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OF EDUCATIONAL MANAGEMENT AND DEVELOPMENT STUDIES

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Table of Contents

The Relationship between Managerial Skills and Teaching Effectiveness of Elementary School Teachers

Mercedita H. Silva

Abstract

This study aimed to find out any significant relationship between the managerial skills and teaching effectiveness of the selected elementary teachers. Using a descriptive method of research, a total of 62 public elementary teachers from eleven (11) elementary schools in Candelaria West District in the Philippines during the academic year 2018-2019 were chosen as study participants. An expert-validate questionnaire in checklist form was the main tool for data collection. The perceived managerial skills of the teachers were manifested through their technical, conceptual and human skills. Meanwhile, the level of the teaching effectiveness is always effective in terms of management of students' behavior and assessment of students' learning and effective in organization of instruction and adjustment of learning. Results further revealed that there was significant relationship in managerial skills and teaching effectiveness in terms of management of students' behavior, organization of instruction, assessment of students' learning and adjustment of learning. The managerial technical skill was significantly related to teaching effectiveness. There is perceived necessity to develop further the managerial skills of the teachers. Administrator may provide programs and activities for improvement and application of teachers' managerial skills.

Keywords:

About the author:

Elementary School Teacher. Masin Norte Elementary School, Philippines.

1. Introduction

The learning outcome depends largely on the teacher as the key factor in any teaching-learning situation. Improved learning outcome calls for the effective performance of a teacher, which is anchored on their teaching effectiveness. It is said that the effectiveness of teacher's performance contributed much to the student achievement. Their role requires more than the constructs of the classroom instructions. They need to assess the students where they are at, help them to construct knowledge, and further their understanding of the world around them, and maximize their potential learning.

It is true that teachers are important leaders of educational system. However, there is a growing concern in the public school system on the not-so-good performance of some teachers. Numerous studies and surveys have been conducted to initiate result and solve this problem. In response to this issue, schools in the Philippines conduct nationwide in-service program, and other seminars to enhance teachers' abilities. Administrators from district, division or regional offices conduct Field Technical Assistance (FTA) to observe the set standards for school performance, create assessments aligned with standards to measure performance, identify the lowest performing schools and make data on school performance for them to use for further improvements.

Pursuant to Division Memorandum No. 184 series of 2017 entitled 'School Based Management (SBM) Level of Practice', the schools of Candelaria West District including Masalukot III Elementary Schools responded to the artifacts of SBM principles such as leadership and governance, curriculum and learning, accountability and improvement, and management of resources. These artifacts serve as evidence for further improvement of teachers in addressing and creating a favorable learning institution to study effectively towards the achievement of the Department of Education (DepEd) mission.

Juan and Lasaten (2016) note effectiveness in teaching as the groundwork for progress and development in an increasingly diverse, complex, and globalized society. For this, teachers need to possess necessary skills to be effective in teaching. Fisher (2017) looks at teachers as managers that need the proper tools to manage. For example, globalization presses teachers to possess the necessary 21st century skills so they can continually challenge the classrooms to be responsive. With this, as the classrooms become globalized, critical elements of 21st century

education have to be integrated to the teaching-learning process in order to adequately prepare learners for their expected roles in society. As effective management evolves, teachers need to upgrade their management practices as well.

Managerial skills are set of qualities and attributes in the personality of the managers that enable them to effectively manage the entire organization. These skills can contribute to the development of the team, each individual and other personnel in the institution. As applied to teaching, it is how teachers deal with students on the activities, perform administrative functions and act as a team with the other employees. These skills develop an organize programs and policies (Abila, 2014).

Believing teachers as managers, it is assumed that their ability to manage their work can lead to effective teaching. Thus, this study assessed the managerial skills and teaching effectiveness of the elementary public teachers to determine any significant relationship.

HO1: There is no significant relationship between the managerial skills and the teaching effectiveness of the public elementary school teachers.

2. Literature review

2.1 Managerial Skills

According to Magbojos (2012), good leadership can make academic work a more enjoyable and more productive experience for everyone. The managerial abilities are a complete understanding of the needs and objectives of the institutions. There are essential elements to effective management. For instance, Ranade (2009) mentioned that the essential elements required by teams to work efficiently include a common identity or goal, structure, and interdependence. These fundamental elements form the common basis and goals that will help members bond and develop trust, which establish team interdependency. This sense of unity can be achieved by emphasizing team-training activities for increasing interpersonal skills within culturally diverse teams. Team building develops the communication of one another to establish technique to contribute ones attitude to achieve the goal.

In terms of individual skills, teachers are expected to possess various sets of skills to help them carry on with their duties as teachers and managers. Javier (2016) suggests that technical skill, understanding of, and proficiency in, a specific kind of activity, particularly

involving methods, process, procedures or techniques, is necessary for the teachers to possess. It involves special knowledge, analytical ability within that specialty and facility in the use of tools and techniques of the specific discipline. Locke (2010) considered technical skill as the ability to use knowledge, methods, and techniques of a specific discipline. Teachers in school are examples of people with technical skills as they are recognized as experts in their discipline and are presumed to have the ability to supervise other. School head has usually developed some expertise in a discipline or field of study. To successfully run an academic department, the chairperson must know how to teach the subject, how to organize the group, how to acquire resources, and how to evaluate performance. This also encompasses human skill, which involves the ability to understand, create motivation, and work with employees.

According to Robbins and Coulter (2009), for teachers monitoring and evaluation of students' performance, tasks and structural arrangements must be in place to ensure that goals are being met and that work is being done as it should be. This requires strategy, which according to Gumz (2017) provides a light at the end of the tunnel. For example, the teachers' project management develops teachers' ability to develop strategies. It is the direction of the team in aiming the success. In doing the project, each member search for the strategy to be used in the challenges to prove that the project can lead for the organization improvement.

In order to formulate strategies, teachers also must know how to conceptualize. For Vishwanath (2012), conceptual skill is the ability to visualize the organization as a whole. It includes analytical, creative and initiative skills, understanding the complexities of the overall organization, his ability to think in abstract, analyze work situation and his creature and innovative ability to access the environment. It is necessary to understand how the different components are related to each other and the institution as a whole. Patrinos (2010) believes that teachers need to further develop their conceptual skills in order to think strategically and take a broad long-term view. This will enable teachers to see what goes on their work environment and help them to react appropriately and reflectively to situations as they arise. They must consider environmental forces, resource flows, staff and administrative talent, board of education policies, reform mandates, parent complaints, and organizational change as significant inputs into the internal environment of the learning environment. People with conceptual skills must be very creative (Doyle, 2016).

