Volume I, Number I, 2017 ISSN 2546-1087

Republic of the Philippines

UNIVERSITY OF RIZAL SYSTEM

Tanay, Rizal

URS Research Journal

The Official University Multidisciplinary Refereed Journal

A Bi-annual Publication of the University of Rizal System

The URS Research Journal is the official multidisciplinary double-blind refereed bi-annual publication of the **University of Rizal System, Tanay, Rizal, Philippines.**

URS Research Journal

The Official University Multidisciplinary
Refereed Journal

Editor's Note

It is a great challenge to publish a double blind peer reviewed journal, especially when the journal aims to publish high quality manuscripts.

Since the publication of research outputs of faculty members in refereed journals has become the universal requirement for tenure in higher education institutions (HEIs) like the University of Rizal System (URS), the practice of refereeing have been adopted to ensure quality of the publication.

As the Commission on Higher Education (CHED) provides Journal Accreditation Service (JAS), all Philippine HEIs are wishing to have their research journals recognized as peer reviewed journals. Since then, URS accepted and took the challenge of initiating the process as an initial step towards the application for CHED accreditation.

In order to position the *URS Research Journal* as one of the more authoritative multidisciplinary journals, a group of highly capable faculty researchers were designated and have agreed to serve on the editorial board. I am honored to have three associate editors: Dr. Romeo C. Pati, Prof. Cyrene T. Navalta of URS Tanay and Dr. Niclie L. Tiratira of URS Morong. I am also delighted with the designation of Prof. Jerry C. Esperanza as the Managing Editor, Dr. German L. Peñaranda as the Circulation Manager, and Prof. Arminda B. Campo and Mr Kevin P. Aquino as the Production Assistants. Dr Namerod F. Mateo and Dr Marita R. Canapi serve as the URSRJ consultants.

This maiden volume includes manuscripts on instructional effectiveness, cell model manipulation, *Lepidopterans* in an upland community, a revisit on teacher education program and livelihood preferences of residents from a semi-urban community.

In the coming year, it is a vision to publish a combination of manuscripts documenting rigorous studies across disciplines.

As you read throughout this maiden volume, I would like to remind you that the success of this journal depends directly on the number of quality articles submitted for review. Relative to this, I would like to request you to submit quality manuscripts considering various disciplines and encourage your colleagues to do the same.

One of the great benefits we can provide to our prospective authors, regardless of acceptance of the manuscript or not, is the mentoring nature of our review process. The journal provides authors with high quality, helpful reviews that are shaped to assist authors in improving the submitted manuscripts. I very much appreciate your support as we strive to make URSRJ one of the preferred journals in the region.

The Editor-in-Chief

Table of Contents

Instructional Effectiveness of Switching Logic Training Board and Switching Logic Training Module

Leo C. Rio[1]
Marites M. Rio[2]
leocrio@yahoo.com

Abstract

A switching logic training board (SLTB) and switching logic module (SLTM) were developed as an alternative training materials for Industrial Design, Process and Control (IDPC) subject. The study was conducted to address the low performance of students enrolled in the Bachelor of Technology (BT) major in Electrical Technology. The low performance was due to lack of the needed instructional materials needed in the BT program relevant to industrial operation and process control. It was conducted during the second semester of the school year 2015 to 2016 at the University of Rizal System, Morong, Rizal, Philippines. The materials were assessed to determine their respective level of acceptability in terms of technical viability, significance and relevance to instruction, originality and applicability and utilized to determine their instructional effectiveness. The descriptive developmental and experimental methods of research were used. Both instructional materials were assessed highly accepted considering the four aspects and found effective after utilizing them in instruction. The study stresses the significance of the skill, knowledge and workmanship acquisition to establish a valuable instructional materials for student development.

Keywords: *Instructional Effectiveness, Instructional Materials, IMs, Instruction, Switching Logic, Training Board, Module, URS Morong*

[1]Dr. Leo C. Rio, Professor I, College of Industrial Technology, URS Morong.
[2]Dr. Marites M. Rio, Professor II, College of Education, URS –Morong.

Introduction

Teaching is a challenging career. It requires effective delivery of lessons in order to inculcate and enhance the learning capabilities of the learners. A variety of teaching methodologies and strategies are being adopted and applied to establish the best teaching and learning experiences of a student. Visual materials, multi-media, electronic devices as well as instructional materials are nowadays commonly used as medium of instruction. Recognizing their importance to learning process, development and utilization of instructional materials to create meaningful, effective and creative learning among students are being pursued in different academic institutions. These instructional materials may be originally designed and customized according to the preference and teaching style of a teacher. Section XVI of Philippines Educational Act of 1982 highlighted the teacher's obligations, which states that teachers should perform their duties in school in accordance with the philosophy, goals and objectives of the school. They are accountable for the efficient and effective attainment of the learning objectives in pursuance of the national development goals. The said responsibility will definitely bring out teacher's creativeness and innovativeness that he may use in developing instructional materials and help realize the objectives of the lessons in the most suitable and appropriate way.

Based on the survey conducted by the researchers, only eight percent of the total number of the Bachelor of Technology students, major in Electrical Technology who graduated from the University of Rizal System, Morong, Rizal, Philippines since year 2014 to 2016 were able to land a job related to their area of specialization. Seventy five percent of them were underemployed and five percent were able to establish their own small scale businesses while the remaining percentage has no work. This low percentage of employment can be in part, attributed to their low performance in major subjects such as in Industrial Design, Process and Controls (IDPC). In order to address the problem, there is need to improve the learning and training scheme of the incoming Bachelor of Technology electrical students and improve their performance in industrial design, process and control related tasks.

The practical skill, theoretical knowledge and workmanship acquisition demands the use of effective instructional materials to

bring to the students a learning that is favorable to them. The students should acquire and showcase the expected knowledge, skill and workmanship of a particular learning task based on their learning experiences. The use of instructional materials as well as training module helps the students better understand the theories and logic being taught in the class. It facilitates lively interaction between teacher and students and establish an effective and efficient teaching -learning condition. It serves as guide for teachers to transform difficult and tedious teaching job into a simple one which will definitely lead to the facilitation of an effective teaching and quality learning among students.

Instructional materials are important medium to disseminate information, convey messages and ideas or concept in the teaching-learning process (Bassey, 2002). They are being created and produced to find ways from which students can learn better. Some students learn better through a lecture method while others can learn by exploration. The utilization of a variety of instructional materials definitely provide the students with a rewarding learning experiences (Bone, 2003). Innovation or improvisation of any instructional material helps teachers deliver the knowledge to the students.

The teacher's innovativeness improves the transfer of learning and enhance retention of the students (Elejedo, 2011). A number of teachers are aware of instructional materials improvisation and adopt it as part of their teaching methodology. Very few teachers practice instructional materials improvisation and majority utilized imported learning equipment and noted that instructional materials development is time-consuming and fund depleting (Omosewo, 2008; Akinsola, 2000). In addition, improvisation requires adventure, creativity, curiosity and perseverance on the part of the teacher (Onasanya et al. 2008; Adebimpe, 1997; Aguisiobo, 1998).

Programmable Logic Control, Alternating/Direct Current Motor Controls, Industrial Electronics, Electro-Mechanical and Industrial Design Process and Control are among the major subjects that provide competencies to technology students. Due to the limited funding of many colleges and universities, the equipment and device available in the market cannot be easily purchased because they are expensive. Teachers face the crucial call for improvisation of **needed instructional aids in order to deliver the skills and competencies** required by

the subject. This is the primordial consideration why teachers should think about improvisation of alternative learning material which may be low-cost yet equally functional and educational like those that can be learned and experienced with the commercially available learning equipment.

Developing instructional materials such as the Switching Logic Trainer Board (SLTB) and Switching Logic Trainer Module (SLTM) is worth pursuing because they facilitate the acquisition of the required skill, knowledge and workmanship in IDPC subject. Developing instructional materials such as the Switching Logic Trainer Board (SLTB) and Switching Logic Trainer Module (SLTM) is worth pursuing because they facilitate the acquisition of the required skill, knowledge and workmanship in IDPC subject. The SLTB and SLTM can be the solution to the insufficiency of equipment and instructional materials in the industrial design, process and control subjects offered in many universities. This may also pave the way for possible production and commercialization of the developed instructional materials. The researchers believed that the SLTB and SLTM are applicable to other subjects like Programmable Logic Control, Alternating/Direct Current Motor Controls, Industrial Electronics, Electro-Mechanical and Industrial Process and Control to help students not just to develop their skills and competencies but to realize efficient and effective performance of their tasks when they are already serving their works in the industry.

Realizing the need of these instructional aids, a study aimed to develop and determine the acceptability and instructional effectiveness of the SLTB and SLTM was conducted at the College of Industrial Technology, URS, Morong, Rizal, Philippines during the second semester of the school year 2015-2016. The development of these instructional materials can augment the instructional needs of State Universities and Colleges offering technology programs.

Methodology

Development of the SLTB and SLTM

The design of the SLTB was prepared using auto-cad. The components of the board were constructed out of available low cost

electronic and electrical devices. These electrical materials were carefully selected and safely installed in a plastic chassis which was designed to cater all the needed materials according to design. Try-out and testing were done to check the functionality and safety of parts and troubleshoot for some possible errors. Revisions were made immediately by replacing the defective parts found during the tryout and testing stage.

The SLTM was written and produced following the prescribed contents of the syllabus in industrial design, process and control subject. The contents cover the basics and complexity of switching logic in relation to electronics logic gates and how they are being used in industrial processes and operations. Validation was also carried out to ensure its validity. The instrument was validated by selected faculty experts and was piloted with 40 randomly selected third year Engineering students from the College of Engineering, URS Morong.

Level of Acceptability

The developed SLTB and SLTM were technically assessed by the experts and end-users in the field of electrical and electronic technology in terms of technical viability, significance and relevance to instruction, originality and applicability. Selected 20 technical experts (electrical engineers) and twenty end-users (electrical and electronics instructors) were purposively chosen as evaluators to determine the level of acceptability of the developed SLTB and SLTM using a researcher-made checklist. T-test was used to determine the significant difference between the evaluations made by the two sets of evaluators on the developed SLTB and SLTM.

Effectiveness

The assessment of the performance of the two groups of respondents in terms of practical skill, knowledge and workmanship was initially done to establish the effectiveness of the developed SLTB and SLTM. Three sets of researcher - made tests were purposively designed by the researchers and used to measure the performance of the respondents. Content validation of these three tests was conducted by selected external experts and piloted using a sample of 40 randomly selected third year electrical students from the

College of Engineering of URS Morong Campus. T-test was used to establish the significant difference on the performance of the respondents with respect to practical skill, theoretical knowledge and workmanship.

Forty - eight electrical students enrolled in IDPC subject served as the respondents. The first group was exposed to instruction utilizing the SLTB while the second group was exposed to SLTM based instruction. A knowledge test was used to measure the level of theoretical knowledge acquired by the respondents after exposure to theoretical and practical lessons. It consisted of 50 multiple choice test items about switching logic. Similarly, performance test was utilized to measure the practical skills acquired by the students. The respondents were instructed to perform series of practical skills test consisting of ten actual tests equivalent to 30 points. On the other hand, a 20-point score sheet/rubric was used to measure the workmanship of the two groups of respondents. Percentage raw scores of the respondents were determined for better comparison.

The tests were administered to the respondents after completion of their lessons. Then they were directed to answer the multiple-choice achievement test. They were then subjected to a thirty score-point practical tests. It took one and a half hours for the knowledge test while four weeks were utilized to cater practical tests.

Two sets of five-point scale were used to determine the level of acceptability of the developed materials and the performance of the respondents. The first scale is consisted of an even interval which ranges from 1.00 as the lowest and 5.00 as the highest with their corresponding verbal interpretations of Highly Accepted (HA), Much Accepted (MA), Accepted (A), Less Accepted (LA) and Not Accepted (NA). The second set of five - point scale was formulated based on the tests and their respective scores of 50 points for the knowledge, 30 points for practical skill and 20 points for workmanship. They were equally distributed with an equal interval each to comprise a five point scale. The same verbal interpretations of Outstanding (O), Very Satisfactory (VS), Satisfactory (S), Fairly Satisfactory (FS), and Poor (P) were designated respectively.

