Factors Affecting the Academic Performance of the 3rd Year Graduates under the Electronics and Communications Engineering Ladderized Program

Engr. Jenny M. Aruta
Faculty
Rizal Technological University

Prof. Ricardo N. Nasuli
Dean
Rizal Technological University

Engr. Rowena B. Nimuan
Faculty
Rizal Technological University

***Abstract* —The research focused on investigating the factors affecting the academic performance of the 3rd year graduates under the Electronics and Communications Engineering Ladderized Program to discover whether these factors are contributors to the low graduation turnout. These graduates who are now the 4th and 5th year BS Electronics and Communications Engineering students assessed the factors: curriculum, instruction, facilities and equipment and faculty through a researcher made questionnaire duly validated by experts. The z-test is used to verify significant difference in the assessment of the respondents. Also, the study investigated if there is a relationship between the students' assessment of the factors and their academic performance with the use of linear correlation coefficient. Finally with the use of multiple regression analysis, the study revealed which among the factors significantly predict academicperformance.**

Keywords—Academic Performance, Ladderized Program, Electronics and Communications Engineering

1. INTRODUCTION

1.1 Background of the Study

The system of education in the Philippines was changed following the establishment of two independent agencies namely the Commission on Higher Education (CHED) in 1994 and the Technical Education and Skills Development Authority (TESDA) coming up with ladderization program (Syjuco, 2007) [32].

The institutionalization of a ladderized curriculum in higher education under E.O. 358 enables a college student to acquire vocational and technical skills in any of the first two years in college that will ensure the student to land a job even if he will not pursue to higher year to complete his college education. Furthermore, ladderization provides the tech-voc graduate with gateways or entry points to a college degree program where he can earn appropriate, equivalent credits for previous learning acquired in tech-voc. It also allows a learner to obtain a tech-voc national certificate that will enable him to arrive at successively ascending job platforms.

The program of study for the general and professional education subjects is based on CHED MEMO 24, s, 2008 while the technology major subjects are based on the competency standards indicated in the Training Regulations of Technical Education and Skills Development Authority (TESDA).

In the school year 2010-2011, Rizal Technological University implemented the ladderized program in Electronics and Communications Engineering. The first batch of students is now in their 5th year since the new curriculum is in its 5th year of implementation. Of the more than 200 freshmen who composed the first batch, only 54 students were able to make it to their 5th year. For the 2nd batch which started with the same population as the 1st batch, only 44 students made it to their 4th year level. In other words, there is a low percentage of students who continue with the Electronics and Communications Engineering Ladderized Program and likewise, a low percentage of 3rd year graduates of the Diploma in Electronics and Communications Technology, totaling only to 100 graduates.

1.2 Rationale

Ladderization is a curriculum innovation in Rizal Technological University and curriculum innovation must involve as many stakeholders as possible. With the learners being the primary stakeholders, a fit between the planned or written curriculum and the students' evaluation of its strength and weaknesses is one way of measuring its success.

This study aimed to investigate the factors affecting the academic performance of the 3rd year graduates of the Electronics and Communications Engineering Ladderized Program and how these factors interplay in its implementation. These factors include: curriculum, instruction, faculty and facilities and equipment.

1.3 Statement of the Problem

Specifically, this study sought to answer the following sub-problems:

1. How do the students assess the effectiveness of the Electronics and Communications Engineering Ladderized Program in terms of the following factors:
   a. Curriculum
   b. Instruction
   c. Faculty
   d. Facilities and Equipment
2. Is there a significant difference in the assessment of the respondents on the level of effectiveness of the Electronics and Communications Engineering Ladderized Program in terms of the following factors?
   a. Curriculum
   b. Instruction
   c. Faculty
   d. Facilities and Equipment
3. What is the level of academic performance of the students in the Electronics and Communications Engineering Ladderized Program?
4. What is the performance of the students in the (National Certificate II) NCII Competency Tests conducted by Technical Education and Skills Development Authority(TESDA)?
5. Is there a relationship between the students' academic performance and their assessment of the Electronics and Communications Engineering Ladderized Program in terms of the following factors?
   a. Curriculum
   b. Instruction
   c. Faculty
   d. Facilities and Equipment
6. Which among the factors significantly predict the academic performance of the respondents?

1.4 Hypothesis

The hypotheses tested in this study are:

1. There is no significant difference in the assessment of the respondents on the level of effectiveness of the Electronics and Communications Engineering Ladderized Program in terms of the following factors?
   a. Curriculum
   b. Instruction
   c. Faculty
   d. Facilities and Equipment
2. There is no relationship between the students' academic performance and their assessment of the following factors of the Electronics and Communications Engineering Ladderized Program?
   a. Curriculum
   b. Instruction
   c. Faculty
   d. Facilities and Equipment

1.5 Conceptual Framework

Figure 1 shows the conceptual framework of this study.

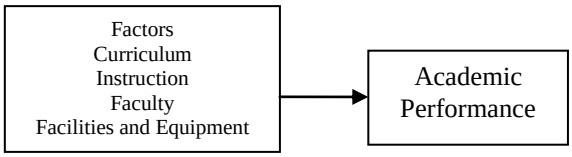

Figure 1 Conceptual Framework

Evidences from literature show that several factors affect students' academic performance. Family background factors such as the educational level of the parent, family income or financial, parent support and educational expectation seem to exert some influence on student's academic achievement and this has been supported by several past and recent studies (Hossler & Stage, 1992 [21]; Eccles & Harold, 1993 [14]; Beyer, 1995 [9]; Ermisch & Francesconi, 2001 [16]; Agus & Makhbul, 2006 [1]). Socio-demographic characteristics consist of the student's age, gender, marital status and ethnicity. Age plays a significant role on academic performance as younger students tend to perform better than their older counterparts. Females performing better than males in their medical training had been a consistent finding in literature. The effect of ethnic minority status on academic performance may be actually due to the influence of socio-economic status. According to Womble (2003) [35] academic competence, self-efficacy, motivation, students' attitudes and behaviour, peer influences, time management and engagement in class activities are some of the factors that affect an individuals' academic performance.