As teachers enter the 21st century, they need to possess Information Communication Technology (ICT) proficiency. There is a growing demand on the educational institutions to

integrate ICT in teaching the skills and knowledge students need for the 21st century. This restructuring process requires effective integration of technologies into the existing environment in order to enhance professional output in the school (Buabeng & Mbati, 2014).

The main role of the teacher is to manage the classroom. According to Barberos (2019), they should mind the chief component of interest in the classroom. As such, teachers need to vary teaching styles and techniques so as not to cause boredom to the students in the classroom. It is valuable to develop human skills to connect with students from all walks of life. This skill depends on the teacher's ability to think in the abstract (Javier, 2016). For this, the teachers have the sense that they contribute to their communication and be more productive and effective in the students learn more in their instruction (Visiliko, 2012). If they have human skills, they will be able to manage every change within the organization. Managing the change has an impact on the characteristics of teachers (Maughan, 2012).

2.2 Teaching Effectiveness

According to Bell (2011), teacher's effectiveness in schools greatly depends on effective practice for pupil learning in its own specific context. For this, schools are obligatory to practice a multi-disciplinary team approach involving of the learner's parents and school stakeholders such as teacher, school principal, guidance and other workers in the institution (Laylo, 2018). The teachers must integrate all these aspects for effecting teaching.

Highly successful teachers are frequently called instructional leaders (Glorioso, 2016). As leaders, they must have a deep understanding of teaching and learning, including new techniques and strategies in teaching that emphasize problem solving and pupils construction of knowledge. Good instructional leaders have a strong commitment to success for all pupils, and are especially committed to improve instruction for groups of pupils who are learning strategies that fit the needs of the students. For this, teachers must design an effective framework for teaching (Libit, 2016). Although they are not the only possible description of practice, these responsibilities seek to define what teachers should know and be able to do in the exercise of their profession.

An effective teacher brings about intended learning outcomes (Ryan, 2013). The goal of these activities is to ensure that all students learn what is expected of them. To do this, a

teacher must master a variety of perspectives and strategies in teaching and flexible in their application (Carpo, 2014). According to Refugido (2015), teaching strategies are the techniques or approach that a teacher use for a certain topic or lesson determined by the teacher to be the best method in teaching based on different factors such as method, size class, kinds of students and availability of materials. However, teacher should also personalize the learning for their students (O' Neill, 2009). They used techniques that have each student working on tasks that engage and challenge them to achieve their best. For example, the learning activities are planned to suit the individual needs, interests and abilities of an individual student (Salandanan, 2012). They could use technology in developing the strategy (Agbatogun, 2012) or integrate technology in the teaching process (Arnseth & Hatlevik, 2012) for students to enjoy learning.

Another key role of the teacher is preparation of assessments. Assessment allows the teachers to keep a record of their observations of student's works will support conclusions they draw which they will report to the parents (Lucas, 2017). Through a variety of measures, students are assessed to determine whether or not they are achieving the learning outcomes (Esllera, 2016; Stecher, 2010; Khandaghi & Farasat, 2011; Morales, 2016). Teachers can compile them into a portfolio (William & Thompson, 2008) which reflects student's development as well as the area where they have the weaknesses, which need to evaluate and give certain enrichment activities.

Managing the classroom is another mark of an affective teaching. Vu (2009) considers managing students' behavior and classroom social environment an important role in students' development. Student experiences within the classroom help to develop their behavioral, social, and academic skills. For this, Durrant (2010) suggests that an effective discipline must be constructive and positive. The same applies to correcting student mistakes. The process of receiving school correction may unintentionally influence how the students attach to the school and school agents, aspire to achieve academically, and perceive school rules and safety (Scaggs, 2009).

3. Methodology

The descriptive method of research was employed in the study. This type of research determines the present conditions focusing on individual motivational factors, management skills and teaching effectiveness of public elementary classroom teachers. In order to produce data about the variables under the study, self-made questionnaire was used.

This investigation was undertaken in eleven elementary schools in Candelaria West District for School Year 2018-2019, namely: Buenavista East, Buenavista West, Bukal Norte, Bukal Sur, Candelaria Elementary School 1&2, Candelaria Elementary School-Main, Masalukot I, Masalukot II, Masalukot III, Masin and Mayapyap. Complete enumeration technique was used in selecting the teacher-respondents so that all teachers in each school has the equal chance to be the sample. There were a total of 162 teacher-respondents of the study.

To facilitate the gathering of information the researcher used the descriptive survey questionnaire. The questionnaire was divided into two parts as follows: Managerial Skills (technical, conceptual and human) and Teaching effectiveness (student management, organization of instruction, assessment of student learning and adjustment of leaning). These indicators in the form of 4-scale Likert style were validated by the experts including ten (10) external validators, one (1) English teacher, two (2) Principal, five (5) Master Teacher, one (1) Teacher III, and one (1) Master in educational management graduate. To test the reliability, the instrument was subjected to test-retest method. Ten (10) teachers answered the questionnaire and were requested to note down any difficulties in answering. After two (2) weeks, the same instrument was given to the same ten respondents to check the reliability.

The author personally conducted the data gathering through personal visits to the schools where the respondents are working. The assistance of the school administrators was solicited to ensure success in the retrieval of the questionnaires.

Several statistics were utilized such as weighted mean, standard deviation, Pearson Product- Moment Correlation Coefficient at .05 level of confidence.

4. Findings and Discussion

Table 1

Perceived Managerial Skills of Elementary School Teachers

Indicators	Mean	SD	Interpretation
Technical	3.40	0.56	P
Conceptual	3.45	0.54	P
Human	3.43	0.55	P
Over All	**3.42**	**0.56**	**P**

Legend: 3.51 – 4.00 Always Practiced (AP);2.51 – 3.50 Practiced (P); 1.51 – 2.50 Less Practiced (LP); 1.00 – 1.50 Not Practiced (NP)

Reflected in table 1 are the perceived managerial skills of the elementary teachers with the overall mean of 3.42 and standard deviation of 0.56**.** It implies that the elementary teachers practice all the indicators of managerial skills. Specifically, the conceptual skills are the most practiced which implies that elementary teachers develop their concepts in dealing the overall challenge of the institution as whole.

In terms of technical skills, the teachers assessed their task management (WAM=3.41; SD=0.45), project implementation (WAM=3.42; SD=0.55) and ICT skills (WAM=3.4; SD= 0.58). The results imply that the teachers practiced all these indicators. The manifestations of the task management include giving task for student to develop responsibility and taking tasks that gives the opportunity to play the role of designate learners to be a cleaner of the day. Meanwhile, as to project implementation, they keep the program on track and complete them on time. The indicators of ICT skills for the teachers include the use of technology in many aspect, update technological skills and innovate and support technology resources. The results of the study affirm the discussions and studies of Gumz (2017), Grady (2011), Buabeng and Mbati (2014) and Robbins and Coulter (2009).