Results and Discussions

Level of Acceptability

Based on the assessment made by technical experts and end-users, the developed SLTB is highly acceptable. All the parameters considered in testing have ratings ranging from 4.50 to 4.70. The board was rated 4.70 in terms of its applicability. This is a manifestation of the functionality and technical viability of the board in Terms of its design and suitability to the users (Table 1).

Table 1. Level of Acceptability of the Developed SLTB and SLTM

Aspects	SLTB			SLTM		
	Ave. Wx	Rank	VI	Ave. Wx	Rank	VI
Technical Viability	4.50	4	HA	4.25	4	HA
Significance and Relevance	4.60	3	HA	4.40	1	HA
Originality	4.65	2	HA	4.35	2	HA
Applicability	4.70	1	HA	4.30	3	HA
General Weighted Mean	4.61		HA	4.32		HA

HA – Highly Accepted

The SLTM was also rated highly acceptable by the experts and end-users. The ratings on technical viability, significance and relevance to education, as well as originality and acceptability were all higher than 4, an indication of its appropriateness and soundness as an aid to learning process. Selga (2013) stated that a well-organized and well-designed instructional materials contribute to the achievement of specific objectives of the subject and provide learning for the development of higher cognitive skills of the students.

The assessment made by experts and end-users on the developed SLTB and SLTM was tested for a significant difference using T-test at .05 level of significance. It was found out that there is a significant difference in terms of Applicability while "Technical Viability", "Significance and Relevance" and "Originality" established no significant difference. In general, both technical experts and end-users have common assessment on the level of acceptability of the developed SLTB and SLTM. Categorically, the developed SLTB and SLTM were labeled valid instructional materials in IDPC subject. The test was conducted to strengthen the result of the level of acceptability assessment made by the evaluators on the level of acceptability of the developed materials (Table 2).

Table 2. T-value on the Level of Acceptability of the Developed SLTB and SLTM

ASPECTS	SLTB X1	SLTM X2	df	t-comp	t-tab	Ho	VI
Technical Viability	4.50	4.25	38	1.269	1.689	A	NS
Significance and Relevance	4.60	4.40	38	1.258	1.689	A	NS
Originality	4.65	4.35	38	1.616	1.689	A	NS
Applicability	4.70	4.30	38	2.214	1.689	R	S

NS – Not Significant; S – Significant; A – Ho Accepted; R – Ho Rejected

Level of Performance of the Student-Participants

Both SLTB and SLTM as used in instructional process directed the student-respondents towards an outstanding performance in their practical skill, theoretical knowledge and workmanship. (Kim et al., 2017) pointed out that a learning organization that has a positive effect on knowledge performance and knowledge performance fully mediates the relationship between a learning organization and performance. The developed and accepted SLTB and SLTM brought a positive learning environment which is conducive and convenient to the student learning acquisition (Table 3).

Table 3. Level of Performance of the Two Groups of Students Exposed to SLTB-Based Instruction and SLTM-Based Instruction

	SLTB-based Instruction		SLTM-based Instruction	
	Mean	VI	Mean	VI
Practical Skill	93.06	Outstanding	92.08	Outstanding
Theoretical Knowledge	93.33	Outstanding	87.00	Outstanding
Workmanship	92.71	Outstanding	91.67	Outstanding

Furthermore, the level of performance of the two groups of respondents in terms of practical skill, theoretical knowledge and workmanship were compared to determine any significant difference using T-test at .05 level of significance (Table 4). Overall, it showed that only performance in Theoretical knowledge of the two groups had it significantly different while performance in terms of Practical skills

and Workmanship were labeled not significant. Still in general, it has proven the fact that instructions with the use of SLTB and SLTM definitely equipped respondents with outstanding performance.

Therefore, SLTB and SLTM are effective instructional materials as they both warrant an outstanding performance among students. Elejedo (2011) reiterated that innovation helps teachers deliver the best knowledge to the students. Likewise, Abarro (2004) mentioned that scarcity of instructional materials greatly affects the learning performance of the students. He also added that instructional materials bring activities that arouse the critical and creative thinking of the students.

Table 4. Performance of the Two Groups of Student-Participants

	Instruction	Mean	SD	df	t	Sig	Ho	VI
Practical Skills	SLTB-Based	27.9167	1.4116	46	.6737	.5036	FR	NS
	SLTM-Based	27.625	1.5829					
Theoretical Knowledge	SLTB-Based	46.6667	2.099	46	5.6187	.00000108	R	S
	SLTM - Based	43.50	1.7937					
Workmanship	SLTB-Based	18.5417	1.2151	46	.5717	.5703	FR	NS
	SLTM - Based	18.333	1.3077					

R – Reject; FR – Failed to reject; NS – Not Significant; S – Significant

Conclusion

The developed low-cost SLTB and SLTM were rated highly accepted by the experts and end users in terms of technical viability, significance and relevance, originality and applicability. These were found very effective in the delivery of instruction in IDPC subject. The students were able to attain outstanding performance in terms of theoretical knowledge, practical skill and workmanship. Utilization of these materials can be done as an aid to instruction in electrical technology course. University adoption of the developed materials can be an option considering its significance in instruction, research development, extension and production.

References

Abarro, J.O., (2004). Development and Validation of Worktext in Principles and Methods of Teaching, University of Rizal System, Pililla, Rizal, Philippines.

Adebimpe, A.O. (1997). Improvisation of science teaching resources. Proceedings of 40th Annual Conference of STAN, (PACS'97), Kano, Nigeria, 55-60.

Aguisiobo, B.C. (1998). Laboratory and resources utilization: Funding by integrated science teachers. Afr. J. Educ., 1: 29-36.

Akinsola, A.T. (2000). An Investigation into the science teachers self-conceived ability to improvise materials for the teaching of primary science. *IJOSE*.,2: 8-12.

Bassey, M.P. (2002). Availability of resources for the teaching of science subject in public secondary schools: A case study of some selected secondary schools in Alimosho Local Government.

Bone, J. (2003). *What are the importance of instructional materials in teaching?* http://www.blurtit.com/q7779922.

Campbell, C.P. (1999). Instructional materials: Their preparation and evaluation, *Journal of European Industrial Training*, 23(2), 57–107. doi: 10.1108/03090599910257515.

Education Act of 1982, Chan Robles Virtual Law Library.

Elejedo, J.J. (2011). Manila Instruction in Teaching Light Waves. University of Rizal System, Morong, Rizal, Philippines.

Kim, K., Watkins, K.E. and Lu, Z. (Laura) (2017). The impact of a learning organization on performance, European Journal of Training and Development, 41(2), pp. 177-193. doi: 10.1108/ ejtd-01-2016-0003.

Omosewo, E.O. (2008). Physics teachers education and national education reforms. In: Education Reforms in Nigeria-past, Present and Future, *Lawal, A.R. (Eds.). Stirling-Horden Publishers Ltd., Lagos.*

Onasanya, S.A. and Adegbija, M.V. (2007). Practical handbook on instructional media. 2nd Edn., Graphcom Publishers, Ilorin.

Onasanya, S.A. (2004). Selection and utilization of instructional media for effective practice teaching. *Instit. J. Stud. Educ.*, 2: 127-133.

Onasanya, S.A., Adegbija, M.V., Olumorin, C.O. and Daramola, F.O. (2008). Education reforms and assessment of teachers competence in instructional media technology use in junior secondary schools in Kwara State. In: Education Reforms in Nigeria- Past, Present and Future, Lawal, A.R. (Eds.). Stirling-Horden Publishers Ltd., Lagos, 259-272.

Selga, MC. R. (2013). Instructional materials development: A worktext in science, technology and society. *Development Education Journal of Multidisciplinary Research*. 2,(1), 71-95.

Cell Model Manipulation and Feedback Intervention for Student Learning

Earth D. Padilla[1], Jannie SJ. Manimtim[2],
Eugene SF. Tia[3], Ma. Rizelle B. Santos[4]
and Leonora J. Peñano[5]
earth_delapaz@yahoo.com

Abstract

The main objective of the study is to determine the effect of using manipulative cell model and feedback interventions on learners' performance on identifying cell parts and differentiating animal cell from plant cell. A 2x2 factorial design was used. Group A used manipulative cell model with feedback intervention, Group B with manipulative cell model without feedback intervention, Group C have no manipulative cell model but with feedback intervention, and Group D has no manipulative cell model and no feedback intervention. There were 160 Grade 7 students from a public school in Morong, Rizal who participated in the study. Identifying the cell parts and differentiating animal cell from plant cell were the two competencies observed. Two-way ANOVA and Scheffe Post Hoc Analysis were used to determine the effects of manipulation and feedback. The results showed that the manipulative cell model with feedback intervention significantly improved student performance in the given competencies. Study also revealed that the cell model manipulation with feedback is also effective in identifying the cell parts and differentiating animal cell from plant cell. Thus, implies that physical manipulation using three dimensional (3D) models can help students learn abstract construct of cell features. In conclusion, combining cell model manipulation and feedback intervention can be used in Science Education.

Keywords: *manipulative models, feedback, cell*

[1]Earth D. Padilla, Instructor I, College of Education , URS Morong.
[2]Dr. Jannie SJ. Manimtim, Assistant Professor I, College of Education , URS Morong.
[3]Mr. Eugene F. Tia, Instructor III, College of Education, URS Morong.
[4]Prof. Ma. Rizelle B. Santos, Assistant Professor I, College of Education, URS Morong.
[5]Dr. Leonora J. Peñano, Associate Professor IV, College of Education, URS Morong.

Introduction

Instruction is difficult to plan and design because student's learning styles vary (Adami, 2004; Levy, 2008). Aside from the learning styles, student's interest also differs most specially to grade school learners. Teachers in various fields, specially science teachers, make use of interactive experiments which is an active learning strategy where learners can manipulate the materials for investigation but they always look at how the retention and mastery of the concepts could be met, thus teachers were reported to be effective using this strategy (Taraban, Box, Myers, Pollard, Bowen, 2007). This is an example of differentiated instruction which leads to the questions "How can these learners be an effective practitioners of the next generation?", "How can they be motivated to be practitioners to respond to the demand of the country?", and "How can we help them conquer their fear of learning complex ideas?" These are only few of the questions being considered when preparing materials for instruction and its assessment.

Science assessment is done internationally following certain standards. The TIMMS 2003 result shows that out of 45 participating countries for Grade 8 (Second Year High School), the Philippines got the 42nd rank in Science which is considerably below the world average score which was participated in by Science High Schools and known elite private schools in the country (Maligalig and Albert, 2008). After TIMMS 2003, Philippines did not submit participants in the succeeding assessment invitations (Martin, Mullis, Foy, & Stanco, 2012). Underlying problems resulting to poor performance in science are tried to identify and resolve assessment in several ways considering the difference branches in science.

Several studies show that using models coupled with different strategies give positive results to students' performance (Adami, 2004; Levy, 2008; Harris and Chang, 2009; Clark and Mathis, 2000; and Yuan and Lee, 2010). Students perform well in microscopic and molecular structures through the use of physical models, molecular imaging programs, and animations including combinations of instructional materials and peer evaluation. In the same way, the use of developed manipulative model kit has addressed misconceptions in the concepts of mitosis and meiosis including problem solving on genetics. Physical and virtual manipulative environment were

compared and reported that both yield the same improved performance in science (Harris and Chang, 2009; Clark and Mathis, 2000; and Yuan and Lee, 2010).

Biology has concepts at the macro level which can be easily understood because of the available tangible materials to investigate and manipulate but how about the micro level of concepts? Cell concepts, for instance, are complex in nature ranging from parts to different kinds involving various microorganisms and their interactions. It also requires expensive equipments and chemicals for investigation. In most of the schools in the Philippines, cells are observed under light microscope which is only capable of low magnification and only few parts could be identified while the mechanisms involved to describe its functions are barely indescribable. Limited numbers of equipments are also observed which hinders the learners' independent approach of learning. Because of this, performance in science is at stake.

Learning could be in different modes according to the difficulty of the concepts which could be entirely abstruse in which students cannot comprehend. Educators tend to create models to reduce the difficulties and these models vary from physically manipulated to virtual designs. They call these mental models which are so designed to decipher a concept into a tangible and more realistic experience tending to engage students in problem solving and other applications believing that students will gain higher order thinking skills. (Frederiksen, White, and Gutwill,1999; and Rapp,2005) Models using different materials which could be manipulated contribute to enhancing the grasp of concepts. Other strategies addressing performance are also investigated.

