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Integrative Learning Approach on Learners' Achievement in Technology and Livelihood Education

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A B S T R A C T

The study determined if integrative learning approach could improve learners' achievement in Technology and Livelihood Education. The respondents of the study were the Grade 10 learners of Muzon Harmony Hills High School during second quarter of school year 2019-2020. Fifty learners participated in the study who were purposively selected and assigned to experimental and control groups. Achievement test and interview guide questions were used. The findings revealed a significant difference between the level of achievement of the experimental and control groups based on the pre-test and post-test. The obtained mean scores of the experimental group in the pre-test was 13.92 and 38.16 in the post-test with the total mean gain of 24.24, while the mean scores of the control group in the pre-test is 13.76 and 28.16 in the post-test with the total mean gain of 14.40. There was a mean difference of 0.16 in the pre-test and 10 in the post-test. After the given intervention, the computed t-value of 6.71 was greater than the obtained critical value of 1.67 and the acquired p-value was less than the alpha level of 0.05. This means that prior the given intervention there was no significant difference between the achievements of both groups. Hence, after the given intervention, the achievement of learners who were exposed to the integrative learning approach was found significantly better than the achievement of learners who exposed to the conventional approach. Therefore, the hypothesis that there was a significant difference between the achievement of both groups was accepted. .

1. INTRODUCTION

1.1. Research Background

Education is one of the cornerstones of development particularly in the Philippines where majority of the population is of school age. Schools are known as an agent of transformation in society. Department of Education together with teachers and school administrators are valuable factors in providing and creating well equipped citizens by reconstructing the educational system into more effective and progressive curriculum such as K to 12 curricula.

K to 12 is a program that transforms several teaching methods like: answering seatwork to conducting scientific experiment; solving mathematical problems to illustrating a butterfly on a Cartesian plane; and formulating theories to output oriented to job skills (Granall, 2013). Old curriculum was more focused on defining terms and identifying and memorizing important facts and figures while K to 12 curricula is designed to compel the teachers to introduce activities for the learners in conceptualizing own learning by enforcing the principles of learning by doing and seeing and believing.

The conventional teaching approach completely centers on the intellectual and disregards experiential learning (Salako, Eze, & Adu, 2013). Moreover, there were many studies which proved the disadvantages of conventional teaching approach in enhancing learners' academic achievement (Abimbola & Abidoye, 2013; Hossain & Tarmizi, 2013; Majoka, Khan, Shah, 2011). This means that this approach was actually less effective in providing acceptable and dynamic learning process. However, constructivism learning theory suggests that a classroom is no longer a place where learners just wait for instructors to impart the knowledge; the learners learn by generating their own ideas through active participation in the learning process.

According to Fasanya (2006), one of the reasons why performance of learners were poor may not be the absence of "teaching" but the ineffectiveness of the way a subject is taught and learned in schools. This was corroborated by Adams (2013) who blamed poor performance of learners to poor teaching methods, and teachers' inability to vary teaching techniques. Clearly, no one teaching style or method is suitable for the realization of all learning outcomes. However, research reports

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pointed to the importance of cooperation, collaboration, discussion or verbal interaction and group work (Gocer 2010). Hence, an appropriate teaching method for teaching technology and livelihood education in the secondary schools needs to be sought to address the learners' low academic achievement in the subject, especially in the learners first periodical examination. Practically, one of these teaching methods is integrative learning approach.

Integrative learning is an instructional approach where the learner brings together prior knowledge and experiences to support new knowledge (Duplass, 2015). They work in a small learning group to address the problems and other learning objectives while the teacher acts as a facilitator. This indicates that learners must allow to work together to attain their learning objectives (Abrami, Poulsen, & Chambers, 2014) and draw on their skills and apply them to new experiences at a more complex level. The concept behind integrative learning approach is that learners take ownership of their own learning, becoming critical inquiries who are able to make meaningful connections between different disciplines and utilize critical thinking to real-life problems (Mansilla, 2018).

Meanwhile, the Association of American Colleges & Universities (2017) described integrative learning as being the key change in education for the 21st century. Correlatively, this is one of the learner centered methods that has been documented in the existing literature as an effective method for helping learners to acquire effective communication skills, practical learning skills and skills for understanding knowledge (Johnson & Johnson, 2008; Slavin, 2011). This approach minimizes competitive learning environment by encouraging working behavior among the learners. Furthermore, it improves the learners' positive relationships and develops their self-esteem and cohesiveness (Johnson & Johnson, 2005; Sahin, 2011).