In terms of conceptual skills, the indicators assessed were strategic planning (WAM=3.53; SD=0.53), problem solving (WAM=3.43; SD=0.54) and change management (WAM=3.41; SD=0.56). Teachers practice strategic planning through support to the school mission, vision and values and understanding how learning best occurs as a role of teachers as facilitator. Moreover, the practices of problem solving involve seeing what goes on in the working environment and reflecting on appropriate solutions as they arise. The manifestations

of change management emanate from adaptation to changes in their current environment. These are consistent with the results of the studies of Patrinos (2010), Doyle (2016) and Atienza (2016).

In terms of human skills, the indicators assessed were communication (WAM=3.45; SD=0.56) and team building (WAM=3.42; SD=0.56). The manifestations of communications include matching words to actions, developing various lines of communications and advocating for clear and consistent communication while practices of team building include advocating all teachers play a role, sharing expertise and sharing roles among team members. These manifestations are consistent with the discussions of Herrera (2010) and Ranade (2009).

Table 2

Perceived Teaching Effectiveness of the Elementary School Teachers

Indicators	Mean	SD	Interpretation
Management of Students' Behavior	3.60	0.53	AE
Organization of Instruction	3.52	0.53	E
Assessment of Students' Learning	3.56	0.52	AE
Adjustment of Learning	3.43	0.56	E
Over All	3.53	0.53	AE

Legend: 3.51 – 4.00 Always Effective (AE); 1.51 – 2.50 Less Effective (LE); 2.51 – 3.50 Effective (E); 1– 1.50 Not Effective (NE)

Table 2 shows the overall assessment of the teaching effectiveness with an over all mean of 3.53 and standard deviation of 0.53. The data show that they are effective teachers in terms of management of students' behavior (WAM=3.60; SD=0.53), organization of instruction (WAM=3.52; SD=0.53), assessment of student learning (WAM=3.56; SD=0.52) and adjustment of learning (WAM=3.43; SD=0.56).

As to management of students' behavior, the indicators were discipline (WAM=3.60; SD=0.53) and rules (WAM=3.59; SD=0.53). These are manifested by solving the problems of students, addressing discipline to develop pupils' attitude, following school rules, posting rules before the first day of school and communicating to students and parents verbally and in written form the rules and regulations. These are congruent to the findings of Pineda (2014) on classroom discipline.

In terms of organization of instruction, it was assessed through strategy (WAM=3.54; SD=0.51) and methods (WAM=3.50; SD=0.54). These are practiced in terms of developing range of students' abilities and aptitudes, using techniques that engage and challenge the pupils, providing opportunities for the different needs of the students, adapting instruction to meet students' needs and integrating the learning objectives in the curriculum. These are consistent with Glorioso (2016) on teaching strategies, Salandanan (2012) on teaching activities and Libit (2016) on differentiated instruction.

In terms of the assessment of students' learning, it was assessed through portfolio (WAM=3.56; SD=0.52) and performance task (WAM=3.56; SD=0.52). The manifestation of these indicators include collecting various pieces of students' work, looking for students' works that exemplify the criteria, engaging students to perform situations that are meaningful and age appropriate and rating the students work with their collaborative effort. These are consistent with the study of Esllera (2016) and Stecher (2010) on assessment of student's academic achievement other areas.

As to adjustment of learning, the indicators were technology (WAM=3.45; SD=0.58) and research (WAM=3.44; SD=0.55). These were manifested in the utilization of learning technologies in teaching, introduction of different aspects of innovation in the teaching and learning process, promotion of better classroom pedagogy and parental involvement and introduction of different aspects of teaching and learning process. These are related to the suggestions of Arnseth & Hatlevik (2012) on the use of ICT in teaching and Morales (2016) on the importance of action research.

Table 3

Correlation between the Managerial Technical Skills and Teaching Effectiveness

Technical	Management of Students' Behavior		Organization of Instruction		Assessment of Students' Learning		Adjustment of Learning	
	Discipline	Rules	Strategy	Method	Portfolio	Performance Task	Technology	Research
Task Management	.46**	.63**	.36**	.35**	.57**	.50**	.42**	.38**
Project Implementation	.46**	.57**	.31**	.39**	.47**	39**	.27**	.27**
ICT Skills	.29**	.51**	.26**	.32**	.46**	.38**	.48**	.36**

*Legend: ± .01 - 2.0 Negligible Correlation; ± .21 - .40 Low Correlation; ± .41 - .70 Substantial Marked Relations; ± .71 - .90 High Correlation; ± .91 - .99 Very High Correlation; r = .1 Perfect Correlation; N=162, r value is significant at **p<0.01*

The table 3 displays the correlation between the managerial technical skills and the teaching effectiveness of the public elementary classroom teachers. The result shows that majority of the managerial technical skills indicators have substantial marked relations or low correlation to the teaching effectiveness. The positive correlation implies that the managerial technical skills positively influences the teaching effectives. As such, as the technical skills improve, the teaching effectiveness also improves.

The highest correlation is denoted by the relationship between project implementation and rules (0.57) and task management and portfolio (0.57). The lowest correlation is between the ICT skills and strategy (0.26). It denotes classroom teachers' technical skills influence how they shape the behavior of learners as they implement rules to maintain the orderliness of the learning environment. Moreover, they give task, implement project and used ICT skills to organize the strategies and methods in providing varied activities for students development.

Table 4

Correlation between the Managerial Conceptual Skills and Teaching Effectiveness

Conceptual	Management of Students' Behavior		Organization of Instruction		Assessment of Students' Learning		Adjustment of Learning	
	Discipline	Rules	Strategy	Method	Portfolio	Performance Task	Technology	Research
Strategic Planning	.46**	.61**	.37**	.47**	.54**	.43**	.37**	.31**
Problem Solving	.50**	.67**	.41**	.50**	.56**	.44**	.451**	.39**
Change Management	.53**	.66**	.48**	.66**	.55**	.47**	.525**	.46**

*Legend: ± .01 - 2.0   Negligible Correlation; ± .21 - .40 Low Correlation; ± .41 - .70 Substantial Marked Relations; ± .71 - .90 High Correlation; ± .91 - .99 Very High Correlation; r = .1 Perfect Correlation; N=162, r value is significant at **p<0.01*

Shown in table 4 is the correlation between managerial conceptual skills and teaching effectiveness. There is a positive substantial marked relation between the managerial conceptual skills indicators and the teaching effectiveness indicators as evidenced by r scores between 0.31 and 0.67. The positive relationship dictates that as the managerial conceptual skills improve the teaching effectiveness also improves. The substantial marked relation is between the problem solving and rules (0.67) whereas the lowest correlation is between strategic planning and research (0.31).