Numerous studies have proven that feedback is considerably effective to student learning. Analysis on the effect of feedback to players, the student and the teacher, which measuring of effectiveness has been really difficult. Is it the student who should confirm the effectiveness or the teacher who executes the feedback? It revealed that the academic result of students is the means to evaluate feedback and its processes. A Meta Analysis on the effects of Feedback Intervention(FI) on student's performance seem to lead to meta-task processes satisfy FI effects on performance, on the other hand some FI cues directed to task-motivation or task learning

processes add to FI effects on performance. The power of feedback influences students' achievement. It can fill the gaps during the processing of information into understanding. Guiding the students towards realization is different from telling the students whether they did right or wrong. The gap may be reduced through intentional and directive cognitive processing which requires the facilitator to be keen enough in directing students towards understanding without feeding which to understand and comprehend.(Freeman, O'Connor, Parks, Cunningham, Hurley, Haak, Dirks, and Wenderoth, 2007; Price,Handley,Millar, and O'Donovan,2010; Kluger and DeNisi,1996; Hattie, 2009)

Formative feedback allows student to be independent learners using feedback as its ground roots. Feedback has three major elements(formative, synchronous, and internal) which allows students to articulate their tacit knowledge, get immediate feedback and response, and reveal the internal and obscure psychological and affective aspects of the learning process(Clark, 2012). Hattie and Timperley (2007) include that effective feedback guides students to the objectives from understanding to achievement then lastly to maintain moving forward. The success of the feedback entirely lies on the set of task performance, the multiple intelligences levelling, and the existing skills required doing the task. Classroom interactions involves discussion and continues delivery of questions primarily to get the participation of students in the level expected of them. "Questioning- based Discourse" analytical framework was utilized to improve and encourage more students to interact verbally and accept corrections without disappointments. This has been useful for teachers in order to make track line of plans subsequent to the development of skills towards the intended outcome (Chin, 2006). Orsmond (2005) reported that the use of feedback in tutoring biology students were in four specific uses which were to boost motivational skills, independent learning, sound reflection and understanding. Utilization of model and feedback in improving students' performance separately were proven effective but combining these strategies is still in question.

In this study, performance of students using cell model that can be manipulated with high visual and tactile features coupled with feedback intervention were investigated and compared to setups without the said features. The main objective of the study is to

determine the main effect of the manipulative model and feedback on the student's performance in identifying the cell parts and differentiating animal cell from plant cell including the significant interaction between the two.

Methodology

A 2x2 Factorial Design which includes four groups with two independent variables- manipulative cell model and feedback was used. Group A includes students that experienced learning with manipulative cell models and feedback while Group B includes students that experienced the manipulative cell models without feedback. Group C and D are the setups without manipulative cell model but instead used colored illustration of cell, with Group C having feedback mechanism. Pretest was administered first followed by experimentation then administration of post test. Pretest was used to check if students have the competencies to be tested. The mean of the post test was used to compare and identify the possible interactions among groups of treatments using Two-way ANOVA and Scheffe Post Hoc Analysis. The mean was also verbally interpreted using the four point scale including "Outstanding, Very Satisfactory, Satisfactory, and Needs Improvement".

One hundred sixty Grade 7 students from Morong, Rizal, Philippines served as the respondents. They were divided by four per group. Students' performance was measured using two competencies: identifying the cell parts and differentiating animal cell from plant cell. The competencies are based on the curriculum guide in Science for the K to 12 Program of the Department of Education – Philippines.

The manipulative cell model is a product of the previous master's thesis which was validated and improved according to the recommendation provided.(Padilla, 2015) It was designed with several features including the three dimensional (3D) cell parts, corrective light signaling system, and multifunctional board casing for the assembly of the cell parts and demonstration. This allows the students to construct the cell according to the coordination of parts as being described by the handouts provided.

Figure 1. Setup with the use of Manipulative Cell Model

Figure 1. **The learner is arranging the cell parts independently.**

The feedback being used is a feedback intervention that guides students towards the correct answer. Example of a question on identification of cell parts is "Which of the organelles has pores and found at the center of the cell?". An example of a question on differentiating animal cell from plant cell is "Which cell did you notice the rigid structure that surrounds the cell?" Statements, such as "Read again the description of the nucleus, take note of the presence of holes and internal structure called nucleolus ;"(the descriptive words that points to the identification of the structure were stressed), Which of the models is being described? What can it perform? What could be near this organelle? Why should it be near this organelle? "You are correct! You are doing great!" were used as feedback to confirm that their answer is correct. Feedbacks serve as confirmation and guide for students' action while shaping the knowledge in much clearer view which in return becomes concrete. The hand-out has two sheets, one for the "Animal Cell" and another for "Plant Cell" which includes a list of cell parts with corresponding descriptions which includes the physical structure and their functions.

The experiment was conducted in a one on one ratio of student and teacher eliminating the interference of intervening variables that are present in a class which may include peer influence, small group discussion, doubling-up, and more. In identifying cell parts, the teacher allows the student read the description of the cell part after which the student points out the part he/she thought of.

In differentiating animal cell from plant cell, the students were allowed to compare and contrast plant cell and animal cell according to the cell parts present.

Results and Discussions

The treatments used in observing the effects of manipulative cell model and feedback intervention showed significant difference in both competencies using Two -way ANOVA and Scheffe Post Hoc Analysis. There is significant difference in the level of performance of students in terms of identifying cell parts treated with and without manipulative model and feedback intervention (see Table 1). It can be observed that the learners who used the manipulative model with and without feedback intervention can perform well in identifying the parts of the cell primarily because the 3D model shows the characteristics included in the handouts. Thus, having objects for manipulation increases understanding of the text (Glenberg, Brown, and Levin, 2007). Looking at the performance of the learners treated with feedback intervention with and without manipulative cell model, it can be seen that learners perform well but much better with manipulative model. This result proves that combining the two proven effective theories can improve learners' performance which suggests the conduct of retention test to measure if the concepts remained in the long term memory.

Table 1. Level of Performance of Learners in Identifying Cell Parts

Treatment	Mean	Verbal Interpretation
Group A (with manipulative, with feedback)	21.375[a]	Outstanding
Group B (with manipulative, without feedback)	18.95[b]	Very Satisfactory
Group C (without manipulative, with feedback)	11.55[c]	Satisfactory
Group D (without manipulative, without feedback)	2.05[d]	Did Not Meet Expectations

Note. N= 160, *means with the same letter are not significantly different.

The level of performance of the learners in terms of distinguishing plant cell from animal cell revealed no significant difference when they were treated with manipulative model involving with and without feedback intervention (see Table 2). This result

conveys that learners can distinguish plant cell from animal cell based on the manipulative model and handout alone. The presence of feedback intervention in the process of learning does not matter. It also implies that the visual and tactile design of the manipulative model increases the capability of the learners to remember differences between plant and animal cells (Harris and Chang, 2009). The learners exhibited understanding of the concepts even without manipulative cell model, cell illustration (two dimensional), but with feedback intervention. This shows how powerful feedback intervention is in any kind of material used (Hattie and Timperley, 2007).

Table 2. Level of Performance of Learners in Distinguishing Plant Cell From Animal Cell

Treatment	Mean	Verbal Interpretation
Group A (with manipulative, with feedback)	2.5[a]	Very Satisfactory
Group B (with manipulative, without feedback)	2.45[a]	Very Satisfactory
Group C (without manipulative, with feedback)	1.2[b]	Satisfactory
Group D (without manipulative, without feedback)	0.075[c]	Did Not Meet Expectations

Note. N= 160, *means with the same letter are not significantly different.

Conclusion

Combined model manipulation and feedback intervention is found effective and can be used to address the problems of both learners and teachers in understanding different competencies included in Cell Biology, Molecular Biology, Metabolomics, and Biochemistry specially the concepts that involve the bio – molecules and the different cell processes. It suggests the development of manipulative models with feedback intervention involving these subjects. Different manipulative models are used in instruction as well as feedback which separately earned promising results in the performance of students. It can also be used to replace the expensive laboratory instruments and chemicals involved in cellular activity analysis. Comprehension of textbooks coupled with this strategy can be another avenue to allow learners to become independent and analytic. Interest of the youth to engage to higher education related to

the said subjects can be a follow up study including their performance as practitioners. This study confirms that combining model manipulation and feedback intervention can be another theory that could be used in other disciplines.

References

Adami, A.F. (2004). Enhancing students' learning through differentiated approaches to teaching and learning: A Maltese perspective. Journal of Research in Special Educational Needs, 4(2), 91-97.

Chang, H. Y., Quintana, C., & Krajcik, J. S. (2010). The impact of designing and evaluating molecular animations on how well middle school students understand the particulate nature of matter. Science Education, 94(1), 73-94..

Chin, C. (2006). Classroom interaction in science: Teacher questioning and feedback to students' responses. International journal of science education, 28(11), 1315-1346.

Clark, D.C. & Mathis, P. M.(2000), Modeling mitosis and meiosis, *The American biology teacher*, 62, 3, 204-206

Clark, I.(2012) Formative assessment: assessment is for self- regulated learning, *Educational psychology review*, 24(2), 205-249

Glenberg, A. M., Brown, M., & Levin, J. R. (2007). Enhancing comprehension in small reading groups using a manipulation strategy. *Contemporary Educational Psychology*, *32*(3), 389-399.

Frederiksen, J.R. White, B.Y., & Gutwill J.(1999), Dynamic mental models in learning science: the importance of constructing derivational linkages among models, *Journal of research in science teaching*, 36(7), 806–836

Harris, M.A. et.al.(2009), A combination of hand-held models and computer imaging programs helps students answer oral questions about molecular structure and function: a controlled investigation of student learning, *CBE—Life sciences education*, 8, 29–43.

Hattie,J. (2009), The black box of tertiary assessment: an impending revolution, tertiary assessment & higher education student outcomes: *Policy,practice & research*, 259- 275.

Hattie, J & Timperley, H.(2007) The power of feedback, *Review of Educational Research*, 77 (1), 81–112

Kluger,A.N. and DeNisi, A.,(1996) The effects of feedback intervention on performance: a historical review, a meta- analysis, and a preliminary feedback intervention theory, *Psychological bulletin*,119(2),254- 284.

Levy, H.M. (2008). Meeting the needs of all students through differentiated instruction: Helping every child reach and exceed standards, Clearing House, 81(4), 161-164.

Maligalig, D. S., & Albert, J. R. G. (2008). Measures for assessing basic education in the Philippines (No. 2008-16). PIDS Discussion Paper Series.

Martin, M. O., Mullis, I. V., Foy, P., & Stanco, G. M. (2012). TIMSS 2011 International Results in Science. International Association for the Evaluation of Educational Achievement. Herengracht 487, Amsterdam, 1017 BT, The Netherlands.

Orsmond, P. (2005), Biology students' utilization of tutors' formative feedback: a qualitative interview study, *Assessment & evaluation in higher education*,30(4), 369- 386

Padilla, E. (2015) Development and validation of manipulative instructional material in teaching cell biology. In *Masters Thesis.*

Price,M., Handley K., Millar,J., and O'Donovan, B.(2010) Feedback: all the effort, but what is the effect?, *Assessment and evaluation in higher education*,35(3), 277-289

Rapp D.N.(2005), Mental models: Theoretical issues for visualizations in science education, *Visualization in science education*, 43-60. Springer Netherlands.

Reiber, L. P.(1996) Animation as feedback in a computer-based simulation: Representation matters, *Educational technology research and development,*44(1), 5- 22

Taraban, R., Box, C., Myers, R., Pollard, R., & Bowen, C. W. (2007). Effects of active learning experiences on achievement, attitudes, and behaviors in high school biology. Journal of Research in Science Teaching, 44(7), 960-979.

Yuan, Y. & Lee, C Y.(2010), A comparison study of polyominoes explorations in a physical and virtual manipulative environment, *Journal of computer assisted learning*, 26, 307-316

The Lepidopterans in an Upland Agro-ecological Area in Rizal, Philippines

Dorothy C. Solano[1]
Florante D. Solano[2]
dory_solano@yahoo.com

Abstract

Collection of butterflies and moths was conducted from January to June 2011 in the University of Rizal System, Tanay, Rizal, Philippines, an upland agro-ecological area. The study employed opportunistic sampling where 100 specimens of lepidopterans were collected. From this collection, 38 different species of butterflies and 8 species of moths were identified. The family Nymphalidae constitutes largest number (41.31%) followed by Pieridae (23.92%), Papilionidae (13.05%), Uriniidae and Arctiidae (4.35% each family) and 2.17% each for the families of Hesperiidae, Lycaniidae, Sphinggiidae, Lasiocampidae, Lymaintriidae, and Noctuiidae. Family Nymphalidae includes Ptychandra sp. a species that is endemic and [formerly] found only in Mt. Apo. The identified species strongly indicate that lepidopterans also exist in the area.