Integrative learning approach is one of the 21st century approaches that help the learning facilitator to achieving full mastery of the lesson. It is done through various classroom activities that encourage active learner's participation during actual classroom sessions. Arcenas (2017), emphasized that integrative learning comes in varieties: connecting skills and knowledge from multiple sources and experiences; applying skills and practices in various settings; utilizing diverse and even contradictory points of view; and, understanding issues and positions contextually. Effective teachers are those who made their learners up and out from their chairs. It is undeniably true that integrative learning approach is one of the best ways to achieve the classroom objective of the teachers.

The K to 12 curriculum utmost concern can be identified as having a sharp focus on technical and vocational development of the learners aside from academics, music and arts. Being the major strand of K to 12, Technological and Vocational education in public schools can be learned through several subject areas. According to DepEd Order No.31, S. 2012, Technology and Livelihood Education (TLE) integrates entrepreneurship concepts such as personal entrepreneurial competencies, environment and market process and delivery. Graduates are entitled to have ample knowledge in the areas of Agri-Fishery Arts, Industrial Arts, Home Economics and Information and Communication Technology. On the other hand, Edukasyon Pantahanan at Pangkabuhayan (EPP) develops knowledge, skills, value and attitude in Agriculture, Entrepreneurship and Information and Communications Technology (ICT), Home Economics and Industrial Arts. Technology and Livelihood Education (TLE) equips learners with the understanding and awareness of the skills needed in the industrial world of Agriculture, Entrepreneurship, Carpentry, ICT, Tech-Voc, and others in preparation for the improved way of life in the present and future generation.

In Muzon Harmony Hills High School, there are almost five hundred (500) Grade 10 learners enrolled in Technology and Livelihood Education for the School Year 2019-2020, who got an average mean percentage score of 64.17% during first grading period. This is considered least satisfactory performance on their Technology and Livelihood Education subject. The newly appointed school head revised the existing teachers' program to suit the specialization offered in TLE Grade 10 curriculum due to limited available classrooms to accommodate ideal number of learners per class. Meanwhile, lesson has been delivered mostly in conventional approach. The researcher also observed that there were learners who are less participative and uninterested to the subject. These were evident during actual class discussion where some of them were silent and seems afraid to engage themselves in the discussion. This scenario drove the researcher to propose Integrative Learning Approach as a teaching strategy to improve the achievement of the learners in TLE for school year 2019-2020.

In line with this, the researcher would like to see if Integrative Learning Approach could improve the achievement of learners in TLE 10 at Muzon Harmony Hills High School for the school year 2019-2020.

1.2. Conceptual Framework

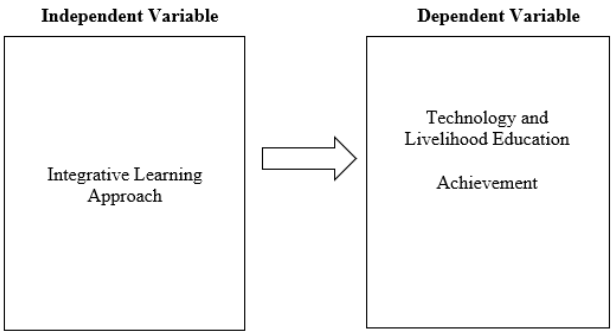

Figure 1: Conceptual Model of the Study

Figure 1 shows the conceptual framework of the study. The paradigm displays the effects of integrative learning approach to the learner's achievement in Technology and Livelihood Education Grade 10.

1.3 Definition of Terms

For better understanding of the terminologies used in this study, the following terms were operationally defined:

Integrative Learning approach. This is the approach used by the teacher in the experimental group. It was given to the learners through various activities that will integrate their own experiences or prior knowledge. It will allow healthy classroom interactions through group dynamics like human tableau, dramatization, role play, debates, situation analysis, concept mapping and other integrative activities.

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Conventional Learning Method. It is a method that was employed in the control group that emphasizes the instructional function of the teacher based on the stipulated performance tasks in the Curriculum Guide provided by the Department of Education (DepEd).

Achievement. This is the achievement test utilized to both experimental and control groups in a form of pretest and posttest. It consists of 50 items with table of specification (TOS) in a higher order thinking skills (HOTS). It was validated by the experts in the field of entrepreneurship through face and content validations.