Guided by previous studies as to the influences of other factors mentioned above to academic performance, this research aims to link the factors: curriculum, instruction, faculty and facilities and equipment to the low graduation turnout of the Electronics and Communications Engineering Ladderized Program.

2. LITERATURE REVIEW

2.1 Curricular Issues and Concerns

The concept of curriculum is as dynamic as the changes that occur in the society. In its narrow sense, curriculum is viewed merely as listing of subjects to be taught in school. In a broader sense, it refers to the total learning experiences of individuals not only in schools but in society as well.

Javier and Bilbao (2008) [10] present some curricular issues and concerns regarding curriculum innovations like:

1. Issues on the varied implementation of the curriculum among schools and teachers seem to be one of the reasons for the prevailing low performance of schools all over the country. There is a perennial complaint about books and other instructional materials. Overcrowded classrooms do not provide a good learning environment. In addition, the teacher has been identified as one of the influencing factors in the varied implementation of the curriculum. Issues like ill prepared teachers, poor attitude

towards change and low morale have been thrown to teachers.

2. Curriculum innovations lack the sense of ownership from stakeholders. Most of the curricular innovations are handed down from the top management. Those who are going to implement simply tow the line or follow blindly. Sometimes the implementers lack full understanding of the changes or modifications that they are doing. The goal is unclear, thus there are a lot of questions in the implementation as well as evaluation from the concerned persons. Because of this, there is little support that comes from other stakeholders. They just leave the school to do it on their own, thus giving the classroom teacher the burden.

3. Some curricular innovations are results of bandwagon but are not well supported by managers. In the desire of some schools to be part of the global scenario, changes and innovations are drastically implemented even if the school is not ready. Some schools for example implement a curriculum that is technology-dependent went there are not enough computers in the classroom. There is no internet connection either. But they have to show that they are keeping abreast of the development even if their equipment is insufficient.

4. Lack of regular monitoring and evaluation. After a new curriculum has been installed, it is left unattended. Inadequate monitoring activities to find out curricular strengths and weaknesses and problems are being encountered. Very little means is provided to find out if the implementation is running smoothly or not.

5. Innovations are not communicated to all. Only the managers or proponents understand the changes. Those who are directly involved merely follow hook line and sinker. This is called regimentation. Changes when introduced this way may falter along the way because the people involved are not empowered.

2.2 Curriculum Evaluation Models

2.2.1 Context, Input, Process, Product Model (CIPP Model)

Daniel L. Stufflebeam (1971) [30], who chaired the Phi Delta Kappa NationalStudy Committee on Evaluation, introduced a widely cited model of evaluation known as the CIPP (context, input, process and product) model. The approach when applied to education aims to determine if a particular educational effort has resulted in a positive change in school, college, university or training organization. A major aspect of the Stufflebeam's model is centered on decision making or an act of making up one's mind about the program introduced.

Stufflebeam's model of evaluation relies on both formative and summative evaluation to determine the overall effectiveness a curriculum program (see Figure 2). Evaluation is required at all levels of the program implemented.

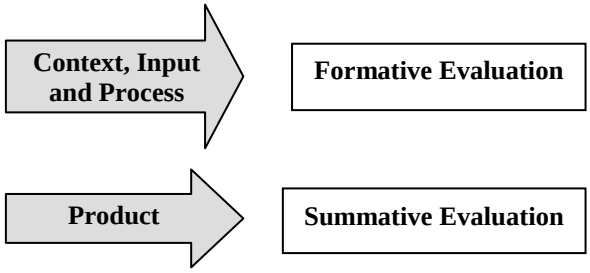

Figure 2. Stufflebeam's Model of Curriculum Evaluation

Formative evaluation takes place during the lesson or project and tells the evaluator what is happening. It is ongoing and yields information that can be usedto modify the program prior to termination. Summative evaluation is evaluation that takes place at the end of lesson or section of instruction. It sums up the learning. (Howell & Nolet, 2000) [22]

2.2.2 Tridimensional Curriculum Evaluation Model

The tridimensional curriculum evaluation model relies on three cornerstones: efficiency, effectiveness and acceptability. An evaluator assesses a curriculum based on quality of learning, meaning that the teachings are relevant to the course. The evaluator also assesses the curriculum to see how well it achieves its objectives. If students do not understand the material, then the curriculum is ineffective. Lastly, if the curriculum is disliked by the students and educators, then it is deemed unacceptable.

2.3 Instruction and Academic Performance

Teaching, according to Oladipo and Ayeni (2000) [25] involves bringing about or at least facilitating desirable changes in learners. However, effective teaching requires the teacher to step out of the realm of personal experience and step into the world of the learners.

Instruction method refers to the processes and techniques a teacher uses to transmit facts, skills, information and knowledge to the learners so as to facilitate the accomplishment of the set objectives.

It is of a necessity that a skillful teacher needs to be conversant with various teaching strategies which may be applied to subjects at different class situations. Oladipo and Ayeni (2000) [25] affirms that many methods of teaching exist in education and these methods are meant to make teacher succeed in their bid to disseminate knowledge.

However, the success in the use of any method differs as a result of an intelligent analysis of the objectives, class size, the curriculum content or the type of subject matter. Also, the impact of any teaching method is not only limited to the conditions surrounding the teaching but also the advantages and the disadvantages of a particular method in a particular situation.

2.4 Learner Differences and Academic Performance

Individual differences in academic performance have been linked to differences in intelligence and personality. Students with higher mental ability as demonstrated by IQ tests and those who are higher in conscientiousness (linked to effort and achievement motivation) tend to achieve highly in academic settings. A recent meta-analysis suggested that mental curiosity (as measured by typical intellectual engagement) has an important influence on academic achievement in addition to intelligence and conscientiousness.

Children's semi-structured home learning environment transitions into a more structured learning environment when children start first grade. Early academic achievement enhances later academic achievement.