Keywords: *butterfly, moth, lepidopterans, biodiversity, upland agro-ecological*

[1]Dr. Dorothy C. Solano, Professor VI, College of Agriculture, URS Tanay.

[2]Prof. Florante D. Solano, Associate Professor IV, College of Agriculture, URS Tanay.

Introduction

Acting as a vital wildlife indicator, butterflies can tell us almost everything we need to know about the health of an ecosystem (Dobson, 2012). Butterflies and moths belong to the order Lepidoptera (Paterno, 1999). Lepidopterans are beneficial as pollinators, silk producers, indicators of environmental quality, and are appreciated for their aesthetic value (Boonvano et al., 2000). Butterflies are very important to the environment. They are the most beautiful and attractive insects. Generally, they are of brightly colors, with firmer wing scales, lack wing-coupling structures, and have knobs at the end of the antennae. Butterflies are daytime flyers, while moths come out at night (Jackson, 2009).

The University of Rizal System, Tanay, Rizal, is an upland agro-ecological area in the Philippines. This site which is 57 kilometers (35 mi) east of Manila has vegetative patterns suitable for investigating other life forms. Farming is the primary source of livelihood in the nearby community along with the flourishing ecotourism industry. Its climatic condition favors occurrence of a wide variety of plant and animal species including butterflies and moths. However, none has studied within the context of Lepidoptera that prompted the researchers to conduct the study such that base-line information as to the species richness be established.

Tylka (2005) pointed out that the role of butterflies is important in our natural world. Their sheer numbers supply a vast food source for predators, and they are significant plant pollinators. If plants are not pollinated, they cannot produce seeds and fruits. Their presence and relative abundance indicate the overall well-being of our ecosystems. Their message is simple . A healthy community usually has a large number and array of butterfly species; a contaminated or altered community does not.

Other investigations relate to habitation, ways of finding food, survival strategies, manner of reproduction, and means of balancing ecology. Adlaon et al. (2012) studied butterfly diversity in Southern Philippines and found out 300 identified and 213 unidentified species

of butterflies, with high number of species in Mt. Apo (112), Mt. Timpoong (79), Bohol (75), Cebu (65), Mt. Kitanlad (23), Surigao (22) and Siquior (17). Boonvanno, Watanasit and Permkam (2000) discovered 147 species involving 77 genera and 9 families. Lu and Hsu (2002) revealed that *Catopyrops*, a genus of Lycaenidae was previously unrecorded in Taiwan was found from Lanyu, an island southeast of Taiwan with presumption of invasion of the collected samples identified as *C. ancyra almora* from the Philippines by natural pathways . Koh, Sodhi and Brook (2004) used standardized visual transects and fruit baited traps and found the significant and independent determinants of butterfly extinction in Singapore to include adult habitat specialization, larval host plant specificity, geographical distribution, sexual dichromatism, and congener density. Sundufu and Lumbuya (2008) identified 195 species with significant proportion of Nymphalidae including Papilionidae, Pieridae, Lycaenidae and Hesperiidae. Sharma and Joshi (2009) recorded 41 butterfly species belonging to Nymphalidae, represented by 19 species such as *Mycalesis mineus* Linn. followed by Pieridae (10) such as *Catopsilia crocale* Cramer and *C. pyranthe* Linn. and *Eurema hecabe* Linn., *Lycaenidae* (8), Papilionidae (3) such as *Papilio demoleus* Linn. and *P. polytes* Linn. and Hesperiidae (1). *Eurema hecabe* Linn. was the most dominant butterfly species as to number of individuals followed by *Danaus chrysippus* Linn., *Euchrysops cnejus* Fabr., *Euploea core* Cramer, *Junonia lemonias* Linn., and *C. pyranthe* Linn. The least was *Graphium sarpedon luctatius* Fruhstorfer and *Delias eucharis* Drury. Toledo and Mohagan (2011) determined 81 butterfly species in Mt. Timpoong (73) and Mt. Hibuk-hibok (41). This study was carried out using catching net to collect butterfly species in the two mountains of Camiguin Island. Classification and initial identification of butterflies were done using journals and photographs of identified specimens.

Members of the community who view the importance of Lepidoptera within the context of its aesthetic beauty could fail to perceive its vital contribution in food production and may unknowingly take part in such activities as converting areas where these insects maintain habitat to commercial spaces resulting to adverse effect to humanity in form of food shortage and hunger. Consequently, this study was made directly to identify species of Lepidoptera, and to

initiate database building. However, this study aims to establish awareness on the role of these species as pollinators to assure continuity in plant production; their abundance indicates a thriving ecosystem; they provide food to other animals and they serve as a natural form of pest control; through their distribution, people could determine the warning signs of the more widespread effects of climate change. They provide a great deal of pleasure for the enthusiasts; the changes in their behavior warn of future effects of habitat loss to other animals; their presence indicates fresh water source; they add beauty and magic (metamorphosis); and they could inspire individuals to undertake other Lepidoptera-based research undertakings to pursue modern technological inventions in the future. Thus, realizing their significance, it is just vital to pursue this study that aims to protect and conserve the remaining species of Lepidopterans.

Methodology

The study employed descriptive method using opportunistic sampling in the collection of specimens. Ocular inspection was done in the study area characterized by rich vegetation that includes fruiting trees and flowering plants that serve as food of many insects. With a catch net, 100 butterflies were collected, kept in folded-paper containers and dried up for taxonomical identification, photo-documentation and physical descriptions in terms of body length (from head to abdomen), wingspan size (from forewings to the hindwings), and color of the wings (dominant color and categorized as light, medium and dark colors). The use of nets was anchored on the belief of butterfly conservationists that it is acceptable to catch butterflies to confirm identification for ecological and other scientific study (http://www.butterfly-conservation.org). Identified specimens were measured as to their body-length such as: small (0-15mm), medium (16-30mm) and large (above 31mm). The wingspan was measured under stretched condition. The wing color was categorized into light, medium and dark. Pictures of the Lepidopterans were taken using digital camera. Collection of specimens was done from 7:00 to 11:00 in the morning and 3:00 to 5:00 in the afternoon. These butterflies and moths were identified by entomologists of the Philippine Museum of Natural History.

Map courtesy of www.calabarzon.da.gov.ph

A B

Figure 1. (A) Map of Rizal Province; (B) A More Realistic Representation of the Area with Vegetation, Road Networks and Other Structures

Results and Discussions

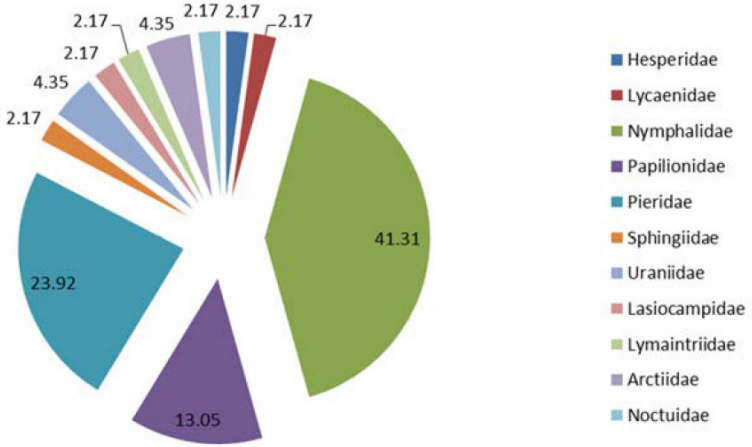
Species of Butterflies and Moths

There were 11 families and 46 different species identified of which 38 species were butterflies and 8 species were moths (Figure 2). Family Nymphalidae comprises the largest number of species, 19 (41.31%) which include *Idea leuconoe leuconoe* (Staudinger), *Mycalesis bisaya bisaya*, *M. ita*, *Cethosia biblis insularis*, *Ypthima pandocus sertorius*, *M. mineus* (Linn.), *Parantica vitrina vitrina*, *Euploea mulciber dufresne* (Cramer), *Pareronia boebera trinobantes*, *Phalantha phalantha* (Drury), *Hypolimnas bolina* (Butler), *Phaedyma columella eremite*, *Ideopsis juventa manillana (Moore)*, *Anosia melanippus*, *Samia threadawayi* (Schroder and Treadawayi), *Ptychandra* sp. (Semper)., *Precis* sp., *Lethe* sp., and *Neachera* sp. Pieridae family had 11 species: *Appias lyncida andrea* (Biosduval), *Catopsilia pyranthe* (Linn), *Delias pasithoe pasithoe*, *A. libythea peducea*, *Eurema hecabe* (Linn.) *D. hyparete luzonensis*, *Eurema hecabe latilimbata* (Linn.) *C. pomona* (Fabricius), *C. crocale* (Cramer), *A. olferna peducaea*, *and Catopsilia* sp. (Cramer); Papilionidae family with 6 species, namely: *Papilio palinurus daedalus*, *Troides rhadamantus* (Lucas), *P. demoleus malayanus* (Linn.), *Chilosa clytia palephates* (Westwood), *P. polytes ledebouria* (Eschscholtz), and *P. rumanzoviza*. Lastly, the Hesperidae 1 sp. and Lycaenidae 1 sp.

namely: *Tagiades* sp. and *Cheritra freja*, respectively. *Ptychandra* sp. is endemic to the country with its nominotypical species distributed only in Mt. Apo and its another sub-species in Leyte Island. The present study confirmed butterfly habitation found out in the study on the diversity of butterflies in Southern Philippines (Adlaon et al. 2012). Ballentes, Mohagan, Espallardo, Zarcilla and Gapud (2012) validated the presence of species belonging to Nymphalidae, Papilionidae,Lycanidae, Hesperiidae and Pieridae families. Further, Sundufu and Limbuya (2008) also confirmed the predominance of Nymphalidae family.

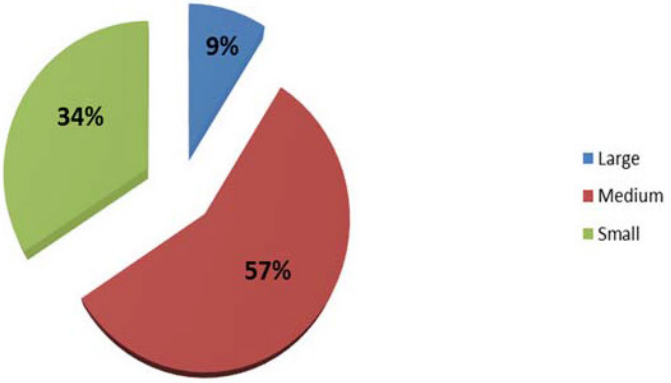
Body Length

Lepidopterans with medium body length of 16-30mm constituted 56.82%, small size with 34.09%; large body length butterflies which measured from 31mm and above were 09.09% (Figure 3). During the survey, *P. vitrine vitrine* sp. of family Nymphalidae was recorded having the largest species measuring at 40mm while, *C. pomona* was the smallest.



Figures are in Percent

Figure 2. Distribution of Lepidopterans by Family

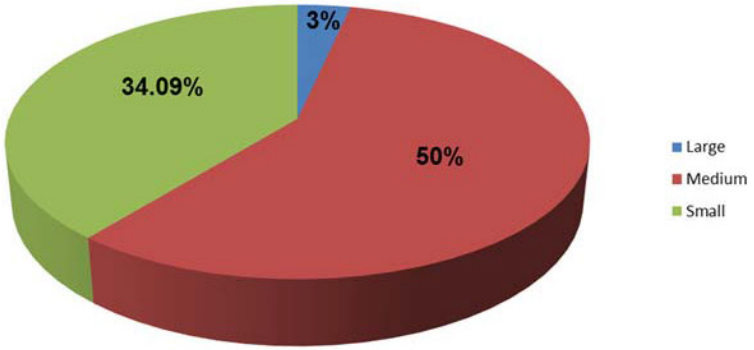


*Body length was measured from the head, thorax and abdomen. Size categories have been operationally defined as large, medium and small.