1.4 Statement of the Problem

The study determined the effect of integrative learning approach for Grade 10 learners' achievement in Technology and Livelihood Education Second Grading Period School Year 2019-2020. This research also specifically sought to answer the following questions: (1) What is the achievement of the experimental group and control group based on pre-test and post-test?, (2) Is there any significant difference between the achievements of the learners posed to integrative learning approach and those taught using conventional learning approach? (3) How may learners' engagement to the class be described during the utilization of the intervention?

1.5 Significance of the Study

The findings of the study would be used as a database for the improvement of teaching-learning process in accordance with the performance of faculty members that significantly contribute to the progress and productivity of the learners. The information is essential in evaluating some critical factors in improving the curriculum instruction.

Moreover, the findings of the study will provide the school administrators with reliable information about the performance of the faculty towards their profession as teachers. Likewise, the study will pave the way for development and improvement which enhance the performance of the school management especially of the administrators, educators and learners in their current performance status. Finally, it would help the learners as being the center of educational milieu to develop their full potential in uplifting their academic achievement.

1.6 Scope and Limitation of the Study

The study focused on the teaching learning strategy involving the integrative learning approach in improving learner's achievement in Technology and Livelihood Education 10 during the second quarter period of school year 2019-2020. The respondents of the study were limited only to Grade 10 learners of Muzon Harmony Hills High School. Achievement test and interview guide questionnaire were the instruments utilized in this study. This was validated by selected TLE teachers. Data gathered were the following: (1) pre-test results of achievement test, (2) post-test results of achievement test and (3) actual observation results of both experimental and control groups which were conducted by experts like TLE Teachers and Head/Supervisor.

The study was conducted during the second quarter period of the school year 2019-2020 and any change within the curriculum beyond the said period won't be covered by the framework of the study.

1.7 Proposed Innovation, Intervention or Strategy

This study was anchored on the principles of instrumentalism and pragmatism theories of Dewey as cited by Pegg (2019). He emphasized learning by doing instead of learning by passively receiving. Each child is active, inquisitive and eager to explore. In traditional education, children are seen as empty and passive receptacles to be crammed with ideas. So, education should equip learners to require a full and active part in shaping their future society.

Learners aren't isolated individuals but a part of bigger society. Learning is connected to their homes, parents, peers and therefore the community as a whole. "The goal structure of individual is directed at the same communally held objectives and there exists a high interdependence among the goal attainment of the individuals" (Gocer, 2010) This was meant that integrative learning approach was characterized by positive interdependence where learners perceive that performance of every member affected the whole group (Johnson, et al., 2014). It's been formal or informal but often involved specific instructor intervention to maximize learner interaction and learning. It had been infinitely adaptable that working in small and large classes and across disciplines might be one among the foremost effective teaching methods available to teachers.

The proposed strategy in this study was the integrative learning approach where learners were facilitated to discover and to construct knowledge, to process their own acquired information and to experience interactive learning process during conducive classroom environment. Learners used their past experiences within the actual classroom interactions in analyzing problem to get the opportunity of discovering new knowledge. Both past and newly-acquired learning is often wont to form solutions in addressing present problems. The teacher acted as facilitator of active learning discovery. This instructional learning method helped the learners to make a decision and to unravel problems.

Integrative learning techniques, like Peet's 'Hidden Moments' activity helped learners to recognize their own learning, to draw their newly-acquired knowledge from their previous experiences and to offer learners opportunities to form connections with others in bridging varied experiences, knowledge and skills which they need during their course. The sensible objective of using integrative learning approach throughout a course was to assist learners improve employability outcomes.

According to Hickman (2018), integrative learning approach is done by letting the teacher present real-life problems to the learners. Group and guide them to unravel the matter by giving hands-on activity to find out the answer. This suggest that learning the way to cook and to stitch shouldn't end in class but supported with regular practice same as reading, writing and computing which are taught in daily course of those routines,

In addition, Dublin (2017) emphasized some methodologies to support an integrative approach to teaching and learning:

Active Learning is generally defined as any instructional method that engages learners within the learning process. Active learning requires learners to try meaningful learning activities and believe about what they're doing (meta-cognition) as individuals; pairs or structured groups. The core elements of active learning are student activity and engagement within the learning process.

The advantage of active teaching and learning include: focus on the learner and learning; improved information retention; development of communication and higher order thinking skills, improved motivation and sort of learning opportunities. Collaborative Learning can refer to any instructional method in which learners work together in small groups toward a standard goal. The core element of collaborative learning is the emphasis on student interactions rather than on learning as a solitary activity.

