023 are the main focus of this paper because they already took EDUC 101: Child and Adolescent Development. A pre-test was conducted for students in the six theories of development. The pretest includes an MCQ with ten (10) items for each theory of development. Results show that students obtained the highest performance in Urie Bronfenbrenner's Ecological System Theory (36.8%, needs improvement), followed by the theory of Sigmund Freud's Three Components of Personality and Psychosexual Stages (30.0%, needs improvement), Liv Vygotsky's Language and Zone of Proximal Development (34.1%, needs improvement), Lawrence Kohlberg's Stages and Sub-Stages of Moral Development (32.3%, needs improvement) , Erik Erikson's Psychosocial Stages of Development (30.0%, needs improvement), Jean Piaget's Stages of Cognitive Development (28.6%, needs improvement), respectively. On the other hand, out of twenty-two (22) students, only a few have passed the pre-test in each theory. Four (4) students passed the Freud 3 Components of Personality and Psychosexual Stages, Kohlberg's Stages and Sub-stages of Moral Development, and Vygotsky's Language and Zone of Proximal Development, while there are eighteen (18) who failed. Meanwhile, three (3) students passed Erikson's Psychosocial Stages of Development Theory, and nineteen (19) learners failed. Unfortunately, Piaget's Stages of Cognitive Development and Bronfenbrenner's Ecological System Theory only got one (1) student who passed the pre-test, and twenty-one (21) failed.

With the presented results, it is absolutely necessary to provide assistance and interventions to the Bachelor of Secondary Education student. Since the data collected during the pretest is somewhat concerning, given that this group of students had already studied the various developmental theories during their first semester. There is also a good chance that theories in development will be covered during the licensure examination. As a result, researchers will present various steps in the following section of the paper to assist participants in gaining a high level of understanding about this topic.

2. Research Questions

This study aimed to investigate the effectiveness of a storybook with demonstration as a supplemental tool in teaching theories of child development. Moreover, it sought to answer the following questions:

1) What is the performance of students before and after implementing the storybook with demonstration in teaching theories of child development?
2) What is the percentage of change in students' performance after the implementation of the storybook with demonstration in teaching theories of child development?
3) Is there a significant difference between the pretest and posttest scores of students?

3. Method

3.1 Innovation

As the primary innovation in this study, the researchers decided to create a storybook. First, the storybook is comprised of an introduction to the six theories that were part of the Child and Adolescent Development subject. After that, each chapter tells the story of the specific theory, highlighting different scenarios with illustrations and drawings. Chapter One is the overview of the child development theories, Chapter Two is Freud's Psychosexual Stages, Chapter Three is Erikson's Psycho-Social Stages of Development, Chapter Four is Piaget's Stages of Cognitive Development, Chapter Five is Kohlberg's Stages of Moral Development, Chapter Six is Vygotsky's Language and Zone of Proximal Development, and Chapter Seven is Bronfenbrenner's Ecological System Theory. The storybook has a total of fifty-four pages (54). The finished storybook was disseminated to the participants. After the creation of the storybook, the researchers consulted experts in the field of Child Development Education to validate the created storybook. Recommendations from the experts were carried out, and the storybook was then revised. After the validation process, the created innovation is then implemented to the target participants. The participants were then instructed to read two chapters every day, and after they read the assigned part, the researchers performed the second supporting innovation, which is a face-to-face discussion with emphasis on demonstration to the participants. This was done to underline the key ideas of the theories that were presented as well as the message of the stories. Below are the samples of the created innovation.
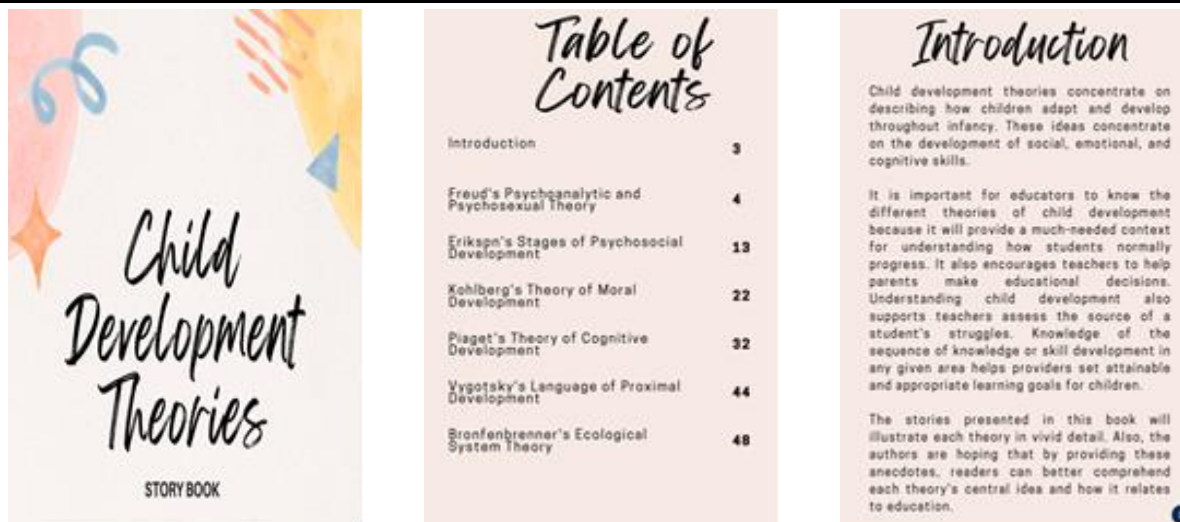
3.2 Design and Procedure