Figure 2. Distribution of Lepidopterans by Body Length

Wingspan

Lepidopterans with medium wingspan between 51-100mm were 22 species or 50.00% had the highest count; 15 sp. (34.09%) were small and 7 (15.91%) had large wingspan (Figure 4). *Tagiades* sp. and *I. leuconoe leuconoe were* recorded having the largest wingspan under stretch condition.

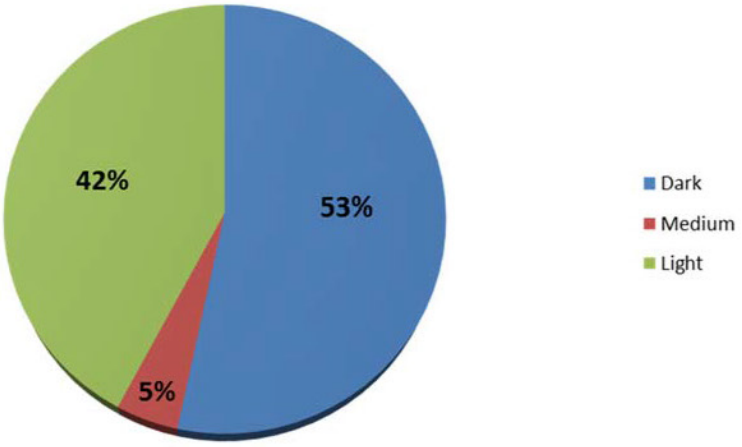


***The wingspan (in mm) was measured under stretched condition.**

Figure 4. Distribution of Lepidopterans by Wingspan*

Wing Color

Butterflies and moths wore color in combination. Three color factors in this study were defined operationally as: dark, medium and light. Thus, for the purpose of categorization, this study considered the color that dominated the wings. *C. pyranthe* sp. wears two colors; white and shades of brown located at the edge of its fore wings. There were 26 species that wore dark-color, 19 species were light-colored and few were medium-colored. The findings of this research parallels the claims in previous studies of Meyer (2006) that *P. palinurus daedalus* had dark to Vandyke brown, green to black. *C. biblis insularis* had black with white spots, bright orange red. *C. pyranthe* was chalky-white, slightly tinted black with green. *C. freja* was brown-white and pale yellow to white. *M. mineus* was dark to Vandyke brown (Figure 5).



- Categorizing the butterflies in terms of color considered which color dominates the wings such as if a specimen has white and black and the former dominates then it is grouped under the light category.

Figure 5. Distribution of Lepidopterans by Wing Color*

Conclusion

The lepidopterans from different families still thrive in the area dominated by families Nymphalidae for butterflies and Uraniidae for the moth. *Ptychandra* sp. found to be endemic in the Philippines

was documented in the study area. In terms of body length, *P. vitrine vitrina* is the longest, while *I. leuconoe leuconoe* was recorded with the largest wingspan. The collected species were multi-colored dominated by dark colors. Explore new collection techniques to protect and conserve lepidopterans particularly endemic and threatened species. Establishment of butterfly garden is suggested for educational and research intentions.

References

Adlaon, M.S., Batoy, C.B., Jumalon, O.A., Mohagan, A.B., Miquinahas, V.B. and Tambuli, A.E. (2011). *Diversity of Butterflies in Southern Philippines*. Retrieved from www.ched.gov.ph on June 12, 2012.

Ballentes, Mohagan, Espallardo, Zarcilla and Gapud. *The Philippines-Netherlands Biodiversity Research Programme for Development in Mindanao: Focus on Mt. Malindang and Environs.* Central Mindanao University and University of the Philippines Los Banos. Retrieved from www.searca.org on January 28, 2012.

Boonvano, Katamant, Suparoek Watanaist and Surakai Permkam. *Butterfly Diversity at Ton Nga-Chang Wildlife Sanctuary, Songkhia Province, Southern Thailand* Prince of Songkhia University in Thailand. 2000. Retrieved from www.sc.psu.ac.th on February 14, 2012.

Dobson, F. *Butterflies act as wildlife indicators, warning us of ecosystem changes.* Published in The Ecologist on September 25, 2012. Retrieved from www.enn.com on February 24, 2017.

Google Maps. Retrieved from .google.com.ph/maps/place/ University+of+Rizal+System,Tanay+campus on February 24, 2017.

Jackson, T. (2009). *Do you know…the most Scary Hairy Creepy Insects…Insects in the World?* Bounty Books, Octopus Publishing Group, Ltd. p82

Koh, L. P., Sodhi, N.S. and Brook, B.W. (2004). *Ecological correlates of extinction proneness in tropical butterflies.* Department of Biological Sciences National University of Singapore. Retrieved from www.biol.ntnv.edu.tw on January 28, 2012.

Lu and Hsu. (2012). *Catopyrops Ancyra almora, a Lycaenid butterfly new to Taiwan: A case of biological invasion from the Philippines*. Retrieved from www.environmental-expert.co on May 19, 2012.

"Map of Rizal Province". Retrieved from www.calabarzon.da.gov.ph on February 24, 2017.

Meyer A. *Repeating patterns of mimicry*.Pub.Lib.Sc.Biology.2006;4 (10): 1-675.

Paterno, M.E. (1999). *A first Look at Philippine butterflies*. Tahanan Books for Young Readerl, Makati Philippines; p1-2.

Salmo, J. M.T. and Mohagan, A.B . (2011). *Diversity and status of butterflies in Mt. Timpoong and Mt. Hibok-Hibok, Camiguin Island, Philippines*. Retrieved from www. ejournals.ph on May 11, 2012.

Sharma, G. and Joshi, P.C. (2009). *Diversity of butterflies (Lepidoptera: Insecta) from Dholbaha dam (Disst. Hoshiarpur) in Punjab Shivalik, India.* Retrieved on www.researchtrend.net on May 11, 2012.

Sundufu and Lumbuya. (2008). *Habitat preferences of butterflies in the Bumbuna Forest, Nortern Sierra Leone.* Department of Biological Sciences of School of Environmental Sciences Njala University, Sierra Leone. Retrieved from www.insectscience.org on April 6, 2012.

Tylka, D. *Butterfly gardening and conservation. Urban Wildlife Series,* Pamphlet No.2. 2005. Missouri Department of Conservation, Jefferson City, Mo. Retrieved from digital commons.unl.edu. April 10, 2014.

Revisiting the Teacher Education Graduates of University of Rizal System Angono

Sheryl Ann N. Perciano[1]
shengperciano@yahoo.com

Abstract

The Bachelor Secondary Education (BSE) and Bachelor of Elementary Education (BEEd) graduates of University of Rizal System (URS) Angono from batch 2009-2013 were surveyed to determine their employment characteristics and relevance of their training in finding a job. Descriptive survey method was utilized in the study using a questionnaire adopted from the CHED's Graduate Tracer Study (GTS). Interview was also used in data gathering. Findings of the study revealed that 36.54 percent of the graduates are BSE major in English. The graduates are presently employed in private schools as contractual employees and have passed the Licensure Examination for Teachers (LET). The BEEd graduates had the highest percentage (61.24%) of LET passers that helped them gain employment in the Department of Education (DepED) schools as permanent employees. Communication, human relation and critical thinking skills and the different courses in the curriculum are perceived by the graduates as very useful in finding and fulfilling their job as teachers. The graduates are employed as teachers 1-6 months after graduation and that their quality point average (QPA) is not a predictor to easily land a job.

Keywords: *tracer study, BSE and BEEd program, teacher education*

[1]Prof. Sheryl N. Perciano, Assistant Professor II, College of Education, URS Angono.

Introduction

Education is central to development and a key in attaining the Millennium Development Goals. It is one of the most powerful instrument for reducing poverty and inequality and lays a foundation for sustained economic growth. Building a high quality educational system is important to the 21st century social and economic realities. Statistics showed that some graduates had been a problem to the economy due to their unemployment. The Labor Force survey conducted by National Statistics office shows that the unemployment rate in October 2013 is at 6.5 percent or almost 6 million while the underemployment rate is at 17.9 percent (or almost 16 million). In its April 2012 Labor Force Survey, the NSO revealed that more than half or 51.7 percent of the unemployed were in the age group of 15-24. By educational attainment, about one-fifth (21.4 percent) of the unemployed were college graduates, 13.9 percent were college undergraduates, and 33.5 percent were high school graduates. Twenty-one percent of the total unemployed were college graduates. The unemployment problem of the college graduates have serious gaps in foundational skills, such as problem solving, critical thinking, initiative and creativity and to some extent job-specific technical skills. Some of these unemployed graduates came from the teacher education program who may not have satisfied the skills mentioned above which are required for a teaching position. According to the Commission on Higher Education (CHED), there are about 65,092 graduates in the Education and Teacher Training program in 2014 and an estimate of about 21.6 percent (PSA, 2014) of these teacher education graduates are unemployed.

The Teacher Education Council (TEC), which under RA 7784 is mandated to formulate policies and standards that would improve the system of teacher education and the design of programs that would enhance the preservice, in-service, re-training, and teacher development, has developed and implemented programs to address the issues on preservice teacher training that may result to unemployment. One of its program, is the Teacher Education and Development Program (TEDP) which "conceptualizes a teacher's career path as a continuum that starts with entry to a teacher education program and concludes when a teacher reaches retirement from formal service." The heart of the TEDP is the National

Competency Based Teacher Standards (NCBTS), which is an "integrated theoretical framework that defines the different dimensions of effective teaching." The implementation of such program is a very important function and responsibility of Higher Education Institutions (HEIs) to make teacher education more responsive to the demands of a rapidly changing society and to the challenges of global competitiveness.

The study on the employability of the Bachelor of Secondary Education (BSE) and Bachelor of Elementary Education (BEEd) graduates of URS Angono was designed to determine the profile of the BSE and BEEd; determine the LET passers; employment of graduates; identify the skills of the graduates; assess the usefulness of the BSE and BEEd programs; analyze the average waiting time of the graduate to land their first job after graduation; and determine the significant relationship between QPA and the average waiting time of graduates to land their first job.

Teacher education graduates seeking for employment are usually armed with their skills in demonstration teaching and ability to respond effectively during interview. The diploma and transcript of records were presented on a later time because of the delay in the release of the said documents. Thus, the researcher hypothesized that there is no significant relationship between QPA and average waiting time of graduates to land their first job.

Methodology

Descriptive survey method was utilized in the study through the use of a questionnaire adopted from the CHED's Graduate Tracer Study (GTS). Aside from the checklist, the study made use of interview guides utilizing phone and personal interviews and social networking sites like facebook and yahoo mail. Such method helped in validating the answers of the respondents in the accomplished questionnaires.

The respondents of the study were the BSE and BEEd graduates of the University of Rizal System Angono from Batch 2009 to Batch 2013.The BSE graduates were English, Filipino, and Music, Arts, Physical Education, and Health (MAPEH) major while the BEEd graduates were Special Education (SpEd) and Content Course (CC) major.

The research instrument which was used in the study is a questionnaire - checklist on employability of graduates developed by the Commission on Higher Education (CHED). The questionnaire was restructured to make it simple and to suit the needs of the study. Part I is on the Background Information on the profile of the respondents. Part II is on the Employability of the graduates. The quantitative data obtained through the questionnaire-checklist were subjected to statistical test using frequency distribution, percentage and mean.

To attain the objectives of the study, the researcher secured a copy of the list of the graduates containing their course, field of specialization and year of graduation from the Registrar's office. The graduates were tracked using social media like facebook and yahoo mail. The researcher also asked for the whereabouts of graduates from their friends, siblings or relatives who are currently studying at URS Angono. The researcher then sent the questionnaire to the graduates through their facebook or email account and through the students studying at URS Angono. Since the retrieval rate from social media was slow, the researcher has decided to visit the graduates in their place of work or residence. The questionnaire was personally hand carried to the graduates and was retrieved after a day or two. The data gathered was then subjected to analysis, statistical treatment and interpretation.

Frequency and percentage were used to determine the profile of the graduates, skills of the graduate which are useful in the job and the average waiting time to land their first job after graduation.

Moreover, mean was used to analyze the programs in their professional work and to determine the usefulness of the curricular programs.

Results and Discussions

One hundred twenty nine of the graduates were BSE major in English while the least number of graduates were BSE major in MAPEH. These data show that graduates were attracted and chose English as their field of specialization.