Parent's academic socialization is a term describing the way parents influence students' academic achievement by shaping students' skills, behaviors and attitudes towards school. Parent influence students through the environment and discourse parents have with their children. Academic socialization can be influenced by parents' socio-economic status. Highly educated parents tend to have more stimulating learning environments.

Children's first few years of life are crucial to the development of language and social skills. School preparedness in these areas help students adjust to academic expectancies.

Another very important enhancer of academic achievement is the presence of physical activity. Studies have shown that physical activity can increase neural activity in the brain. Exercise specifically increases executive brain functions such as attention span and working memory.

2.5 Teacher's Qualities and Academic Performance

Although defining and measuring teacher quality remains difficult, growing consensus is developing about some of the characteristics of high-quality teachers. Research studies have found that teachers more effectively teach and improve student achievement if they themselves have strong academic skills (Ehrenbergand Brewer,1994 [15], Fergusonand Ladd, 1996 [17] and Hanushek, 1996 [19][20], appropriate formal training in the field in which they teach (Ingersoll 1999) [23], and several years of teaching experience (Murnane and Phillips (1981) [24]. The body of expert opinions on teacher effectiveness has been summarized in several studies and commission reports (Darling-Hammond 2000 [13]; Wayne and Younger 2003 [34]).

2.6 Teacher's Expectation and Academic Performance

The significance of Rosenthal and Jacobson's (1968) [29] study was tremendous in that it implied that children's academic performance was affected by teacher behaviors other than direct instruction and that, in fact, achievement outcomes of students depended, at least in part, on what teachers thought about students. Results of the study were said to confirm Rosenthal and Jacobson's (1968) [29] original work showing that student performance varied as a function of the teacher's expectations.

Crano and Mellon (1978) [11] investigated the causal interplay of teachers' expectations and children's academic performance using a four-year longitudinal design. Subjects in the study consisted of 4,300 British beginning elementary school children. A series of cross-lagged panel correlational analyses demonstrated that the preponderant cause in the achievement-expectancy relationship was that of teachers' expectations causing children's achievements to an extent appreciably exceeding that to which children's performance impinged on teachers' attitudes. Also, it was found that teachers' evaluations of children's social performance affected later achievement to an extent exceeding that attributable to academic expectations.

2.7 Facilities and Equipment and Academic Performance

Schools are established for the purpose of teaching and learning. It is most important that the teachers and learners are properly accommodated to facilitate the teaching and learning process. This is the essence of the school plant and facilities (Alimi 2004) [4]. School facilities are the space interpretation and physical expression of the school curriculum. In Nigeria at large and in Ondo State in particular, secondary schools, irrespective of ownership are expected to function in compliance with the achievement of the national education objectives. To this end, students are expected to perform brilliantly in the final examination as this determines the quality of output of secondary schools. This is one of the parameters used to measure the effectiveness of a school system. The better the performance of the students, the more effective the system is assumed to be (Philias& Wanjobi, 2011) [26]. In another related study, Cynthia & Megan (2008) [12] confirmed a strong and positive relationship between quality of school facilities and student achievement in English and Mathematics. Bandele (2003) [8] noted that the importance of physical facilities cannot be relegated. Facilities like modern laboratories, libraries and classrooms are to be put in place in all our schools. Adesola (2005) [1] found out that the level of available resources is indeed a plus to the teachers and goes to show the level of ingenuity and commitment of the teachers toward effective delivery of lesson. There is the need for renovation of old buildings, chairs, desks, cabinets and acquisition of modern classrooms as earlier recommended by Alimi (2007) [5]. Akinfolarin (2008) [3] identified facilities as a major factor contributing to academic performance in the schools system. These include classroom furniture, recreational equipment among others. Different studies conducted by Ayodele (2000) [6] and Vandiver (2011) [33], showed that a positive relationship exists between availability of facilities and student academic performances.

3. METHODS

This section presents the research method used, description of subjects, data gathering procedure and statistical treatment of data.

3.1 Research Method

In order to attain the objectives, the documentary or content analysis technique and the correlational, descriptive research were used. The documentary analysis was used to collect data on the general weighted average as evidence of academic performance from the registrar and the results of the (National Certificate II) NCII Competency Test from Technical Education and Skills Development Authority (TESDA).

The survey technique was used to gather facts about the respondents profile in terms of year level, date of graduation and date of passing the (National Certificate II) NCII Competency Test, and assessment of the curriculum, instruction, faculty, facilities and equipment of the Electronics and Communications Engineering Ladderized Program.

3.2 Population Frame

The 4th and 5th year Electronics and Communications Engineering students of the Rizal Technological University participated in the study. They constituted the 1st two batches of graduates of the 3-year Diploma of Electronics and Communications Technology under the Electronics and Communications Engineering Ladderized Program.

No sampling scheme was used because all one hundred (100) or 100% of the graduates were the respondents of the study.

3.4 Description of Subjects

Table 1shows the profile and the frequency distribution of the 3rd year–graduates under the Electronics and Communications Engineering Ladderized Program who are the respondents of the students.

Table 1
Profile of the Respondents

Batches	Current Year Level	Date of Graduation (Diploma in Electronics and Communications Engineering Technology)	Year of Passing the NC II Competency Test	Number of Respondents
1	5th	May, 2013	2013	56
2	4th	May, 2014	2014	44
Total				100

The table also shows that there is a 100% passing rate in the National Certificate II (NC II) Competency Test conducted by Technical Education and Skills Development Authority (TESDA) of the 100 graduates of Diploma in Electronics and Communications Engineering Technology.

3.5 Instrument Used

The main tool used in a gathering the data for this research was the research-made questionnaire. This instrument was used to obtain adequate information in the assessment of the Electronics and Communications Engineering Ladderized Program.