This study uses a quasi-experimental method to uncover whether the created strategy (storybook with demonstration) is effective in teaching the concepts of Theories of Child and Development. One sample group consisting of twenty-two (22) students from the University of Mindanao-Digos taking up Bachelor of Secondary Education is the subject of this study enrolled in the academic year of 2022-2023. Before the start of data collection, an approval letter was sent to the program head of the Bachelor of Secondary Education program of the University. Once approved, the researchers then proceeded with obtaining the number of students in the Bachelor of Secondary Education program for the SY 2022 - 2023. A set of questions with ten (10) items per competency was created (a total of sixty (60) items) and validated by professional teachers teaching Child and Development subject (see Table 1 for the distribution).

Table 1: Distribution of Items per Competency

Competency	Topic	Number of Items
Competency 1	Components of Personality and Psychosexual Stages	10
Competency 2	Erikson's Psychosocial Stages of Development	10
Competency 3	Piaget's Stages of Cognitive Development	10
Competency 4	Kohlberg's Stages and Sub-stages of Moral Development	10
Competency 5	Vygotsky on Language and Zone of Proximal Development	10
Competency 6	Bronfenbrenner's Ecological System Theory	10

After the approval, a pre-test was then conducted on the target participants of the study. After obtaining concerning data from the pre-test that was taken by twenty-two (22) students, researchers created a storybook for a span of one week with the guidance of some professional education teachers to accurately connect the concept of the theories to the stories and scenarios that can be found in the storybook. When the storybook was checked and verified as ready to be implemented, the researchers gathered all twenty-two participants for a short orientation regarding the intervention that would be conducted.

There are five sets of students, with five members for the first to fourth sets and two members for the fifth set that was formed to receive the intervention. Five laptops were used as instruments so that the participants could read the storybook. On the first day, each set of students read and comprehended Freud's 3 Components of Personality and Psychosexual Stages and Erikson's Psychosocial Stages of Development. Following is a short discussion of the concepts of the two theories and how they are connected to the story attached to the storybook. A post-test with ten items from each theory was conducted after the discussion to measure the students' understanding and the storybook's effectiveness in learning the theories of child development. The same procedure was followed on the following days, but with different theories to be read, comprehended, and discussed. Piaget's Stages of Cognitive Development and Kohlberg's Stages and Sub-stages of Moral Development were assigned on the second day of the intervention, while Vygotsky's Language and Zone of Proximal Development and Bronfenbrenner's Ecological System Theory were assigned on the third and last day of the intervention. Both during the convenient times of the researchers and participants, the intervention took place.