Cooperative Learning are often defined as a structured form of group work where learners pursue common goals while being assessed individually. The foremost common model of cooperative learning is that of Johnson, Johnson and Smith. This model incorporates five specific tenets, which are: individual accountability; mutual interdependence; face-to-face interaction; appropriate practice of interpersonal skills and regular self-assessment of team functioning. While different cooperative learning models exist, the core element held in common is a focus on cooperative incentives rather than competition to promote learning.

Inquiry-based Learning is an instructional method where relevant problems are introduced at the start of the instruction cycle and used to provide the context and motivation for the learning that follows. It is always active and usually (but not necessarily) collaborative or cooperative using the above definitions. Inquiry Based Learning typically involves significant amount of self-directed learning on the part of the learners.
Furthermore, the researcher conducted the said intervention within the duration of six weeks where the learning competencies were materialized like entrepreneurship and its background, business organizations and management, records management, sound financial analysis. Thus, integrative learning approach was used to enhance learners' achievement in Technology and Livelihood Education this second quarter period of school year 2019-2020.

2. METHODS

2.1 Research Design

The study utilized explanatory sequential mixed design in determining the effectiveness of integrative learning approach on the achievement of Grade 10 learners in Technology and Livelihood Education second quarter period of school year 2019-2020.

This method was a pretest-posttest design in assessing the intervention if it had effects on the respondents (National Tech Center, 2015). Furthermore, the experimental and control groups and t-test were used to assess the effects of integrative learning approach on learners' achievement. The pre-test-post-test design used pair-matching analysis on the characteristics of the respondents from both experimental and control groups. The study's design is as follows:

M1:	T1	X	T2
M2:	T1		T2

T1 and T2 are the initial measurements on the dependent variable or the pre-test scores. The X in the first line indicates that the treatment variable was applied to the experimental group, which is M1. The absence of X in the second line shows that no treatment was applied to the control group which is M2. T1 and T2 were the final measurements or post-test scores of the experimental group (M1) and the control group (M2), respectively. This design was followed because both groups have been randomized as well as exposed to pre-test and post-test. Therefore, whatever happened to the experimental group, apart from the treatment, also happened to the control group.

2.2 Population and Sample

The population of this study was Grade 10 learners of Muzon Harmony Hills High School during second period of School Year 2019-2020. Learners were grouped according to their area of specialization (Akanbi & Kolawole, 2014). The respondents were purposively selected based on their grade point average (GPA) during first quarter period, chronological age and result of pre-test. To ensure equal comparability of the characteristics of the respondents to both groups, pair matching analysis was utilized. This kind of selection followed set of criteria wherein target respondents were determined as it fits the set of inclusion criteria, Turner (2013).

Table 1. Distribution of Respondents of the Study

Group	Section	Population	Sample	GPA	Percentage
Experimental	Grade 10 Rizal	32	25	81.45	78%
Control	Grade 10 Silang	39	25	81.75	64%
Total		**71**	**50**	**81.6**	**71%**

Table 1 shows the clustering of the respondents according to the average, wherein the average is affected by the work attitudes and study habits. Grade 10 Rizal was the experimental group while Grade 10 Silang was the control group. Twenty-five (25) or 78% of 32 learners from Grade 10 Rizal were purposively selected for the experimental group that was matched to the control group of Grade 10 Silang which was twenty-five (25) or 64%. The total GPA was 81.60%, the respondents in the experimental group garnered 81.45% while 81.75% for the control group.

2.3 Instrumentation

Permission to undertake the study was requested from the office of the Schools Division Superintendent, Germelina H. Pascual through the endorsement of the principal. After seeking the approval, the researcher conducted face and content validations of the achievement test through the help of other TLE Teachers in other schools. The study lasted for a week.

The pre-test was given before the use of integrative learning approach. After the entire lesson was made for controlled and experimental groups, post test was conducted. The scores of both pretest and the posttest were gathered, encoded, tallied and statistically treated using the mean standard deviation and the t-test of significant difference.

The mean and the standard deviation were used to determine the performance of control and experimental groups and the classification of learners, while the t-test was employed to

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determine the significant difference of the mean scores on pretest and posttest of both groups. The researcher utilized achievement test in a form of post-test and pre-test with table of specification to ensure its validity and reliability. It consisted of 50 items in higher order thinking skills in cognizance of Revised Blooms of Taxonomy: 25% remembering; 25% understanding; 15% applying; 25% analysis and 10% evaluating.