Table 1. Distribution of Graduates by Specialization

Program	2009		2010		2011		2012		2013		
	f	%	f	%	f	%	f	%	f	%	N
BSE English	15	11.62	20	15.5	32	24.8	23	17.82	39	30.23	129
BSE Filipino	8	10.12	10	12.65	18	22.78	16	20.25	27	34.17	79
BSE MAPEH	5	7.81	5	7.81	8	12.5	31	48.43	15	23.43	64
BEED CC/SPED	24	29.62	9	11.11	9	11.11	16	19.75	23	28.39	81
Total	52	14.73	44	12.46	67	18.18	86	24.36	104	29.46	353

The BSE MAPEH major has the least number of LET passers which is 28 or 43.75% only of their total population. None of the graduates took the Career Professional Examination given by the Civil Service Commission since board passers are granted automatic civil service eligibility pursuant to RA 1080. The BSE and BEEd graduates knew that they only need to take one government examination to be a public servant and the LET is their passport in landing a job in DepEd schools.

Table 2. Distribution of Graduates in Terms of LET Results

Program	LET Passer		Non Passer		
	f	%	f	%	N
BSE English	79	61.24	50	38.75	129
BSE Filipino	41	51.89	38	48.10	79
BSE MAPEH	28	43.75	36	56.25	64
BEED CC/SPED	56	69.13	25	30.86	81
Total	204	57.79	149	42.20	353

Table 3. Distribution of Graduates in Terms of Type of Employment

Program	Employed		Underemployed		Unemployed		N
	f	%	f	%	f	%	
BSE English	51	92.72	3	5.45	1	1.81	55
BSE Filipino	40	95.23	1	2.38	1	2.38	42
BSE MAPEH	31	83.78	5	13.51	1	2.70	37
BEED CC/SPED	47	88.67	4	7.54	2	3.77	53
Total	169	90.37	13	6.95	5	2.67	187

The highest number of employed graduates was in the BEEd CC/SPED graduates. Underemployment was prevalent in the BSE MAPEH graduates and unemployment was minimal for all the programs.

Most graduates were teaching in private schools. These graduates had already achieved their eligibility but opted to stay in their present work station. In an interview with some of the graduates, they said that they were still finishing their contract and they were paying a debt of gratitude to the institution that trusted them when they were still a new graduate. That is why, they have not yet applied to DepEd. But there were some who has already applied for a teacher 1 position at DepEd and they were still waiting for the notification on the status of their application.

Table 4. Distribution of Graduates in Terms of Work Stations

Program	Public School		Private School		Government Agency		Private Company		None		N
	f	%	f	%	f	%	f	%	f	%	
BSE English	16	29.09	35	63.63	0	0	3	5.45	1	1.81	55
BSE Filipino	13	30.95	27	64.28	0	0	1	2.38	1	2.38	42
BSE MAPEH	13	35.13	19	51.35	1	2.70	3	8.10	1	2.70	37
BEED CC/SPED	25	47.16	21	39.62	0	0	5	9.43	2	3.77	53
Total	67	35.82	102	54.54	1	53.47	12	6.4	15	2.67	187

The result in Table 5 shows that graduates were employed as contractual except for BEEd graduates in which 27 or 50.94 percent of them were employed as permanent. The employment statuses of graduates were affected by their employment agency. Since majority of the graduates were teaching in private schools, they have to render at least three years of continuous service before they are given a permanent status.

Table 5. Distribution of Graduates in Terms of Employment Status

Program	Permanent		Contractual		Casual			None	
	f	%	f	%	f	%	f	%	N
BSE English	15	27.27	38	69.09	1	1.81	1	1.81	55
BSE Filipino	17	40.47	24	57.14	0	0	1	2.38	42
BSE MAPEH	14	37.83	22	59.45	0	0	1	2.70	37
BEED CC/SPED	27	50.94	22	41.50	2	3.77	2	3.77	53
Total	73	39.03	106	56.68	3	1.6	5	2.67	187

Data on Table 6 indicated that the BSE and BEED graduates were practicing their teaching profession. There were few who worked in various fields such as call center and others. The teacher education programs offered at University of Rizal System Angono campus were relevant to the needs of the community that is why most of them were employed as teachers.

Studies show that the academic skills and trainings provided by the HEIs are responsive to the needs of the industry. The study conducted by Macatangay (2013) showed that graduates of BSCS of the Lyceum of the Philippines are working on a regular or permanent status and landed a job related to their course. This proves that if a graduate had acquired the knowledge, skills and competencies required in a job, it will not be difficult for him to land a job.

The highest percentage of job positions of the graduates is in call center agents and clerks. This implies that the graduates under the BSE English, BSE Filipino, BSE MAPEH, BEED CC/SPED were employed as clerk or call center agents as shown in Table 6, on page 41.

Table 6. Distribution of Graduates in Terms of Job Positions

Program	Teacher		Manager/ Supervisor		Call Center Agent		Clerk		Firefighter		DH		Behavioral Therapist		None		
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	N
BSE English	51	92.27	0	0	3	5.45	0	0	0	0	0	0	0	0	1	1.81	55
BSE Filipino	40	95.23	0	0	0	0	1	2.38	0	0	0	0	0	0	1	2.38	42
BSE MAPEH	31	83.78	1	2.70	0	0	2	5.40	1	2.70	1	2.70	0	0	1	2.70	37
BEED CC/SPED	47	88.67	0	0	0	0	3	5.66	0	0	0	0	1	1.88	2	3.77	53
Total	169	90.37	1	0.53	3	1.60	6	3.20	1	0.53	1	0.53	1	0.53	5	2.67	187

Table 7. Quality Point Average (QPA) of Graduates

Program	2009 x	2010 x	2011 x	2012 x	2013 x	x
BSE English	1.93	1.97	1.97	1.98	1.93	1.96
BSE Filipino	1.90	2.09	1.95	1.97	1.99	1.98
BSE MAPEH	2.12	2.0	2.07	2.02	1.92	2.03
BEED CC/SPED	2.02	2.08	1.82	2.06	1.96	1.99
						1.99

The highest quality point average was BSE English program (Table 7). Moreover, Table 8 reveals that the graduates perceived that communication skills learned during their undergraduate studies are useful skill for their job placement. Human relation followed as well as critical thinking skills. The study conducted by Gines (2014) is a proof that the teacher education program is responding to the need of the teaching industry. In her study, the PNU graduates were working full time as teachers. The graduates claimed that their training in areas such as communications, human relation, leadership, research, problem solving and information technology skills received from their institution were very adequate and helped them in their current employment. In another study, Macatangay (2013) and Aquino (2015) stated that communication skills also ranked first as the most relevant skill in the graduates' current job.

The findings provide an input to curriculum developer to give more emphasis on the development of communication skills among undergraduate students. Additional subjects or training on communication skills must be provided to undergraduate students to enhance the said skill.

Table 8. Distribution of the Skills of Graduates

Program	Communi-cation		Technical		Information Technology		Critical Thinking		Human Relation		Entrepre-neurial		Problem Solving		Others		
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	N
BSE English	54	29.18	19	10.27	16	8.64	34	18.37	41	22.16	3	1.62	17	9.18	1	0.54	185
BSE Filipino	35	29.41	10	8.4	16	13.44	18	15.12	28	23.52	1	0.84	11	9.24	0	0	119
BSE MAPEH	29	27.35	12	11.32	14	13.2	14	13.2	20	18.86	3	2.83	13	12.26	1	0.94	106
BEED CC/SPED	44	36.36	6	4.95	13	10.74	14	11.57	28	23.14	1	.82	15	12.39	0	0	121
Total	162	30.50	47	8.85	59	11.11	80	15.06	117	22.03	8	1.50	56	10.54	2	0.37	531

BSE and BEED graduates agreed that the different courses in their undergraduate degree programs are very useful in their job as teachers (Table 9). In a study conducted by Colarte (2010), the education graduates in the Ozamis City Division rated very highly the teaching and competency skills developed during their pre-service training. This includes lesson planning, human relation skills, preparation of instructional materials, communication skills and use of variety of method. Such skills and competencies are acquired by the graduates inside the classroom and also during their experiential learning courses such as field study and student teaching. These studies only showed that the teacher education program provided to the graduates has helped them acquire the competencies standards needed for them to be gainfully employed as teachers.

Results showed that graduates were able to land a job in 1-6 months after graduation and only a small percentage were able to land a job after six months (Table 10). In an interview with the graduates, they said that they were able to land a job right after graduation. This only shows that there is a great demand for the teacher education graduates in the Province of Rizal. In the study of Arcelo (2001), he found out that the average job search after graduation is 4.2 months. He mentioned that teacher education showed flexibility in meeting the requirements of various jobs that is why they are easily employed.

Table 9. Mean on the Usefulness of the BSE and BEED Programs in their Job

Courses	BSE English		BSE Filipino		BSE MAPEH		BEED CC/SPED	
	x	VI	x	VI	x	VI	x	VI
General Education	2.7	Very Useful	2.87	Very Useful	2.71	Very Useful	2.92	Very Useful
Core Course	2.7	Very Useful	2.82	Very Useful	2.54	Very Useful	2.6	Very Useful
Professional	2.87	Very Useful	2.9	Very Useful	2.81	Very Useful	2.86	Very Useful
Undergraduate Thesis	2.5	Very Useful	2.34	Very Useful	2.26	Very Useful	2.28	Useful
Seminar	2.67	Very Useful	2.75	Very Useful	2.6	Very Useful	2.7	Very Useful
Practice Teaching/ Field Study	2.8	Very Useful	2.9	Very Useful	2.96	Very Useful	2.89	Very Useful

Table 10. Distribution on the Average Waiting Time of Graduates to Land their First Job

Program	1 - 6 mos		7 - 12 mos.		13 - 18 mos.		19 - 24 mos.		25 mos. and above		
	f	%	f	%	f	%	f	%	f	%	N
BSE English	51	92.72	3	5.45	0	0	0	0	1	1.81	55
BSE Filipino	39	92.85	3	7.14	0	0	0	0	0	0	42
BSE MAPEH	21	56.75	12	32.43	3	8.10	0	0	1	2.7	37
BEED CC/SPED	44	83.01	7	13.20	0	0	1	1.88	1	1.88	53
Total	155	82.88	25	13.36	3	1.60	1	0.53	3	1.60	187

Linear relationship showed that there was not enough evidence that the graduates' QPA is a significant factor for them to immediately land a job, instead it is the skills and competencies acquired from college.

Conclusion

BSE major in English remains as the most attractive field of specialization for education graduates. They are presently employed as private school teachers holding a contractual status. Graduates who have passed the licensure examination for teachers are now permanently employed as public school teachers. Communication, human relation and critical thinking skills and the different subject areas in the curriculum are perceived by the graduates as very useful in fulfilling their job as teachers. BSE and BEEd curricula of URS Angono is responsive in preparing the graduates to land a job related to their course. The QPA of the graduates was not a deterrent for them to land a job. Curricular reforms will make the programs more responsive to the needs of the educational system.

References

Aquino, A. B., Punongbayan, E. J., Macalaguim, L. P., Bauyon, S. M., & Quizon, R. R. J. G. (2015). Teacher education graduate tracer study from 2010 to 2014 in one state university in Batangas, Philippines. *Asia Pacific Journal of Multidisciplinary Research*, *3*(5), 45-50.

Arcelo, A. A. (2001). Graduate tracer study. *Higher Education Research Papers*, *1*, 97-115.

Colarte, C. T. (2009). Tracer study of education graduates employed in Ozamiz City Division. *Lasallian Research*, 14(2)

Gines, A. C. (2014). Tracer study of PNU graduates. *American International Journal of Contemporary Research*, *4*(3), 81-98.

Macatangay, L. (2013). Tracer study of BSCS graduates of Lyceum of the Philippines University from 2004-2009. *Academic Research International*, *4*(5), 361.

Philippine Statistics Authority. 2014 Labor force survey.

Livelihood Preference of a Semi-urban Community

Joanna Ruth P. Castillo[1]
joannaruthcastillo@yahoo.com

Abstract

This study aimed to determine the significant correlations between profile (educational attainment and special skills) and livelihood preference of the respondents of a semi-urban community in Rodriguez, Rizal, Philippines. The researcher utilized a descriptive method of research, particularly a normative survey and adopted a questionnaire-checklist, distributed, collected and analysed data through statistical treatment such as frequency and percentage distributions, chi-square test analysis to determine the relationship between households' profile and preferred livelihoods, and a systematic probability sampling technique in the selection of the two hundred twenty (220) respondents Also, a Focus Group Discussion (FGD) was administered to further validate perceptions of the respondents on preferred livelihoods.