The results imply a degree of influence on the teaching effectiveness. Some indicators may have low influence on the teaching effectiveness. However, it should not be taken for granted in order to improve the classroom teaching. There are various activities and initiatives that require the implementation of these indicators. For instance, research is highly necessary for planning and problem solving but maybe not for discipline and rules. These indicators are applied on a case by case basis.

Table 5

Correlation between the Managerial Human Skills and Teaching Effectiveness

Human	Management of Students' Behavior		Organization of Instruction		Assessment of Students' Learning		Adjustment of Learning	
	Discipline	Rules	Strategy	Method	Portfolio	Performance Task	Technology	Research
Communication	.57**	.58**	.53**	.53**	.62**	.49**	.43**	.32**
Team Building	.53**	.70**	.53**	.54**	.63**	.56**	.50**	.47**

Legend: ± .01 - 2.0 Negligible Correlation; ± .21 - .40 Low Correlation; ± .41 - .70 Substantial Marked Relations; ± .71 - .90 High Correlation; ± .91 - .99 Very High Correlation; r = .1 Perfect Correlation; N=162, r value is significant at **p<0.01

The table 5 indicates the correlation between managerial human skills and the teaching effectiveness. The degree of correlation ranges from low (0.32) to substantial marked relations (0.70) which are manifested by communication and research (low) and team building and rules (substantial). The positive relationship implies that any improvements in the managerial human skills indicators influence the teaching effectiveness indicators to improve.

It is indeed necessary that teachers develop the managerial human skills as they face children and motivate them to learn. For instance, the language of teachers in the implementation of rules signals a different tempo on how learners act. The same holds true in dealing with their peers in the workplace. In this case, effectiveness suggests a balance of the human skills to enhance relationship with the different key players in the teaching and learning process.

5. Conclusion

This study determined the relationship between the managerial skills and teaching effectiveness of the public elementary classroom teachers in Candelaria West District during the School Year 2018-2019. It utilized complete sampling technique of the 162 classroom teachers. The main data gathering tool was a survey questionnaire in checklist form validated

by the experts in the field of education. Weighted mean, standard deviation and Pearson Product Moment Correlation were used to analyze the data.

Results showed that the technical, conceptual and human managerial skills of elementary teachers are practiced while the level of teaching effectiveness is always effective in the management of students' behavior and assessment of students' learning and effective in organization of instruction and adjustment of learning. It was further revealed that there was significant relationship in the managerial skills and teaching effectiveness. Therefore, the hypothesis was rejected. This study concludes that there is positive relationship between the managerial skills and the teaching effectiveness of the elementary school teachers.

There is perceived necessity to develop the managerial skills of the teachers. Administrator may provide programs and activities for improvement and application of teachers' managerial skills. The results of the study may also be used as framework for effective teaching training programs. It will also be a great support for teachers to develop learners in reaching the improvement in their accomplishments. It is recommended that next researcher may conduct further study using the framework for effectiveness of classroom teachers to attain success in learning.

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Appendices

Appendix A
Managerial Technical Skills

Technical Skills Indicators	M	SD	V.I.
Task Management			
1. use various tools and methods to accomplish specific task.	3.46	0.52	P
2. give task for student to develop responsibility.	3.56	0.51	AP
3. successfully completes the goal of school club.	3.28	0.56	P
4. organize and control the school event.	3.26	0.53	P
5. orient the students to a particular purpose of the project.	3.49	0.57	P
Over All	**3.41**	**0.45**	**P**
Project Implementation			
1. keep the program on track.	3.45	0.55	P
2. plan to complete a project on time.	3.44	0.54	P
3. establish the clear project scope.	3.41	0.55	P
4. take responsibility to the delegation of the task.	3.39	0.52	P
5. initiate to work to wider group to be representative of the interest.	3.4	0.56	P
Over All	**3.42**	**0.55**	**P**
ICT			
1. demonstrate the use of technology in many aspect.	3.44	0.59	P
2. update my necessary skills with use of technology.	3.43	0.59	P
3. integrate the use of technology in grade level projects.	3.41	0.56	P
4. defuse the anxiety and the resistance to technology use.	3.21	0.63	P
5. innovate and support technology resources.	3.43	0.54	P
Over All	**3.39**	**0.58**	**P**

Appendix B
Managerial Conceptual Skills

Conceptual Skills	M	SD	V.I
Strategic Planning			
1. support the school's mission, vision and values.	3.74	0.45	AP
2. propose school event and program	3.48	0.55	P
3. set the specific objectives and outcomes of the school activities.	3.49	0.56	P
4. detail contemporary education trends and expectations in the meeting.	3.38	0.56	P
5. understand how learning best occurs as a role of teachers as facilitator.	3.56	0.51	AP
Over All	**3.53**	**0.53**	**P**
Problem Solving			
1. empower to see what goes on in working environment.	3.49	0.54	P
2. reflect to appropriate and react to solutions as they arise.	3.48	0.51	P
3. devise creative solutions to abstract problems.	3.35	0.56	P
4. consider how the members of the club work together.	3.36	0.52	P
5. organize teamwork to solve a problem.	3.45	0.56	P
Over All	**3.43**	**0.54**	**P**
Change Management			
1. help to design approach to transitioning individuals of the teacher organization.	3.4	0.56	P
2. assist strategy to meet the goal of the organization	3.4	0.56	P
3. evaluate the current status to reach the desired aim.	3.4	0.56	P
4. improve the existing aim of the school officers.	3.4	0.55	P
5. adapt to changes in their current environment.	3.44	0.55	P
Over All	**3.41**	**0.56**	**P**

Appendix C
Managerial Human Skills

Human Skills	M	SD	V.I.
Communication			
1. advocate of good role model for clear and consistent communication.	3.52	0.51	AP
2. match words to actions.	3.54	0.5	AP
3. develop integrity as a leader, being committed to open the line of communication.	3.53	0.51	AP
4. communicate bad news as effectively as good news.	3.29	0.64	P
5. search for new strategies of communicating with their external and internal publics.	3.4	0.61	P
Over All	**3.45**	**0.56**	**P**
Team building			
1. step up leadership roles to achieve goals.	3.39	0.58	P
2. share expertise with the rest of the school team.	3.44	0.53	P
3. lead without being formal leaders.	3.33	0.62	P
4. share the roles among team members.	3.43	0.54	P
5. advocate that all teachers play a role.	3.53	0.52	AP
Over All	**3.42**	**0.56**	**P**