Part 1 included information about the profile of the respondents such as year level, year of graduation and year of passing the NC II Competency Test

Part II of the questionnaire was used to assess the Electronics and Communications Engineering Ladderized Program in terms of the following factors:

1. curriculum
2. instruction
3. faculty
4. facilities and equipment

3.6 Validation of the Instrument

The researchers solicited the assistance of some experts to review and make some recommendations for the improvement of the instrument. These suggestions or recommendations were incorporated in the questionnaire before it was pretested to a group of 20 students. The pretest was conducted for the purpose of content validation. Items were analyzed to find out whether or not they measured the behaviors that were supposed to be measured. Items found vague or not answered correctly or inappropriately were rephrased. The questionnaire was then finalized and submitted for approval by the adviser. After approval, the questionnaire was administered to the respondents of the study.

3.7 Data Gathering Procedures

The questionnaire was administered to the respondents of the study. Data gathered were classified, tabulated and statistically treated. The students' general weighted average which represents their academic performance is obtained from the registrar's office.

3.8 Statistical Treatment of Data

The following statistical techniques were employed in the analyses and interpretation of results:

a. Weighted Mean. This is used to calculate the average that takes into the account the importance of each value to the overall total.

The Likert Chart below is used:

Weight	Arbitrary Points	Interpretation
4	3.5 – 4.0	Very Effective
3	2.5 – 3.49	Effective
2	1.5 – 2.49	Moderately Effective
1	1.0 – 1.49	Not Effective

b. The researcher used z – test to determine significant difference in the assessment of the students of the following factors of the Electronics and Communications Engineering Ladderized Program: curriculum, instruction, faculty and facilities and equipment.
c. The Linear Relation Coefficient, r is used to measure the degree of linear relationship between the academic performance and the assessment of the student of the following factors of the Electronics and Communications Engineering Ladderized Program: curriculum, instruction, faculty and facilities and equipment.
d. The Coefficient of Determination, r^2 is used to measure the strength of the linear relationship between two variables. The variability in values can be accounted for by the linear relationship. The greater is the variability, the stronger is the linear relationship.
e. Multiple Regression Analysis is used to determine which among the independent variables (curriculum, instruction, faculty and facilities and equipment) are related to the dependent variable (academic performance) and serve as predictors.

4. RESULTS AND DISCUSSION

This section presents the results of the study in *tabular* form. Appropriate statistical treatment for the analyses and interpretation of results is used.

4.1 Assessment of the Curriculum of the Electronics and Communications Engineering Ladderized Program

Table 2 presents the Assessment of the Curriculum of the Electronics and Communications Engineering Ladderized Program.

Table 2
Assessment of the Curriculum of the Electronics and Communications Engineering Ladderized Program

Curriculum Characteristics	Weighted Mean	Verbal Interpretation
a. The curriculum has a strong foundation in mathematics and basic sciences, and core electronic engineering fundamental knowledge and abilities necessary for specialization in all areas of electronic engineering.	3.12	Effective
b. The subject distribution is fairly distributed in depth and breadth; it is not overcrowded or less crowded.	1.08	Not Effective
c. The curriculum integrates academic skills and aptitudes necessary for gainful employment and promoting a foundation of lifelong learning.	2.88	Effective
d. The curriculum allows skills to be assessed and students have benchmarks and timeframes.	2.52	Effective
e. The curriculum provides developmentally, culturally, and linguistically appropriate teaching approaches to teach the skills that students must learn.	2.6	Effective
f. The curriculum requires students enough time to undergo on-the-job training to help develop both technical and non-technical skills like communication skills, teamwork, ethics, and an appreciation for other disciplines in order to deal with the impact of technology in a global, societal, and organizational context.	1.88	Moderately Effective
General Weighted Mean	2.35	Moderately Effective

The obtained weighted mean is 2.88 to 3.45 for the curriculum characteristics and are verbally interpreted as effective. These include: The curriculum having a strong foundation in mathematics and basic sciences, and core electronic engineering fundamental knowledge and abilities necessary for specialization in all areas of electronic engineering, integrates academic skills and aptitudes necessary for gainful employment and promoting a foundation of lifelong learning, provides developmentally, culturally, and linguistically appropriate teaching approaches to teach these skills and allows these skills to be assessed and students have benchmarks and timeframes. This could be attributed to the students being able to cope up with the demands of on-the-job training, passing competency tests and passing the qualifying exam as a requirement for the degree in BS Electronics and Communications Engineering.

However, the respondents rated the following items as moderately effective and not effective, respectively: The curriculum requires students enough time to undergo on-the-job training to help develop both technical and non-technical skills like communication skills, teamwork, ethics, and an appreciation for other disciplines in order to deal with the impact of technology in

a global, societal, and organizational context and has a subject distribution is fairly distributed in depth and breadth; it is not overcrowded or less crowded. This could be attributed to students getting lower grades in semesters were obviously there are more mathematics or design subjects. Also, students could be stressed when they have their On-the-Job Training (OJT) while their hands are full with academic subjects.

4.2 Assessment of Instruction under the Electronics and Communications Engineering Ladderized Program

Table 3 presents the Assessment of Instruction under the Electronics and Communications Engineering Ladderized Program.

Table 3
Assessment of Instruction under the Electronics and Communications Engineering Ladderized Program

Strategies	Weighted Mean	Verbal Interpretation
a. Teaching for Understanding: We engage in a variety of thought-provoking activities such as explaining, finding evidence and examples, generalizing, applying, making analogies, and representing the topic in new ways (transfer).	3.48	Effective
b. Assessment for Learning: The learning goals are focused on the intended learning outputs and communicated clearly; feedback are used by teachers to make adjustments to their instruction and used by students to monitor their own learning and make adjustments in their learning tactics.	1.96	Moderately Effective
c. Rigorous and Relevant Curriculum: The teachers are guided by a curriculum that is cognitively demanding and challenging to students as they apply the essential concepts and skills to real world, complex and open ended situations.	1.88	Moderately Effective
d. Teaching for Learner Difference: Instruction is designed and delivered to match our needs based on assessment data of our prior knowledge, readiness, individual interest and learning preference.	1.32	Not Effective
e. Student Centered Classroom: Teachers support us in making connections to construct new learning in order to make decisions and solve problems; through collaboration and cooperation with others, we engage in experiential learning that is authentic, holistic, and challenging.	2.08	Moderately Effective
General Weighted Mean	2.14	Moderately Effective

Based on the weighted mean of 3.48 the respondents rated as effective the strategy: Teaching for Understanding. Studies show that a teaching strategy is effective if there is an evidence of transfer of learning and the students attest that this strategy is evident in the implementation of the Electronics and Communications Engineering Ladderized Program.