The study resulted to a significant correlation between educational attainment and special retailing skill of the respondents and their most preferred entrepreneurial livelihood which is retailing.

Keywords: *profile, livelihood, sampling, probability, FGD*

[1]Prof. Joanna Ruth P. Castillo, Associate Professor I, College of Social Work, URS Rodriguez

Introduction

One of the biggest hindrances to human development and economic growth is poverty. Many people in the world today who live in rural areas are poor. They contribute rapid increase of urban population through immigration and resettlements, particularly experienced by most developing countries. Prices of food are high in the urban areas and proper nutrition is not availed that led to highest rate and problem of malnutrition (FAO, United Nations, 2014). In case of Filipino families, extreme poverty is experienced with subsistence incidence at 9.2 percent in 2015 and 10 percent in 2012 (Philippine Statistics Authority, 2016).

Livelihood can be one of the solutions in order for the governments (national or local) to uplift the economic well-beings of people giving emphasis on rural women. Many women in the community were not given much attention as to their economic contribution through income generation due to limited education, training, as well as household responsibilities (Tibon, et al., 2014).

Camp, et at. (2013) identified problems of women that affect their economic status. Some of these are money, health, housing, issues of domestic violence and burdensome workload. According to Sheheli (2012), many rural women in Bangladesh have a low to middle level of livelihood status. In order to improve the livelihoods, food sufficiency, education, shelter, financial support and employment opportunity are indispensable.

Assessment of socio-economic status of people in the community is not only merely gathering and analyzing data, but also serves as basis for better opportunities. Through community based needs assessment, agencies or institutions can determine socio-economic, health, and welfare of people, provide framework for better plans and programs, and services and alleviate people from poverty through strong partnership (Moore, 2009).

According to Karki (2013), livelihood planning is importantly focused on the household conditions such as position or role in the society and available economic resources. Development projects from organizations should be financed and focused on the less fortunate people.

Rigorous needs assessment (evidence-based parent education) can be utilized as a strategy by considering recommendations that are supported by scientific evidence and the community (Correa, et al., 2013).

Barangay San Isidro is one of the 11 barangays in the Municipality of Rodriguez in the Rizal Province and composed of 16 sitios. The primary source of living of people is farming which is 40%, followed by quarry and crusher, business and trade (15%), animal industry (5%) and professional employment (10% (Information Office, Barangay San Isidro, 2014). It was observed by the researcher that dressmaking is the only existing livelihood project of the local government; and abilities, skills and talents of women and out-of-school youth are not systematically studied. Hence, the researcher was motivated to assess the livelihood preference of the households based on their profile. This study can also provide information to social institutions such as governments, civil society organizations, academe, and family toward livelihoods suitable to the knowledge and special skills of households as well as based on the available resources of the community. In the *Social Capital Theory* of an American political scientist, Robert Putnam, considered social capital as a collective asset where people in the society should have good interrelationships. They must trust, cooperate, and help each other. These interrelationships must be maintained in order to be considered a collective asset or a common good (Schaefer-McDaniel, Nicole J., 2004).

Methodology

A descriptive method of research, particularly a normative survey-checklist, was adopted and utilized by the researcher. Systematic probability sampling technique was used in the selection of the two hundred twenty (220) respondents. An adopted questionnaire was utilized by the researcher to gain information from the respondents. The first part of the questionnaire included the personal information such as educational attainment and special skills on livelihood. The second part of the questionnaire dealt with their preferred livelihoods. The self-administered questionnaire was distributed for the respondents to identify their preferred livelihood as guided by the researcher. Questionnaires were accomplished and after which, collected for encoding and tabulation. Descriptive analysis using frequency and percentages to describe the profile of

the respondents was used. Chi-square correlation test analysis was utilized to determine the significant relationship between profile of the respondents and preferred livelihood. A Focus Group Discussion (FGD) was also administered to further validate the perceptions of the respondents. Several questions were asked for clarity of the responses.

Results and Discussions

The data show that almost half or 45.5% of the total number of respondents attained secondary level of education, followed by elementary education with 38.2%. The Focus Group Discussion revealed that households' level of education was due to insufficiency of family income to pursue higher education. Technical education has the least level attained by the respondents with two (2) or .9%. According to the 2013 Philippine Statistics Authority survey, across regions in the country, the highest proportion of high school graduates come from Ilocos and CALABARZON (Cavite, Laguna, Batangas, Rizal, Quezon). It is followed by Central Luzon, NCR (National Capital Region), and lastly, ARMM (Autonomous Region in Muslim Mindanao).

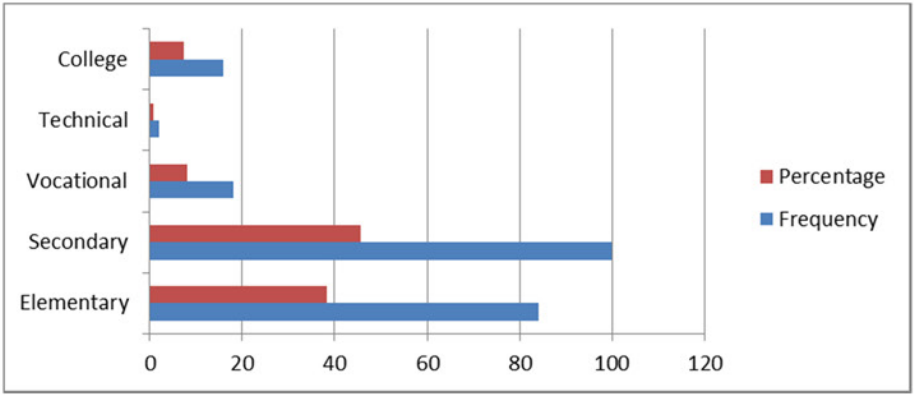


Figure1. Distribution of Households by Educational Attainment

The survey also resulted to individuals who were currently attending school from ages ranging 6 to 24 years old or 24.8 million and 11.5 million who were not attending school. Reasons for not attending school were identified such as employment, insufficiency of family income to support education of children, and lack of interest. With this, the level of education of the populace possibly has an

impact to employment opportunities. According to Hanushek and Woessmann (2007), cognitive skills of individuals are powerful to earnings and distribution of incomes, as well as economic growth. However, the importance of high-level skills, the quality of economic of institutions and relations of skills and growth must also be considered.

The results of this study show that 84 or 38.2% of the respondents perceived that they have special skill on retailing, followed by ornamental fish and pet business with 34 or 15.5%. The Focus Group Discussion (FGD) resulted to the households' preference that retailing is an easiest way to meet their daily basic needs. However, they reasoned out that their incomes are still inadequate to meet other material needs such as health and education.

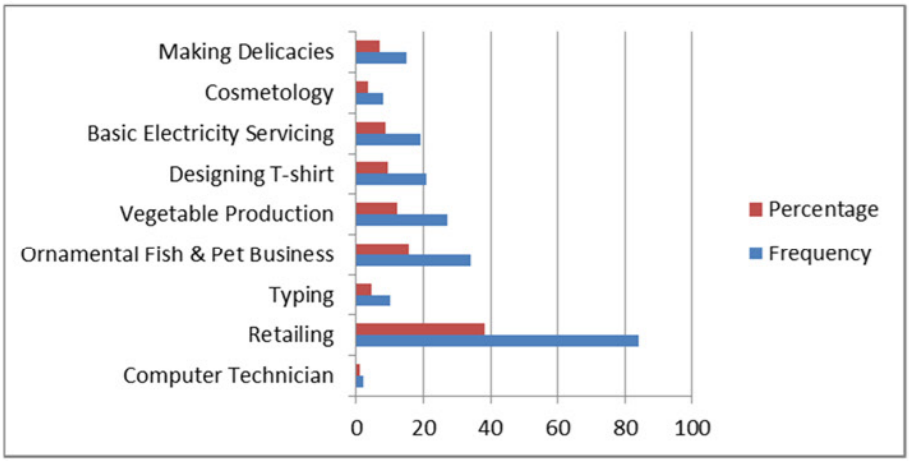


Figure 2. Distribution of Respondents by Special Skills

As observed, many Filipinos customers prefer to shop with smaller baskets than buy in bulk. Local buying habits are also changing because of business expansion and supermarket chains which cover areas previously served by convenience stores or small businesses managed and controlled by families. With this, basic and usual marketing relations can be a factor influencing the retailing skill of the respondents.

Figure 3. Shows the distribution of respondents by their livelihood preferences. The livelihoods are clustered in order to easily

identify specific households' preferences. Livelihoods are clustered namely, entrepreneurship (ornamental fish/pet and retailing) technical (computer encoding), vocational (t-shirt printing, streamer printing, sewing, food repacking, appliance repair services, auto electrical servicing, and basic electricity servicing), agriculture (hydroponics, cut flower production, broiler production, fish farming, vegetable production, swine production, and organic farming), food processing (bread, meat, fish, and native delicacies) and cosmetology (manicure/ pedicure service, hair cutting, and hair curling). The red bar represents the percentage distribution of respondents while the blue bar represents the frequency distribution of the respondents both on livelihood preferences.

The data show that in terms of entrepreneurship, retailing is the most preferred livelihood with eighty four or 38.2% of the total number of respondents. Likewise, the Focus Group Discussion (FGD) resulted to households' most preferred livelihood is retailing as they observed in the community that many are engaged in retail business and considered it an easiest way to meet daily material needs.

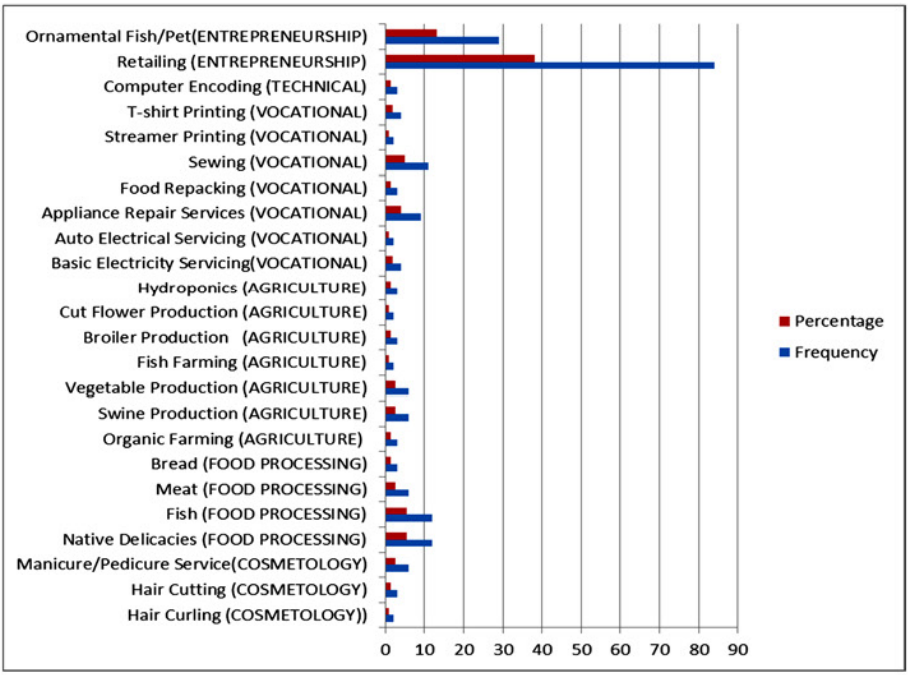


Figure3. Distribution of Respondents by Livelihood Preference

In vocational livelihood, most preferred livelihood is sewing with eleven or 5% of the total number of respondents, followed by appliance repair with nine or 4.1%. Streamer printing and auto electrical servicing got the least preference with 2 or .9% respectively. The FGD showed that respondents' preference on sewing is related to avail the dressmaking project of the local unit. Technical livelihood on computer encoding is preferred three or 1.4% of the total number of respondents. The Focus Group Discussion revealed that preference on computer encoding was not given much attention by the households due to less utilization of digital technology and communication in the area. In agricultural livelihood, most households preferred vegetable production and swine production with the same distribution of six or 2.7% of the total number of respondents. The FGD revealed that most households preferred vegetable production and swine production because they live in agricultural area which is feasible and suitable for agricultural production. Cut flower production and fish farming got the least preference of two or .9% of the total number of respondents respectively. The FGD showed that no space provided for fish farming as well as fertile lands for flower production. In terms of food processing, most preferred are fish processing and native delicacies with twelve or 5.5% of the total number of respondents respectively. This could be explained by the results of the Focus Group Discussion whereby household observed that fish processing is marketable nearby communities and reasoned out that maybe also feasible in their place. Bread processing is the least preferred by three or 1.4% of the total number of respondents. Households justified that bread processing requires sufficient capital to establish a bakery which they cannot afford. In cosmetology, manicure/pedicure service is the most preferred livelihood by six or 2.7% of the total number of respondents and least preferred is hair curling by two or .9%. Most of the respondents in the Focus Group Discussion are female with a natural inclination of preference on manicure/pedicure service. Hair curling is least preferred because as observed, many women in the place have straight hair than curled. According to Sidi (2012), many Filipino women dream a beautiful hair commonly characterized as long, shiny, smooth, and straight hair. This is evident through television shampoo commercials usually modelled by Filipina celebrities.