Appendix D

Teaching Effectiveness in Management of Students' Behavior

Management of Students' Behavior	M	SD	V.I.
Discipline			
1. bring the students in the harmony with the ideas.	3.59	0.53	AE
2. set principles in the learning environment.	3.59	0.54	AE
3. seek to eliminate issues in the classroom.	3.6	0.53	AE
4. solve the problems of students.	3.64	0.54	AE
5. spend time in addressing discipline to the development of pupils' attitude.	3.61	0.51	AE
Over All	**3.6**	**0.53**	**AE**
Rules			
1. initiate to follow school rules.	3.65	0.5	AE
2. clear the expectations of appropriate student behavior.	3.59	0.52	AE
3. post rules before the first day of school.	3.63	0.53	AE
4. communicate to the students and parents verbally and in written form.	3.63	0.5	AE
5. write in form about expected and appropriate behavior.	3.48	0.58	E
Over All	**3.59**	**0.53**	**AE**

Appendix E

Teaching Effectiveness in Organization of Instruction

Organization of Instruction	M	SD	V.I.
Strategy			
1. develop the range of student' abilities and aptitudes.	3.59	0.51	AE
2. provide opportunities for the different needs of the students.	3.54	0.51	AE
3. use techniques that engage and challenge the pupils to achieve their best.	3.55	0.5	AE
4. present new materials that enables the pupils to connect them to what they knew.	3.51	0.51	AE
5. provide engaging and motivating activities	3.49	0.53	E
Over All	**3.6**	**0.53**	**AE**
Methods			
1. incorporate different sources in using a variety of methods.	3.49	0.57	E
2. integrate the learning objectives in the curriculum.	3.51	0.53	AE
3. adapt instruction to meet students' needs.	3.54	0.51	AE
4. innovate materials for students' active interactions.	3.49	0.55	E
5. look for new methods to promote student's level of understanding.	3.49	0.55	E
Over All	**3.5**	**0.54**	**E**

Appendix F

Teaching Effectiveness in Assessment of Students' Learning

Assessment of Students' Learning	M	SD	V.I.
Portfolio			
1. collect various pieces of students work.	3.59	0.53	AE
2. look for students' works that exemplify the criteria.	3.59	0.51	AE
3. state the procedures for evaluating student work.	3.56	0.51	AE
4. allow the think the students about each item in their portfolio.	3.51	0.54	AE
5. make the students have the opportunity to evaluate their own work.	3.56	0.52	AE
Over All	**3.56**	**0.52**	**AE**
Performance Task			
1. engage students to perform situations that are meaningful, and age-appropriate.	3.57	0.51	AE
2. give students opportunity to express and assess their ideas.	3.62	0.5	AE
3. state the standards in assessing student's performance.	3.52	0.56	AE
4. rate the students work with their collaborative effort.	3.57	0.51	AE
5. generate feedback to make the student's aware of their strengths and weaknesses.	3.51	0.54	AE
Over All	**3.56**	**0.52**	**AE**

Appendix G

Teaching Effectiveness in Adjustment of Learning

Adjustment of Learning	M	SD	V.I.
Technology			
1. utilize learning technologies in teaching.	3.56	0.55	AE
2. introduce different aspects of innovation in the teaching and learning process.	3.52	0.54	AE
3. have a vision of how education systems run if ICT is integrated into teaching and learning process.	3.46	0.57	AE
4. give chance to students to use ICT resources.	3.35	0.67	AE
5. reduce the digital gap.	3.36	0.58	AE
Over All	**3.45**	**0.58**	**AE**
Research			
1. introduce different aspects of upgrading in the teaching and learning process.	3.5	0.53	AE
2. address advancement for students achievement.	3.42	0.51	E
3. engage in research and modernization.	3.3	0.61	E
4. view a path towards better student achievement.	3.46	0.55	E
5. initiate to promote better classroom practices in the aspects of pedagogy and parental involvement.	3.51	0.54	AE
Over All	**3.44**	**0.55**	**E**

The Leadership Styles of the Local Universities and Colleges' Administrators
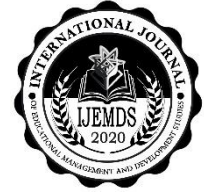
Patricia Sonia Elardo-Zabala

Abstract

This study determined the leadership styles of the administrators of the local universities and colleges (LUCs) in the provinces of Cavite, Laguna, Batangas, Rizal and Quezon commonly known as CALABARZON Region in the Philippines. The descriptive-evaluative method of research was used. Data were gathered using a self-constructed Likert type questionnaire from the one-hundred eleven (111) randomly selected administrators. The statistical tools applied were weighted mean, Pearson r, and single factor Analysis of Variance (ANOVA). Findings revealed that charismatic and command and control showed significant difference in the responses on leadership style practices when grouped as to provinces as contrasted with innovative, laissez-faire, pace setter, servant, and situational which showed no significant statistical difference. Though the leadership style practices of the school administrators were clearly manifested as to style, efforts may be directed to further strengthen trust since people are the lifeblood of the organization, thus, they must be valued. Also, as leaders of educational institutions, they should employ approaches that are appropriate for different sets of purposes or circumstances to further improve the relationship with the team.

Keywords:

leadership style, local universities and colleges, charismatic leadership, innovative leadership, servant leadership

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1. Introduction

According to Eagly (2013), men and women have different leadership styles but the variances do not mean that one has dominance over the other. The difference may be due in part to men seeing leadership as leading (Ciolac, 2013), and women seeing leadership as facilitating (Naz, 2010). Although male and female administrators perform many of the same tasks in carrying out their work, different aspects of the job are emphasized. Women educational administrators focus on instructional leadership in supervisory practices and are concerned with students' individual differences, knowledge of curriculum, teaching methods, and the objectives of teaching. In the area of instructional leadership, women spend more years as principals and teachers, and have more degrees than men; they emphasized the importance of curriculum and instruction in their work (Eagly, 2013; Kuchynková, 2015; Radu, Deaconu & Frăsineanu, 2017).

Relating values, customs, and lifestyle to leadership styles, one will never fail to recognize differences in the form of leading. Each leader has his or her own unique style. Effective leaders vary their methods based on the context, the individuals concerned, and the desired outcome. According to Blanken (2013), leading well means not just one leadership style. It is mixed and matched to engage team to meet goals. If one is aware of the different ways of leading, he/she can adapt any leadership style to manage circumstances and/or decide which style to use. Some of the common leadership styles are charismatic, innovative, command and control, laissez-faire, pace-setter, servant, and situational leaders.

This evaluated the leadership styles of the LUCs' administrators in the CALABARZON Region. It specifically assessed the leadership style according to Blanken (2013) as charismatic, innovative, command and control, laissez-faire, pace setter, servant and situational. It also ascertained the significant difference in the leadership styles of LUCs administrators in the CALABARZON Region.

The hypothesis of the study follows:

HO1: There is no significant difference in the leadership styles of the LUCs administrators when grouped according to province.