The instrument was validated by 5 experienced secondary school teachers who have taught Technology and Livelihood Education for years. Their task is to ensure that the instrument was properly constructed and covered the entire syllabus. Suggestions were the basis to the modifications, inclusions and elimination of some of the items for the final version of the achievement test.

The researcher prepared structured interview guide questionnaire that consisted of important questions to determine learners' actual engagement during the utilization of integrated group learning method. This was validated by other TLE teachers and principal.

Each evaluation checklist utilized a 5 - point Likert Scale scoring system. For the standard interpretation of data, the following range of scores was used

Numerical Rating	Descriptive Rating
5	Strongly Agree
4	Agree
3	Uncertain
2	Disagree
1	Strongly Disagree

Validity of the Instrument. A selected group of experts from different schools in the City Schools Division of San Jose del Monte was requested to evaluate the instrument in terms of the contents, organization and acceptability in congruent to the module of TLE Grade10 learners under the Entrepreneurship class.

Numerical Rating	**Equivalent**	**Interpretation**
5	Excellent	Highly Acceptable
4	Very Good	Very Acceptable
3	Good	Acceptable
2	Fair	Fairly Acceptable
1	Poor	Not Acceptable

The quality of the developed instrument was evaluated in terms of contents and organization. Tables 2 and 3 present the respondents' perceptions on these two (2) indicators of quality. Content. On the contents of the instrument, table 2 presents the assessment of the respondents.

3. RESULT AND DISCUSSIONS

The study consisted of two groups: experimental and control group which were selected systematically. The data garnered show that the average score of two groups were close to each other prior to the integration of the integrative learning approach to the experimental group. The average pre-test scores of the experimental group was 13.92 while 13.76 for the control group. The results of the post-test conducted to both experimental and control groups gained an average mean of 38.16 and 28.16 respectively. The data gathered show the individual and mean scores of the learners.

Learners from both groups improved their achievement in TLE after the utilization of integrative learning approach as teaching learning strategy. As revealed, the test scores of the experimental group were more significant. The average score of the experimental group increased from 13.92 to 38.16, while the control group enhanced from 13.76 to 28.16. This appeared that the integrative learning approach was effective as manifested on the reflected average scores in this study.

The findings of this study suggested that there was equality in the achievement of learners who were assigned to the integrative learning approach and that of those who were assigned to the conventional teaching approach before exposure to the treatment. This finding is in line with the studies of Zakaria, Chin and Daud (2010) and Gokkurt, Dundar, Soylu and Akgun (2012). Nevertheless, after exposing the learners to the treatment, the achievement of learners who were exposed to the integrative learning approach was significantly better than the achievement of the control group who was exposed to the conventional learning approach. The findings suggested that the significant change and the better performance of the experimental group were due to the fact that the approach promotes learning interest and interactive environment which engaged learners to connect their ideas in solving the problem and to reason intensely about the problems; unlike in the conventional teaching approach where learners put all their focus on the teacher. Therefore, the low achievement of learners in TLE could be addressed using integrative learning as a twenty first century instructional approach. This finding concurs with the studies by Alabekee (2015) and Adebayo and Judith (2014). Nonetheless, this view contradicted the research finding of Parveen et al (2011) which argued that integrative learning was not found to be more influential than the conventional approach in enhancing the learners' achievement.

Meanwhile, the invited observers gave positive observations about the intervention. According to them, this approach develops life-long learning skills of the learners. It improves learners' behavior, as they become motivated and interested. They also developed their critical thinking ability, leadership and cooperation.

4. CONCLUSIONS

The following conclusions were derived from the findings of the study:. Achievement Test was highly acceptable as affirmed by the respondents in terms f contents and organization. Integrative learning approach was effective in teaching TLE. Integrative learning approach helped different learners with diverse learning styles to improve their achievements in TLE. Integrative learning approach developed 21st century learning skills like critical thinking ability, leadership and cooperation. Its improved learners' behavior, as they become motivated and interested. Based on the summary of findings and conclusions drawn, the following recommendations were made: Educators are encouraged to utilize 21st century learning method like integrative learning approach; The proponent also encourages other educators of different fields to use integrative learning approach as a teaching strategy to attain more effective teaching-learning outcomes; Strengthen the teacher-learner relationship through interactive classroom environment; Adopt the good

academic and management practices of employing integrative learning approach to improve learners' performance; Conduct a parallel study to validate the result of this study

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