3.3 Data Analysis

This study utilizes descriptive statistics in the analysis. The *mean score* is used to determine the performance of the participants before and after the implementation. Rodrigues et al. (2017) noted that the mean score is an important measure since it integrates the scores from all subjects in the research study. Since it is impacted by high or low discrepant scores that distort the desired information one desires to relay about the examined data, this advantage of the mean also poses a difficulty. Standard deviation is another widely used statistical measure to illustrate data variability, which calculates how much a given variable's value deviates from the mean (Rodrigues et al., 2017).

Table 2: Range of Means

Range of Means	Interpretation
<55	Needs Improvement (NI)
56 – 65	Low Proficiency (LP)
66 – 75	Adequate (A)
76 – 85	Proficient (P)
86 – 95	Very Proficient (VP)
96 – 100	Excellent (E)

The *Range of Means* in Table 2 was also used in the analysis to determine the verbal interpretation of the participant's scores (Olores, Abdulhalim, & Diquito, 2023). This study also uses the percentage of change (% C = (New Value - Past Value / Past Value) x 100%) (Ordway, 2022). The percentage of change is used to determine if there is an increase in the performance of participants after the implementation (see Table 2 for verbal interpretation of the result). Lastly, the researchers employed the *independent sample t-test*. The independent sample t-test was used to compare the mean scores and see

if there was any difference between the participants' pre-test and post-test results (Malik, Qin, & Ahmed 2020).

Table 3: Percentage of Change Interpretation

Percentage Change	Interpretation
$\%C > 0$	Effective
$\%C \leq 0$	Ineffective

4. Results and Discussion

4.1 Performance of Participants Before and After the Conduct of Storybook with Demonstration

Table 3 shows the performance of participants before and after the conduct of the storybook with demonstration. Data shows that the overall performance of participants of students in the Pretest is statistically lower ($x̄$=19.84, SD=11.44) compared to the post-test scores ($x̄$=52.36, SD=2.72). In addition, data also revealed that there was a significant change in the overall performance of the participants, as evident in the overall percentage score of their posttest score of 87.27% with a verbal description of Very Proficient (VP) compared to their pretest score of 33.03% with a verbal description of Needs Improvement (NI). Moreover, data also shows that the performance of students in all competencies identified has significantly increased, with the highest posttest scores in Competency 4 and Competency 5 (%=100, Excellent), followed by Competency 1 (%=98.6, Excellent (E)), Competency 2 (%=86.8, Very Proficient (VP)), Competency 6 (%=86.4, Very Proficient (VP)), and lastly (%=70, Adequate (A)) compared to their pretest scores in all competencies that achieved less than 50% (Needs Improvement (NI)). Thus, this means that the created storybook with demonstration is effective in teaching theories of child development.

Storybook is not new in the field of education; educators use this tool to reinforce students' learning or help students learn new concepts. Using a storybook can enhance children's language growth, reading achievement, and emergent literacy (Saracho & Spodek, 2010). Moreover, demonstration, on the other hand, is a strategy educators use to allow learners to become familiar with concepts by subjecting themselves to act regarding the concept being learned. Evidence pointed out that demonstration strategies make students more academically successful than traditional lecture methods (Giridharan & Raju, 2016). Thus, combining the storybook and demonstration in teaching concepts can greatly increase the performance of students. The results of this study pointed out the positive influence of the created storybook with demonstration to the performance of students in relearning the theories of child development.

Table 4: Comparative Result of Pre-test and Post-test Score per Competency

Competency	Pre-test				Post-test			
	(x̄)	SD	%	VI	(x̄)	SD	%	VI
Competency 1	3.64	2.90	36.4	NI	9.86	0.35	98.6	E
Competency 2	3.00	2.37	30.0	NI	8.68	0.84	86.8	VP
Competency 3	2.86	2.32	28.6	NI	7.00	0.76	70.0	A
Competency 4	3.23	2.52	32.3	NI	10.00	0.00	100.0	E
Competency 5	3.41	2.36	34.1	NI	10.00	0.59	100.0	E
Competency 6	3.68	1.99	36.8	NI	8.64	1.14	86.4	VP
Total	**19.82**	**11.44**	**33.03**	**NI**	**52.36**	**2.72**	**87.27**	**VP**