2. Literature review

2.1. Leadership Style

No style is good or bad. Leadership is an acquired attribute that begins early in school. As time goes on, education, jobs, and life experiences shape a leader's philosophy and psychology. How best to get the job done, how to set goals and objectives and manage their results, become a leader's winning formula for success. However, over time, a leader may find that her winning formula is not producing the results it used to. There is a time and place for all leadership style. New challenges require new leadership skills, behaviors, and ways of communicating (Blanken, 2013; Sirisookslip, Ariratana & Ngang, 2015). It is time to unlearn familiar leadership approach, recognize limitations, and adapt leadership style to become the leader one imagines to be. Leadership lives on how one thinks, not what one thinks. In the result of Blanken's study (2013), common leadership styles identified were: charismatic leaders; innovative leaders; command and control leaders; laissez-faire leaders; pace setter leaders; servant leaders; and situational leaders.

Charismatic leaders are individuals who influence others through power of personality, act energetically, and motivate others to move forward (Sacavem, et al., 2017). Charismatic Leaders are leaders who possess certain qualities that inspire people and encourage devotion to a certain cause (Blanken, 2013). Charismatic leadership is a throwback to the old conception of leaders as being those who "by the force of their personal abilities are capable of having profound and extraordinary effects on followers". Although the charismatic concept or charisma, goes as far back as the ancient Greeks, its modern development is often attributed to the work of Robert House.

On the basis of the analysis of political and religious leaders, House suggest that charismatic leaders are characterized by self-confidence and confidence in their associates, high expectations for associates, ideological vision, and the use of personal example. Followers of charismatic leaders identify with the leader and the mission of the leader, exhibit extreme loyalty to and confidence in the leaders, emulate the leader's values and behavior, and derive self-esteem from the relationship with the leader (Nikoloski, 2015). House has extended the profile of charismatic leaders to include superior debating and persuasive skills as well as technical expertise and the fostering of attitudinal, behavioral, and emotional changes in their

followers (Luthans 2011). Some known charismatic leaders are Winston Churchill, Mahatma Gandhi, Mother Teresa.

Innovative leaders are individuals who can grasp the entire situation and go beyond the usual course of action (Rahman, 2012). They can see what is not working and brings new thinking and action into play. According to Blanken (2013), one of her icon as innovative leader is Richard Branson, who at the age of sixteen launched his Virgin Group of companies now comprising more than 400 companies in the fields ranging from music to space tourism. Branson described his philosophy to *Inc. Magazine:* "Dream big by setting yourself seemingly impossible challenges. You then have to catch up with them." Blanken also added that innovative leaders know when to break intractable issues and create a work climate for others to apply innovative thinking to solve problems, develop new products and services. The impact on others are, of course, risk taking is increased for all, failures do not impede progress, team gains job satisfaction and enjoyment, and atmosphere of respect for others' ideas is present (Blanken, 2013).

Command and Control leaders are persons who learned to adapt leadership style to improve relationship with his team but never lost sight of his goal. They demand immediate compliance, the sole decision maker, and engage in top-down interactions (Podhorec, Hriník & Lakoš, 2017). They follow the rules and expect others to do the same. This leadership style uses standards, procedures, and output statistics to regulate the organization. A command and control approach to leadership is authoritative in nature and uses a top-down approach which fits well in bureaucratic organizations in privilege and power are vested in senior management (Blanken, 2013).

Command and control are by far the most common leadership style. Most of today's leaders were mentored themselves by command and control managers, and the culture of most organizations is still based on command and control norms. It is difficult to escape this leadership style's historic influence and dominance.

Laissez-Faire leaders are individuals who know what is happening but not directly involved in it. Their vision lives on in the work of others, inspired by their leadership (Blanken, 2013; Ekmekci & Tosunoglu, 2016; Jarc, 2015).

Laissez-faire leadership is a non-authoritarian style of leading people, where leaders try to give the least possible guidance to their subordinates and achieve control through less

obvious means (Robert & Vandenberghe, 2020). These leaders believe that people would excel if left alone to respond to their obligations and responsibilities in their own ways. Laissez faire is also known as delegative leadership, it sees leaders being hand-off and allow group members to do some decision-making. Kurt lewin, a contributor to social psychology, is often credited as the developer of the laissez faire leadership concept. He identified laissez faire leadership as the opposite of autocratic leadership whereby the Chief Executive Officer (CEO) makes most of the decisions and relies on his subordinates to carry out instructions. Lewin, et al, deduced that neither laissez faire nor autocratic leaders styles were ideal and rather concluded that the optimal style is democratic leadership (J.Cris, 2015).

Pace Setter Leaders are individuals who set high performance standards for self and the group. They know that when staff are self-motivated and highly skilled, they can embrace new projects and move with speed (Blanken, 2013).

The phrase that best describes the operating mode of the pacesetting leader is "Do as I do, and do it now". That is because this style involves a drive to achieve initiatives, and a drive to achieve results. Pacesetters set high standards for themselves and those they are leading. One of the key attributes of a pacesetting leader is that they lead by example. They don't ask their followers to do anything they would not do themselves. They are also quick to identify individuals that are not keeping pace with their expectations. Pacesetters do not give employees a lot of positive feedback; they simply do not have the time. He is obsessive about doing things better and faster (never satisfied with the status quo), and he asks the same of everyone around him. He is intolerant of poor performers and demanding more from them - and if improvements are not forthcoming, terminates them. Also, pacesetters tend to have trouble trusting their followers. Their self-esteem rests on being smarter, faster and more thorough than everyone else. Normally, the followers of a pacesetter leaders are technically skilled, highly motivated, and competent; already fit with the pacesetter's expectations (Henson, 2013).

Servant leaders are persons who put service to others before self-interest. They stay out of limelight and let the team accept credit for results (Blanken, 2013).

The idea of servant leadership goes back at least two thousand years ago, while the modern servant leadership movement was launched by Robert K. Greenleaf in 1970 with his classic essay, *The Servant as Leader.* It was in this article that he coined the words "servant-leader" and "servant-leadership". Greenleaf said that "the servant-leader is servant first" and

that he has a "servant's heart". It is not about being servile; it is about wanting to help others. It is about identifying and meeting the needs of colleagues, customers, and communities. Greenleaf said that a single characteristic of the servant-leader that stands out in Greenleaf's essay, it is the *desire to serve.* Greenleaf describes servant-leaders as people who initiate action, are goal-oriented, are dreamers of great dreams, are good communicators, are able to withdraw and re-orient themselves, and are dependable, trusted, creative, intuitive, empowering and developing people, humble, authentic, providing direction and stewardship (Keith, 2017).