With weighted mean between1.88 to 2.08, the respondents rated the following strategies as moderately effective: Student Centered Classroom, Assessment for Learning, and Rigorous and Relevant Curriculum. Student-centered learning is focused on each student's interests, abilities, and learning styles, placing the teacher as a facilitator of learning.

The strategy: Teaching for Learner Difference was rated not effective with a weighted mean of 1.32. This means that individual difference is not seriously considered by teachers in their choice of instruction methods. Literature says that many educators cannot recognize learning differences, whether by the name of learning styles, cognitive styles, psychological type, or multiple intelligences and that learners often bring their own individual approach, talents and interests to the learning situation that is why they have to be treated differently in the classroom. This dilemma could be taking its toll on the respondents which resulted to such evaluation.

4.3 Assessment of Faculty under the Electronics and Communications Engineering Ladderized Program

Table 4 presents the Assessment of Faculty under the Electronics and Communications Engineering Ladderized Program.

Table 4
Assessment of Faculty under the Electronics and Communications Engineering Ladderized Program

Teacher's Qualities	Weighted Mean	Verbal Interpretation
a. Caring Attitude. Teachers go an extra mile and take the time to get to know students on a personal level but know how to balance this and not to cross the line.	2.16	Moderately Effective
b. High Expectations. Teachers have high expectations and strive to raise the bar for the students in order to help them achieve more.	2.88	Effective
c. Professional Development. Teachers are committed to improve/update their knowledge by exposing themselves to recent trends through training and seminars.	2.52	Effective
d. Think Outside the Box Attitude. Teachers are willing to be creative and adaptive in presenting their lessons on a continual basis knowing that students are wired to learn differently.	2.16	Moderately Effective
e. Mentorship. Teachers have the desire to influence students positively by being examples of integrity, fairness and dedication.	2.2	Moderately Effective
General Weighted Mean	2.38	Moderately Effective

With weighted mean between 2.2 to 2.88, the respondents rated the following teachers' quality as effective: High Expectations, Professional Development and Mentorship. Study by Bamburg (1994) [7] clearly establishes that teacher expectations do play a significant role in determining how well and how much do students learn. Students tend to internalize the beliefs teacher have about their ability. This is supported by Raffini (1993) [27] who clearly stated that when teachers believe in students, the students believe in themselves and this agreement between students and teachers is a significant contributor for the student success in their academic achievement. Furthermore, students respect teachers who expect them to do their best. Outstanding teachers continually grow by taking post-graduate and in service courses, reading professional literature, and engaging others in serious conversation about school issues. Often, the finest teachers serve on education committees or become teacher experts who lead study groups or professional development courses.

Caring Attitude and Think-Outside-the-Box Attitude are both rated moderately effective with weighted mean of 2.16. Teachers serve as models of positive attitudes with a display of care, concern, and respect. One of the biggest challenges to teaching is working with students of varying learning styles, personalities, and rates of learning. Teachers need to mix auditory, visual, and hands-on techniques. Flexibility in delivery of lesson as well as classroom management is a must for learning to be maximized.

4.4 Assessment of Facilities and Equipment under the Electronics and Communications Engineering Ladderized Program

Table 5 presents the Assessment of Facilities and Equipment under the Electronics and Communications Engineering Ladderized Program.

Table 5
Assessment of Facilities and Equipment under the Electronics and Communications Engineering Ladderized Program

Facilities and Equipment	**Weighted Mean**	**Verbal Interpretation**
a. Multifunctional school facilities that support a variety of student and staff activities are in place.	2.2	Moderately Effective
b. There is a variety of small-to-large meeting spaces for students to interact and develop social skills.	2.28	Moderately Effective
c. Most of the classrooms have proper lighting and ventilation.	2.56	Effective
d. Laboratory equipment are in good state, updated and in correct supply.	2.6	Effective
e. The library is made in such a way that learners are not disturbed by noise and stoked with different types of books which suits their needs.	2.32	Moderately Effective
f. Teachers' offices are most of the time open and conducive for students' consultation.	2.88	Effective
g. Internet is easily accessed in the libraries and other designated places.	1.48	Not Effective
h. Students' feedback and assessment of facilities are documented through surveys and interviews or meetings with student organizations.	1.76	Moderately Effective
i. Laboratories are safe from chemical and electrical hazards.	2.48	Moderately Effective
j. Hallways are properly lighted with roaming security guards for any untoward incidents.	1.44	Not Effective
General Weighted Mean	2.20	Moderately Effective

With weighted mean between 2.56 to 2.88, the respondents rated the following facilities and equipment as effective: Teachers' offices are most of the time open and conducive for students' consultation, laboratory equipment are in good state, updated and in correct supply and most of the classrooms have proper lighting and ventilation. Improving students' relationships with teachers has important, positive and long-lasting implications for students' academic and social development (Rimm-Kaufman) [28]. The respondents found the teachers' offices to be a good venue for this purpose.Bandele (2003) [8] noted that the importance of physical facilities cannot be relegated. Adesola (2005) [1] found out that the level of available resources is indeed a plus to the teachers and goes to show the level of ingenuity and commitment of the teachers toward effective delivery of lesson. Akinfolarin (2008) [3] identified laboratory facilities as a major factor contributing to academic performance in the schools system.