4.2 Percentage of Change in Students' Performance After the Implementation of Storybook with Demonstration

Table 4 shows the percentage of change after the storybook's implementation to the student's performance. The result shows a significant change in the total score of the posttest (x̄=52.36) compared to the pretest (x̄=19.82) with a positive percentage of change of 62.15%, indicating that the created storybook is effective. In addition, all competencies indicate a significant positive percentage of change with an increase of more than 50% in participants' total performance, indicating that the created storybook is effective for all identified competencies. Data further revealed that, among the competencies, Competency 4 obtained the highest percentage of change (67.70%), followed by Competency 5 (65.90%), Competency 2 (65.44%), Competency 1 (63.08%), Competency 3 (59.14%), and lastly Competency 6 (57.41%). This result is congruent with the result of Macsuga-Gage et al. (2012) that an effective teaching strategy can positively impact students' academic, behavioral, and social aspects. In addition, Alejandria et al. (2023) highlighted the positive impact of supplemental tools in teaching concepts among students. Thus, it is necessary to embed innovative strategies in teaching in order to boost the performance of students

Table 4: Percentage of Change in Student's Performance
Before the Implementation of the Storybook with Demonstration

	Pre-test (x̄)	Post-test (x̄)	% of Change	Verbal Description
Competency 1	3.64	9.86	63.08%	Effective
Competency 2	3.00	8.68	65.44%	Effective
Competency 3	2.86	7.00	59.14%	Effective
Competency 4	3.23	10.00	67.70%	Effective
Competency 5	3.41	10.00	65.90%	Effective
Competency 6	3.68	8.64	57.41%	Effective
Total	**19.82**	**52.36**	62.15%	Effective

4.3 Significant Difference in the Pre-test and Post-test Scores of the Participants

Table 5 shows the result of the independent sample t-test in the participants' pre-test and post-test scores. Data shows that there is a significant difference in the Pre-test (x̄ = 19.95, SD = 11.437) and Post-test (x̄ = 52.59, SD = 2.720) scores of students; $t(21) = -13.389$, p =

0.000. This implies that it is effective to have storybooks with demonstrations as supplemental tools in teaching child development theories. This result is parallel to the findings of Albers (2016) that storybooks help to develop thinking that generates a variety of potential ideas and is creative and divergent instead of searching for singular or literal answers, considers finding solutions that revolve around the events in the story. Amanambu (2021) also claims that the storybook's relevance is increased in the sense that it fosters favorable views toward our own culture and the cultures of others, which is essential for both social and personal growth. Storybook also fosters emotional intelligence. It not only improves a learner's literacy abilities but also communicates values, ideas, attitudes, and social standards that, in turn, influence how they perceive the world.

Table 5: Result of an independent sample t-test on learning the theories of child development using the storybook and demonstration as supplemental tools

	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pre-Test-Post Test	-32.636	11.433	2.438	-37.706	-27.567	-13.389	21	.000

**p<.05 (The independent sample t-test is significant if the p-value is less than 0.05)

5. Recommendations

The following are the recommendations based on the results of the study:
1) It is recommended that the created storybook be integrated into teaching child development theories;
2) It is possible to use different methods and research designs to determine the effectiveness of the created storybook with demonstration.
3) It is possible to increase the sample size and to use other contexts to determine the appropriateness of the created storybook with demonstration.

6. Conclusion

The general purpose of this study is to uncover if the strategy created (a storybook with demonstration) is effective or not in teaching the concepts of child and development. Data revealed that there was a significant change in the participant's performance after the implementation of the strategy. Thus, it can be generalized that the strategy created (the storybook with demonstration) is effective. However, based on the competencies identified in Competency 3 (Piaget's Stages of Cognitive Development), they show the lowest in terms of students' performance in both the pretest and post-test scores. This means that students may find this topic difficult; thus, it is necessary to intensify teaching this competency. Overall, the created strategy is effective based on the percentage of change, wherein all of the identified competencies have reached more than fifty percent (50%) after the implementation. With the result of the study, the following

recommendations are drawn: (1) it is recommended to use the created strategy (storybook with demonstration) not just in the identified topics but in other topics as well; (2) a wide sample is also recommended to generalize the result of the findings; and finally (3) a comparative study is also suggested using the multiple intelligences of different students.

Conflict of Interest Statement

The authors declare no conflicts of interest

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