Situational Leaders are persons who link behavior with group's readiness. They include being directing and supportive, while empowering and coaching (Blanken, 2013). Situational Leadership Theory is the short form for "Hersey-Blanchard Situational Leadership Theory" and draws major views from contingency thinking. As the name implies, leadership depends upon each individual situation, and no single leadership style can be considered the best. For Hershey and Blanchard, tasks are different and each type of task requires a different leadership style. A good leader will be able to adapt her or his leadership to the goals or objectives to be accomplished. Goal setting, capacity to assume responsibility, education, and experience are main factors that make a leader successful. Not only is the leadership style important for a successful leader-led situation but the ability or maturity of those being led is a critical factor as well. Leadership techniques fall out of the leader pairing her or his leadership style to the maturity level of the group.

3. Methodology

The descriptive-evaluative method to describe people who take part in the study (Fraenkel, 2007) was utilized. There were fifteen (15) LUCs in the region listed in the Commission on Higher Education (2017) which include City College of Tagaytay, Trece Martires City College, Balian Community College, City College of Calamba, Dalubhasaan ng Lungsod ng San Pablo, Laguna University, Pamantasan ng Cabuyao, Colegio ng Lungsod ng Batangas, Kolehiyo ng Lungsod ng Lipa, Tanauan City College, Antipolo Institute of Technology, Colegio de Montalban, San Mateo Municipal College, Dalubhasaan ng Lungsod

ng Lucena and Pambayang Kolehiyo ng Mauban. These colleges and universities were represented by a total of 111 administrators as the main respondents.

The study used a self-made questionnaire in a 5-point Likert-scale type. The pilot testing was conducted with ten (10) administrators as participants. The Cronbach's Alpha was also utilized to determine the extent or range of error correction. Subsequently, the instrument was corrected and validated before distribution to the target respondents.

The researcher set schedule for the administration of the instruments and personally conducted the data gathering. Only those who were present were considered participants.

The Weighted Mean and Single Factor ANOVA was used for data analysis. The following were the verbal interpretation of the responses:

5	Very Good (VG)	The leadership practices are observed from 81-100%.
4	Good (G)	The leadership practices are observed from 61-80%.
3	Satisfactory (S)	The leadership practices are observed from 41-60%.
2	Fair (F)	The leadership practices are observed from 21-40%.
1	Poor (P)	The leadership practices are observed from 1-20%.

4. Findings and Discussion

Table 1
Leadership Style Practices as to Charismatic Leaders

Indicators	WM	QD
The administrators …		
1. Provide inspiring and strategic management goals.	4.32	VG
2. Able to motivate by articulating effectively the importance of what organizational members are doing.	4.31	VG
3. Consistently generate new ideas for the future of the organization.	4.32	VG
4. Have vision and often brings up ideas about possibilities for the future.	4.37	VG
5. Seize new opportunities in order to achieve goals.	4.27	VG
6. Readily recognize new environmental opportunities (favorable physical and social conditions) that may facilitate achievement of organizational objectives.	4.25	VG
Average Weighted Mean	**4.31**	**VG**

Table 1 shows the frequency and weighted mean distribution of the responses on leadership style practices as to charismatic leaders.

The general weighted mean is 4.31 with a verbal interpretation of "Very Good." This implies that the administrators highly practice this type of leadership. This is evident on the highest indicators, which are statement nos. 1, 2, 3, and 4 with weighted means of 4.32, 4.31, 4.32, and 4.37, respectively. It amplifies that the administrators provide inspiring and strategic management goals, able to motivate by articulating effectively the importance of what organizational members are doing, consistently generate new ideas for the future of the organization, and have vision and often brings up ideas about possibilities for the future.

The lowest indicators are item nos. 5 and 6 with weighted means of 4.27 and 4.25, respectively. It reveals that the administrators seize new opportunities in order to achieve goals and readily recognize new environmental opportunities (favorable physical and social conditions) that may facilitate achievement of organizational objectives.

As stated by Blanken (2013), charismatic leaders are individuals who influence others through power of personality, act energetically, and motivate others to move forward. Charismatic leaders possess certain qualities that inspire people and encourage devotion to a certain cause. It is very evident that the respondents rated *very good* all the administrators of the LUCs in CALABARZON.

Table 2
Leadership Style Practices as to Innovative Leaders

Indicators	WM	QD
The administrators …		
1. Are comfortable with uncertainty and have open mind.	4.27	VG
2. Are receptive to ideas from very different disciplines.	4.31	VG
3. Have the tools and skills to pinpoint and manage the risks inherent in innovation.	4.17	G
4. Are capable of adapting their behaviors to the requirements of certain situations that might appear.	4.30	VG
5. Have to be able to mobilize and motivate the team and make it aim towards "new."	4.25	VG
6. Have the abilities and qualities in order to push for innovation in the activity field of the organization.	4.27	VG
Average Weighted Mean	**4.26**	**VG**

Table 2 shows the frequency and weighted mean distribution of the responses on leadership style practices as to innovative leaders. The general weighted mean is 4.26 with a verbal interpretation of "Very Good." This implies that this leadership style is practiced by the school administrators with 'very good' rating.

The highest rates are on statement nos. 1, 2, 4 and 6 with weighted means of 4.27, 4.31, 4.30, and 4.27, respectively. It elicited that the administrators are comfortable with uncertainty and have open mind, are receptive to ideas from very different disciplines, are capable of adapting their behaviors to the requirements of certain situations that might appear, and have the abilities and qualities in order to push for innovation in the activity field of the organization. The lowest rates are on item nos. 3 and 5 with weighted means of 4.17 and 4.25, respectively. This exemplifies that the administrators have the tools and skills to pinpoint and manage the risks inherent in innovation, and have to be able to mobilize and motivate the team and make it aim towards "new."

Innovative leaders are individuals who can grasp the entire situation and go beyond the usual course of action. They can see what is not working and bring new thinking and action into play. Innovative leaders know when to break intractable issues and create a work climate for others to apply innovative thinking to solve problems, develop new products and services (Blanken, 2013). Indicator number three got a score of only *good*, which means that the tools and skills to pinpoint and manage the risks inherent in innovation were not that satisfactory for the respondents.

Table 3 shows the frequency and weighted mean distribution of the responses on leadership style practices as to command and control leadership. The general weighted mean is 4.17 with a verbal interpretation of "Good." This implies that this leadership style is practiced by the school administrators with 'good' rating.

The top scorers are statement nos. 1, 4, 6 and 7 with weighted means of 4.19, 4.17, 4.25, and 4.22, respectively. It revealed that the administrators decide based on the collective behavior in an organization, establish the conditions under which sense making and execution take place, employ approaches that are appropriate for different sets of purposes or circumstances, and utilize approaches that may be taken by different sets of entities in an enterprise, may change over time.