With weighted mean between 1.76 to 2.48, the respondents rated the following facilities and equipment as moderately effective: Laboratories are safe from chemical and electrical hazards, the library is made in such a way that learners are not disturbed by noise and stoked with different types of books which suit their needs, there is a variety of small-to-large meeting spaces for students to interact and develop social skills, multifunctional school facilities that support a variety of student and staff activities are in place and students' feedback and assessment of facilities are documented through surveys and interviews or meetings with student organizations.

The following aspects of facilities and equipment are rated not effective with weighted mean of 1.48 and 1.44, respectively: Hallways are properly lighted with roaming security guards for any untoward incident and Internet is easily accessed in the libraries and other designated places. The Internet is very useful for research

since it has theability to access the very latest information. Library books take time to order, accession and be available on the shelves. Also, internet enables students to communicate directly with subject experts by email. While students can phone local experts, or write to distant ones, electronic communication allows fast and cheap answers to questions.

4.5 Level of Academic Performance of the 3rd year graduates under the Electronics and Communications Engineering Ladderized Program

Table 6 presents the Level of Academic Performance of the 3rd year graduates under the Electronics and Communications Engineering Ladderized Program.

Table 6
Level of Academic Performance of the 3rd year graduates under the Electronics and Communications Engineering Ladderized Program

General Weighted Average	Frequency	Percentage
91– 96 (Very Good)	9	9%
85 – 90 (Good)	43	43%
80– 84 (Fair)	48	48%

Most of the respondents have "fair" as the level of academic performance.

4.6 Level of Effectiveness of the Curriculum of the Electronics and Communications Engineering Ladderized Program

Table 7 shows the Level of Effectiveness of the Curriculum of the Electronics and Communications Engineering Ladderized Program.

Table 7
Level of Effectiveness of the Electronics and Communications Engineering Ladderized Program In Terms of the Following Factors

Factors	Mean Difference	z	Sig. (2-tailed)	Verbal Interpretation
Curriculum	2.6270	63.030	.000	Reject Ho
Instruction	2.6270	59.211	.000	Reject Ho
Faculty	2.6990	55.244	.000	Reject Ho
Facilities and Equipment	2.7310	59.226	.000	Reject Ho

The null hypothesis is rejected for all the factors. It indicates that there is a significant difference in the respondents' assessment of the Level of Effectiveness of the Curriculum of the Electronics and Communications Engineering Ladderized Program with computed z-value at p=value of 0.00. The respondents vary in their assessment of the factors: curriculum, instruction, faculty and facilities and equipment.

4.7 Relationship between the students' Academic performance and their Assessment of the ECE Ladderized Program

Table 8 shows the Relationship between the students' Academic Performance and their Assessment of the Electronics and Communications Engineering Ladderized Program.

Table 8
Relationship between the students' Academic Performance and their Assessment of the Electronics and Communications EngineeringLadderized Program

Factors	r	r^2	Critical Value $\propto = 0.01$	Interpretation
Curriculum	0.39	0.15	0.256	Reject Ho
Instruction	0.43	0.18	0.256	Reject Ho
Facilitiesand Equipment	0.46	0.21	0.256	Reject Ho
Faculty	0.33	0.11	0.256	Reject Ho

It can be gleaned from the table that for all the factors: Curriculum, Instruction, Faculty, Facilities and Equipment Ho is rejected with r values greater than zero. It indicates that there is a linear relationship between the students' academic performance and their assessment of the following factors of the ECE Ladderized Program: curriculum, instruction, facilities and equipment and faculty. However, with the correlation coefficient, r^2 for all factors very much less than one means that there is only a small degree of linear relationship. The variation in the academic performance cannot be strongly explained by the variation in the assessment of the factors mentioned above. Other factors may have contributed to such performance.

4.8 Factors That Predict the Academic Performance of the students of the Electronics and Communications Engineering Ladderized Program

Table 9 sows the Factors That Predict the Academic Performance of the students of the Electronics and Communications Engineering Ladderized Program.

Table 9
Factors That Predict the Academic Performance of the students of the Electronics and Communications Engineering Ladderized Program

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Grade)	74.526	2.770		26.902	.000
Curriculum (X1)	-.016	.660	-.002	-.025	.980
Instruction (X2)	.127	.576	.018	.221	.826
Facilities and Equipment (X3)	4.674	.636	.609	7.346	.000
Faculty (X4)	-.028	.562	-.004	-.051	.960

By Multiple Regression Analysis, the regression model is $Y = 74.526 - 0.016\ X_1 + 0.127\ X_2 + 4.674\ X_3 - 0.028\ X_4$.

The factor that significantly predicts students' academic performance is facilities and equipment having the highest coefficient of 4.674 followed by instruction having a coefficient of 0.127. This can be attributed to students considering the school to be their second home and their teachers to be their second parents.

5. CONCLUSION AND RECOMMENDATION

5.1 Summary of Findings

Based on the data discussed and interpreted in the preceding chapter, the findings are summarized as follows:

5.1.1 Assessment of the Curriculum of the Electronics and Communications Engineering Ladderized Program

The following curriculum characteristics were found effective: The curriculum has a strong foundation in mathematics and basic sciences, and core electronic engineering fundamental knowledge and abilities necessary for specialization in all areas of electronic engineering, integrates academic skills and aptitudes necessary for gainful employment and promoting a foundation of lifelong learning, provides developmentally, culturally, and linguistically appropriate teaching approaches to teach these skills and allows these skills to be assessed and students have benchmarks and timeframes.

However, the respondents rated the following items as moderately effective and not effective, respectively: The curriculum requires students enough time to undergo on-the-job training to help develop both technical and non-technical skills like communication skills, teamwork, ethics, and an appreciation for other disciplines in order to deal with the impact of technology in a global, societal, and organizational context and has a subject distribution is fairly distributed in depth and breadth; it is not overcrowded or less crowded.