Table1. Chi-square Test Correlation between Profile and Livelihood Preference by the Respondents

Variables	x^2	p- value	H_0	Verbal Interpretation
Educational Attainment	667.262	.000	Rejected	Significant
Special Skills	514.660	.000	Rejected	Significant

Note. $p < .05$.

As revealed in Table 1 on the next page, there is a significant correlation between the profile and the preferred livelihood of the respondents since the probability-value (p-value) is less than.05 level of significance.

The educational attainment of the respondents has a strong relationship with their perceptions toward livelihood preferences. Results revealed that households' level of education was due to insufficiency of family income to pursue higher education. It implies that households are motivated to engage in livelihoods as alternative way or source of income from professional work or employment in order to survive. Similarly, the special skill of the respondents which is retailing (as revealed in Figure 2) has a strong relationship with their perceptions toward livelihood preferences. Data revealed that most of respondents preferred livelihood on entrepreneurship particularly retailing. It implies that their special skill has something to do with their preferred livelihood. Since they have already the special skill on retailing, this can be advantageous and an opportunity towards a successful retailing entrepreneurship in the future.

Conclusion

The educational attainment (secondary level) and special skill (retailing) of the households led to a strong correlation towards their perceived livelihood preference on entrepreneurship specifically retailing. It would be beneficial if the local government project or program on livelihood is based on the findings of this study wherein most preferred livelihood by the respondents is entrepreneurship particularly retailing. Other preferred livelihoods can also be considered such as agriculture (swine production and vegetable production), sewing (vocational), fish and native delicacies (food processing), and manicure/pedicure service (cosmetology). This study

serves as guide to policy-makers and implementers to planning, programming, budgeting, execution, and decision-making and value of community-based research. However, the importance of household involvement in the community would enrich their knowledge, skills and personality and therefore, contribute toward national economic development.

For future research, assessment on other aspects of human development such as political, social, and environmental may be considered.

References

Bersales, Lisa Grace S. (2013). FLEMMS Functional Literacy, Education and Mass Media Survey Final Report. Philippine Statistics Authority. Retrieved from http://psa.gov.ph/sites/default/files/2013%20FLEMMS%20Final%20Report.pdf

Camp, M., N'Doassingar, N., Niederhuber F. and Braun y K. (2013). *An assessment of the livelihood situation of women participating in the income generation project of the Philippine Community Fund (PCF) in the Dumpsite of Tondo, Metro Manila, Based on the Sustainable Livelihoods Framework*. A Research Report.

Philipps-University of Marburg,Germany. Retrieved from https://www.uni-marburg.de/studium/studgang/interfac/ids/forschung/FP.pdf

Correa, N., Greeley, C., & Giardino, A. (2013). *Report from the field: the results of a community needs assessment for parent*. Retrieved from http://digitalcommons.library.tmc.edu/childrenatrisk/vol4/iss2/19/?utm_source=digitalcommons.library.tmc.edu%2Fchildrenatrisk%2Fvol4%2Fiss2%2F19&utm_medium=PDF&utm_campaign=PDFCoverPages

Department of Trade and Industry. 2014 MSME Statistics. Retrieved February 24, 2017 from http://www.dti.gov.ph/businesses/msmes/msme-resources/msme-statistics

Food and Agriculture Organization of the United Nations. (2014). Food security for sustainable development and urbanization: Inputs for FAO´s contribution to the 2014 ECOSOC Integration Segment. Retrieved February 23, 2017 from http://www.un.org/en/ecosoc/integration/pdf/foodandagricultureorganization.pdf

Hanushek, Eric A. and Woessmann, Ludger, The Role of Education Quality for Economic Growth (February 1, 2007). World Bank Policy Research Working Paper No. 4122. Retrieved February 25, 2017 from https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=960379

Karki, Shova Thapa. (2013). Do protected areas and conservation incentives contribute to sustainable livelihoods? A case study of Bardia National Park, Nepal. *Journal of Environmental Management*. Volume 128, October 15, 2013, pages 988-999. Retrieved February 24, 2017 from http://www.sciencedirect.com/science/article/pii/S0301479713004635

Ott, Lyman R. and Longnecker, Michael. (2010). *An introduction to statistical methods and data analysis*. Sixth Edition. Brook/COLE Cengage Learning. Retrieved from http://www.amazon.com/Introduction-Statistical-Analysis-Available-Enhanced/dp/0495017582

Philippine Statistics Authority. (2015).Poverty incidence among Filipinos registered at 26.3%, as of first semester of 2015. Retrieved February 23, 2017 from https://psa.gov.ph/content/poverty-incidence-among-filipinos-registered-263-first-semester-2015-psa

Schaefer-McDaniel, Nicole J. (2004). *Conceptualizing social capital among young people: toward a new theory, children, youth and environments.* Retrieved from http://www.colorado.edu/journals/cye/14_1/articles/article6full.htm

Sheheli, Shonia. (2011).*Improving livelihood of rural women through income generating activities in Bangladesh.* Humboldt University Berlin, Germany. Retrieved 2016 from https://edoc.hu-berlin.de/dissertationen/sheheli-shonia-2012-01-27/PDF/sheheli.pdf.

Sidi, Lyaana. Pinay's Frustration for Straight Hair. Retrieved October 11, 2012 from http://magandafilipino.com/pinays-frustration-for-straight-hair/

Tibon, M.V., Legaspi, A., and De Castro, M.M. (2014). *Establishing a sustainable social enterprise: Action Research on Riverside Community, San Francisco, San Pablo*, De La Salle University, Manila, Philippines. Retrieved from http://www.dlsu.edu.ph/conferences/dlsu_research_congress/2014/_pdf/proceedings/WCF-007-FT.pdf

REVISED POLICY FOR URS JOURNAL

The Official University Multidisciplinary
Refereed Journal

GUIDE TO AUTHORS

The URS Journal is an annual publication which is open to articles from its readers, environment enthusiasts, and development promoters. Favored contributions are professionally composed research articles, policy papers, and essays that talk about contemporary issues, and evolving concerns in the Philippines and its neighboring Asian countries. In particular, the journal is inclined in the following concerns: advocacy, management, conservation, stewardship, community participation, policy formulation, product development, biodiversity, extension, communication, education, technology generation, and sustainable development.

RECENCY AND INGENUITY

1. All articles must be original, unpublished and not more than 20 pages long (including tables, figures and appendices) and not submitted to other publications for considerations
2. Articles on research should present findings and data not older than 5 years, and may include a discussion on the implications of the findings for the contemporary issues, and evolving concerns in the Philippines.
3. Papers presented in conferences should be rewritten as journal articles and author should sign a publication agreement that the paper is not considered for journal publication by the conference organizer. Any violation thereof holds the author responsible for any possible legal impediments once the article is published in this journal.

RECOMMENDED FORMAT

1. Any form of contribution should be processed in American English language and in Microsoft Word (Letter size paper, double-spaced, 12 points, Arial).
2. The paper should not be more than forty (40) pages when double spaced or not more than twenty (20) pages when formatted in single space including all tables and figures.
3. Manuscript should be submitted in triplicate containing the following sections:

   TITLE

   - It must be less than 20 words; to be followed by list of author/s and affiliation/s, and corresponding author's email address

   ASTRACT

   - Should not be more than 200 words and a list of not more than five keywords

   INTRODUCTION

   - Introduction should not be more than five paragraphs.
   - It also covers the sound literature review and objectives

   METHODOLOGY

   - Should specify the techniques used and the details of the study area, as well as the limitations of the study

   RESULTS

   DISCUSSION

   CONCLUSION

   REFERENCES CITED

   ACKNOWLEDGMENT

   - Should be in paragraph form of not more than three sentences

4. Article (including tables, figures, and appendices) should be submitted in both electronic and in printed (Letter size paper) forms.
    - Figures and illustrations should be saved as black and white, however, authors wishing that their illustrations and photos be printed in full color shall pay corresponding printing costs.
    - Illustrations and photographs should be saved in any of the following formats: TIFF, JPEG, PNG, or BMP.
    - If the image files are large, indicate the compression program used.
5. In multiple authorship, all the authors are required to sign the publication agreement.

ADDITIONAL INFORMATION

1. Follow the metric system for units of measure.
2. Italicize scientific names and local terms.
3. Apply boldface for textual emphasis and mathematical formulas.
4. Submit photos and figures separately to maintain digital integrity of the figure
5. Apply table functions of the Microsoft Word in the final output and not the spreadsheets *(use spreadsheets during computations only)*
6. For equations, use the equation editor of your word processing program.
7. For pages, use automatic numbering function (bottom-center).
8. In making indents, use tab stops and not the spacebar
9. In setting double space, remove the automatically inserted extra space before and after the paragraph.

CITING REFERENCES

1. All authors cited in the text should be listed in the Reference Cited section
2. Authors cited as "et.al." in the text should all be enumerated in the Reference Cited section.
3. Use American Psychological Association (APA) Style Manual – Sixth Edition.

REVIEW PROCESS

Refereeing will be in a double-blind system. The author should keep his or her identity from being known during the review process.

There will be at least two reviewers. In cases, only one accepted the paper the Editorial Board decides whether to include the paper or not in the journal via a majority vote.

FEES

If the **contributor** is a **faculty or staff member of the URS**, all fees (refereeing, administrative cost, and publication) shall be shouldered by the university.

If the **contributor** is **from an external agency**, all fees (refereeing, administrative cost, and publication) shall be shouldered by the author using the prevailing rate at the time of submission. However, publication fee shall be paid only once the paper is accepted by the referees.

Please send your manuscript to:

The Editors

University of Rizal System Journal

Research, Development, Extension and Production Office

University of Rizal System

Sampaloc, Tanay, Rizal, Philippines 1980

ursresearchjournal@gmail.com ;

Details for sending via e-mail:

Subject: Manuscript Submission for URS Journal

Filename: Author_keyword (i.e. author's surname and the keywords in the title)

REVIEWER'S SLIP

Tracking Number: URSJ-P (*stands for paper*) -2014-*(paper number)*

Reviewer	_____ Signature over printed name	Date article was received for review	
		Date of submission of review	

Title:

_____

_____

_____

Kindly write your assessment on the space provided.

Questions	Observations
Novelty or originality of the results.	
Use of up-to-date and sound methods.	
Firmness of conclusion based on observations and reasoning given.	
Adequacy of abstract as summary of the paper.	
Adequacy and proper referencing of literatures.	
Efficiency and appropriateness of presentation, if the paper merits publication for journal.	
Acceptability in the use of language.	
Additional specific suggestions to enhance the total quality of the paper.	

RECOMMENDATION: Please shade the appropriate recommendation based on your review.

O - *Accept the paper for publication.*

O - *Reconsider the paper only after the comments/recommendations are clarified and/or complied with.*

O - *Paper is unacceptable for publication.*

Please write the comments on the specific pages of the article on the file with tracked changes.

URS Quality Policy

The University of Rizal System commits to deliver excellent products and services to ensure total stakeholders' satisfaction in instruction, research, extension, production and dynamic administrative support and to continuously improve its quality management system processes in compliance with statutory and regulatory requirements.

URS Vision

The leading University in human resource development, knowledge and technology generation, and environmental stewardship.

URS Mission

The University of Rizal System is committed to nurture and produce upright and competent graduates and empowered community through relevant and sustainable higher professional and technical instruction, research, extension and production services.

Core Values

R-Responsiveness
I-Integrity
S-Service
E-Excellence
S-Social Responsibility

Nurturing tomorrow's noblest