5.1.2 Assessment of Instruction under the Electronics and Communications Engineering Ladderized Program

The respondents rated this particularstrategy as effective: Teaching for Understanding. Student Centered Classroom, Assessment for Learning, and Rigorous and Relevant Curriculum were rated as moderately effective. The strategy: Teaching for Learner Difference was rated not effective.

5.1.3 Assessment of the Faculty members of the Electronics and Communications Engineering Ladderized Program

The respondents rated the following teachers' quality as effective: High Expectations, Professional Development and Mentorship. Caring Attitude and Think-Outside-the-Box Attitude are both rated moderately effective.

5.1.4 Assessment of the Facilities and Equipment under the Electronics and Communications Engineering Ladderized Program

The respondents rated the following facilities and equipment as effective: Teachers' offices are most of the time open and conducive for students' consultation, laboratory equipment are in good state, updated and in correct supply and most of the classrooms have proper lighting and ventilation. The respondents rated the following facilities and equipment as moderately effective: Laboratories are safe from chemical and electrical hazards, the library is made in such a way that learners are not disturbed by noise and stoked with different types of books which suit their needs, there is a variety of small-to-large meeting spaces for students to interact and develop social skills, multifunctional school facilities that support a variety of student and staff activities are in place and students' feedback and assessment of facilities are documented through surveys and interviews or meetings with student organizations.

However, the following aspects of facilities and equipment are rated not effective Hallways are properly lighted with roaming security guards for any untoward incident and Internet is easily accessed in the libraries and other designated places.

5.1.5 Level of Effectiveness of the Electronics and Communications Engineering Ladderized Program

Since there is a significant difference in the respondents' assessment on the Level of Effectiveness of the ECE Ladderized Program in terms of the following factors: curriculum, instruction, facilities and equipment and faculty, the respondents are vary in their assessment.

5.1.6 Performance of the Students in the NCII Competency Test Conducted by TESDA

There is a one hundred passing of the 3rd year graduates of the ECE Ladderized Program in the National Certificate II (NCII) Competency Test Conducted by the Technical Education and Skills Development Authority (TESDA).

5.1.7 Relationship Between Students' Academic Performance And Their Assessment of the Electronics and Communications Engineering Ladderized Program

There is a small degree of linear relationship between the students' academic performance and their assessment of the following factors of the Electronics and Communications Engineering(ECE) Ladderized Program: curriculum, instruction, facilities and equipment and faculty. The variation in the academic performance cannot be strongly explained by the variation in the factors mentioned above. It can be attributed to other factors.

5.2 CONCLUSIONS

Based on the findings, the following conclusions were drawn:

1. a. The curriculum of the Electronics and Communications Engineering Ladderized Program plays a role in effectively providing the students with basic academic skills necessary for specialization in all areas of electronics engineering and competency necessary for employment and business endeavor.

b. Teaching for Understanding and Student Centered Classroom are the strongest instructional strategies under the Electronics and Communications Engineering Ladderized Program. The weakest is Teaching for Learner Difference.

c. The most effective qualities of the faculty members of the Electronics and Communications Engineering Ladderized Program are high expectations for the students and their professional development.

d.The best facilities that effectively deliver the Electronics and Communications Engineering Ladderized Program are the teachers' offices are most of the time open and conducive for students' consultation laboratory equipment which are in good state, updated and in correct supply. The worst is the shortage of internet services in the libraries.

2. Majority of the students rated that the Electronics and Communications Engineering Ladderized Program in terms of curriculum, instruction, faculty, facilities and equipment are moderately effective.
3. Most of the students of the Electronics and Communications Engineering Ladderized Program performed fairly in their academics.
4. The 3rd year graduates under the Electronics and Communications Engineering Ladderized Program obtained a 100% passing percentage in the NCII Competency Tests conducted by the Technical Education and Skills Development Authority(TESDA).
5. Effective curriculum, instruction, faculty, facilities and equipment under the Electronics and Communications Engineering Ladderized Program have minimal effect on the academic performance of the students.
6. Facilities and Equipment and Instructions under the Electronics and Communications Engineering Ladderized Program are effective tools for predicting students' academic performance.

RECOMMENDATIONS

In view of this, the following recommendations are encouraged:

1. All stakeholders must be involved right at the beginning of curriculum development. The students, teachers, administration, alumni, industry and other sectors must be involved in workshops, conferences or consultations. This participatory process provides a sense of ownership for all stakeholders. In so doing, each one will make sure that the results of curriculum implementation will be positive.
2. Organizing curriculum to meet individual needs is compatible with democratic principles. Curriculum makers and implementers, especially faculty members, need to know what differences there are in cultural background, mental systems and approaches to problem solving of the learners so that, instructional strategies may be modified or innovated, specifically, differentiated depending on the learners' needs.
3. Technology is an essential part of a successful curriculum implementation. A push for more and better Wi-Fi connections must be pursued since the Electronics and Communications Engineering (ECE) Ladderized Program use online tools and technology for everyday learning and making the use of tablets and personal computers connected to the Internet more important than ever; thus, a faster and more reliable internet connection must be a priority.

REFERENCES:

[1] Adesola, A. A. (2005). Resource Provision and Utilization, Mathematics Ability and learning Environment asprediction of learning Outcome in Undergraduate Practical Geography. Unpublished Ph.D Thesis, University ofIbadan, Ibadan.

[2] Agus, A and Makhbul, Z.K. (2002). An empirical study on academic achievement of business students inpursuing higher education: An emphasis on the influence of family backgrounds.*Paper presentedat International Conference on the Challenges of Learning and Teaching in a Brave New World:Issues and Opportunities in Borderless Education. Hatyai Thailand*

[3] Akinfolarin, C. A. (2008). Resource utilization in Vocational and Technical Education in Colleges of Education inSouth-West Nigeria.Unpublished Ph.D Thesis.University of Ado-Ekiti, Ado-Ekiti.

[4] Alimi, O. S. (2004). Appraisal of the Adequacy of Available School Plant for Primary Education In Ayedaade LocalGovernment Area of Osun State. *Educational Thought, 4*(1) 64-69

[5] Alimi, O. S. (2007). Physical Plant Maintenance Practices in the Public Secondary Schools in Akoko ZonalEducation Area of Ondo State. *Ife Journal of Educational Studies, 13*(1):73-78

[6] Ayodele, J. B. (2000). School Size, Class Size and Teacher's Quality as Correlation of Internal Efficiency in PrimarySchool in Ondo State, Nigeria; Unpublished PhD Thesis, University of Ibadan, Ibadan.

[7] Bamburg, Jerry. Raising Expectations To Improve Student Learning.Oak Brook, Illinois: North Central Regional Educational Laboratory, 1994. 33 pages.

[8] Bandele, S. O. (2003). The Universal Basic Education in Perspective, Need for Formative Evaluation. *NigeriaJournal of Educational Research and Evaluation, 1*(4), 54-56.

[9] Beyer, B. K. (1995). *Critical thinking.* Bloomington, IN: Phi Delta Kappa Educational Foundation. Center for Critical Thinking (1996a). *The role of questions in thinking, teaching, and learning.*

[10] Bilbao, P.P., Lucido, P. I., Iringan, T.C., Javier, R.B. (2008) *CurriculumDevelopmen*t. Published by LORIMAR Publishing Inc

[11] Crano, W., and Mellon, P. (1978). ... Teacher beliefs toward academically at risk students in inner urban schools Journal The Urban Review Volume 18, Issue 4 , pp 253-268

[12] Cynthia, U., & Megan, T. (2008). The Walls Speak: the interplay of quality facilities, school climate, and studentachievement. *Journal of Educational Administration, 46* (1), 55-73.

[13] Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. Educ. Pol. Anal. Arch., 8(1), 1-50.National Commission on Teaching & America's Future. (1996). WHAT Matters Most: Teaching For America's Future. New York: Author. ED 395 931

[14] Eccles, J., Wigfield, A., Harold, R. D., & Blumenfeld, P. (1993). Age and Gender Differences in Children's Self and Task Perceptions During Elementary School. Child Development, 64, 830-847

[15] Ehrenberg, R., & Brewer, D. (1994, March). Do school and teacher characteristics matter? Evidence from "High School and Beyond." Economics of Education Review, 13(1), 1-17. (EJ 483 386)

[16] Ermisch, J. and Francesconi, M. (2013), The Effect OfParental Employment On Child Schooling. J. Appl. Econ., 28: 796–822.

[17] Ferguson, R. F. & Ladd, H. F. (1996). How and why money Matters: An analysis of Alabama schools. In H. F. Ladd (Ed.), Holding school accountable: Performance-based reform in education(pp. 265-298). Washington, D.C.: The Brookings Institution

[18]Hanushek Eric A.*1971. "Teacher Characteristics and Gains in Student Achievement: Estimation Using Micro Data." American Economic Review 61(2):280–88.*

[19] Hanushek, E. A. (1996a). A more complete picture of school resource policies. Review of Educational Research, 66(3), 397-409.

[20] Hanushek, E. A. (1996b). School resources and student performance. In G. T. Burtless (Ed.), Does money matter? The effect of school resources on student achievement and adult success(pp. 43-73). Washington, D.C.: The Brookings Institution.

[21] Hossler, D., & Stage, F. Family and high school experience factors' influence on the postsecondary plans of ninth-grade students: A structural model of predisposition to college. *American Educational Research Journal, 29*(2), 425-451

[22] Howell, K.W., & Nolet, V. (2000). Curriculum-based evaluation: Teaching and decisionmaking (3rd). Belmont, CA: Wadsworth/Thomson Learning

[23] Ingersoll, R. (1999). The problem of underqualified teachers in American secondary schools. Educational Researcher, 28, 26–37. Ingersoll, R. (2000).

[24] Murnane Richard. J., Phillips Barbara R.1981. "What Do Effective Teachers of Inner-City Children Have in Common?" Social Science Research 10(1):83–100.

[25] Oladipo, S. A. and Ayeni, J. O. (2000). A handbook of Educational theory. Lagos: Raytel.

[26]Philias, O. Y., & Wanjobi, W. C. (2011). Performance Determinants of Kenya Certificate of Secondary Education(KCSE) in Mathematics of Secondary Schools in Nyamaiya Division, Kenya. *Asian Social Science, 7* (2), 107-112

[27] Raffini, James. Winners WitHout Losers: Structure And StrateGies For IncreasinG Student Motivation To Learn. Boston: Allyn and Bacon, 1993. 286 pages.

[28] Rimm-Kaufman, S. E., Baroody, A. E., Larsen, A. A., Curby, T. W., & Abry, T. (2014).To what extent do teacher-student interaction quality and student gender contribute to fifth graders' engagement in mathematics learning? Journal of Educational Psychology. doi: 10.1037/a0037252

[29] Rosenthal, R., &Jacobson, L. 1968. Pygmalion in the classroom. New York: Holt, Rinehart & Winston

[30] Stufflebeam, D.L. Context, Input, Process, Product Model **(**CIPPModel**)***www.learningdomain.com/ASSESS/Module_8.Evaluation.doc*

[31] Summers, A. & Wolfe, B.L. (1975). Which school resources help learning? Efficiency and equity in Philadelphia public schools. Business Review. Philadelphia, PA: Federal Reserve Bank of Philadelphia, Department of Research. (ED 102 716)

[32] Syjuco, A.B. The Philippine Technical Vocational Education and Training(TVET) Systemhttp://www.tesda.gov.ph/uploads/file/Phil%20TVET%20system%20-%20syjuco.pdf

[33] Vandiver, B. (2011). *The Impact of School facilities on the Learning Environment.* Unpublished DoctoralDissertation, Capella University.

[34] Wayne, A.J., Youngs, P. Review of Educational Research, 2003 rer.sagepub.com

[35] Womble, P. (2003). Impacts of Stress factors on college student's academic performance. *Undergraduate journal of Psychology, 16*(1), 16-23.