Table 3

Leadership Style Practices as to Command and Control Leaders

Indicators	WM	QD
The administrators …		
1. Decide based on the collective behavior in an organization.	4.19	G
2. Apply to endeavors undertaken by collections of individuals and organizations of vastly different characteristics and sizes for many different purposes.	4.12	G
3. Determine the bounds within which behavior(s) are to take place, not the specific behaviors themselves.	4.16	G
4. Establish the conditions under which sense making and execution take place.	4.17	G
5. Apply to all subsets of an enterprise, to the functions performed, to the levels of organizations, to the focus of the activity, whether strategic or tactical.	4.11	G
6. Employ approaches that are appropriate for different sets of purposes or circumstances.	4.25	VG
7. Utilize approaches that may be taken by different sets of entities in an enterprise, may change over time.	4.22	VG
Average Weighted Mean	**4.17**	**G**

The bottom scorers are statement nos. 2, 3, and 5 with weighted means of 4.12, 4.16, and 4.11, respectively. This illustrates that the administrators apply to endeavors undertaken by collections of individuals and organizations of vastly different characteristics and sizes for many different purposes, determine the bounds within which behavior(s) are to take place, not the specific behaviors themselves, and apply to all subsets of an enterprise, to the functions performed, to the levels of organizations, to the focus of the activity, whether strategic or tactical.

Command and control leader is a person who learned to adapt leadership style to improve his relationship with his team but never lost sight of his goal: win! He/she is a person who demands immediate compliance, the sole decision maker, and engages in top-down interactions. He/she follows the rules and expects others to do the same.

Table 4

Leadership Style Practices as to Laissez-Faire Leaders

Indicators	WM	QD
The administrators …		
1. Should allow members work out problems on their own.	3.91	G
2. Are required staying out of the way of members as they do their work.	3.84	G
3. Should allow members to appraise their own work.	3.99	G
4. Should grant members complete freedom to solve problems on their own.	3.89	G
5. Prefer little input from the leader.	3.65	G
6. Leave members alone.	3.34	S
7. Encourage teamwork among members.	4.34	VG
Average Weighted Mean	**3.85**	**G**

Table 4 shows the frequency and weighted mean distribution of the responses on leadership style practices as to laissez-faire leaders. The general weighted mean is 3.85 with a verbal interpretation of "Good." This implies that this leadership style of the school administrators gained a good rating.

The highest items are nos. 1, 3, 4, and 7 with weighted means of 3.91, 3.99, 3.89, and 4.34, respectively. It shows that the administrators should allow members work out problems on their own, should allow members to appraise their own work, should grant members complete freedom to solve problems on their own, and encourage teamwork among members.

The lowest items are nos. 2, 5, and 6 with weighted means of 3.84, 3.65, and 3.34, respectively. This explains that the administrators are required staying out of the way of members as they do their work, prefer little input from the leader, and leave members alone.

Laissez-Faire leaders are individuals who know what is happening but not directly involved in it. They vision lives on in the work of others, inspired by their leadership (Blanken, 2013). Also, by definition, laissez faire leadership is a non-authoritarian style of leading people, where leaders try to give the least possible guidance to their subordinates and achieve control through less obvious means. These type of leaders believe that people would excel if left alone to respond to their obligations and responsibilities in their own ways. Laissez faire is also known as delegated leadership; it sees leaders being hand-off and allows group members to do some decision-making. This is what the researcher found out, that the respondents rated low when it comes to the indicator that members are left alone. It practically means that

majority of the LUCs administrators are hands-on and aware of what is going on in the institution.

Table 5

Leadership Style Practices as to Pace Setter Leaders

Indicators	WM	QD
The administrators …		
1. Feel overwhelmed by the pacesetter's demand for excellence.	4.17	G
2. Set collaborative standards.	4.27	VG
3. Achieve the target most of the time.	4.20	VG
4. Are obsessed with doing things better and faster than everyone.	3.95	G
5. Expect subordinate to excel in the same way as he does.	3.97	G
6. Expect subordinate to excel in the same way as he does.	3.73	G
7. Make feedback practically no-existent.	3.57	G
Average Weighted Mean	**3.98**	**G**

Table 5 shows the frequency and weighted mean distribution of the responses on leadership style practices as to **pace setter leaders.** The general weighted mean is 3.98 with a verbal interpretation of "Good." This leadership style is practiced by the school administrators with a good rating.

The top indicators are statement nos. 1, 2, and 3 with weighted means of 4.17, 4.27, and 4.20, respectively. It connotes that the administrators feel overwhelmed by the pacesetter's demand for excellence, set collaborative standards, and achieve the target most of the time. The bottom indicators are statement nos. 4, 5, 6, and 7 with weighted means of 3.95, 3.97, 3.73, and 3.57, respectively. It shows that the administrators are obsessed with doing things better and faster than everyone, expect subordinate to excel in the same way as he does, expect subordinate to excel in the same way as he does, and make feedback practically no-existent.

Pacesetter leaders are individuals who set high performance standards for self and the group. They know that when staff are self-motivated and highly skilled, they can embrace new projects and move with speed. The operating mode of the pace setter leader is "Do as I do, and do it now". Pacesetters set high standards for themselves and those they are leading. They do not ask their followers to do anything they would not do themselves. They are obsessed on doing things better and faster (never satisfied with the status quo) (Henson, 2013). This means

that the LUCs administrators are simply good when it comes to being a pacesetter leader. It is obvious that they still have to consult the higher authorities before they actually act on one program.

Table 6

Leadership Style Practices as to Servant Leaders

Indicators	WM	QD
The administrators …		
1. Give others the responsibility to make important decisions about their own jobs.	4.13	G
2. Encourage others to handle important work decisions on their own.	4.15	G
3. Have a thorough understanding of the organization and its goals.	4.49	VG
4. Give others the freedom to handle difficult situations in the way they feel is best.	4.18	G
5. Provide others with work experiences that enable them to develop new skills.	4.30	VG
6. Sacrifice his/her own interests to meet others' needs.	4.09	G
7. Can recognize when others are feeling down without asking them.	4.14	G
Average Weighted Mean	**4.21**	**VG**

Table 6 shows the frequency and weighted mean distribution of the responses on leadership style practices as to **servant leaders.** The general weighted mean is 4.21 with a verbal interpretation of "Very Good." This implies that these leadership style practices of the school administrators gained a very good rating.

The highest rates are on item nos. 3 and 5 with weighted means of 4.49 and 4.30, respectively. This illuminates that the administrators have a thorough understanding of the organization and its goals and provide others with work experiences that enable them to develop new skills.

The lowest rates are on item nos. 1, 2, 4, 6 and 7 with weighted means of 4.13, 4.15, 4.18, 4.09, and 4.14, respectively. This illustrates that the administrators give others the responsibility to make important decisions about their own jobs, encourage others to handle important work decisions on their own, give others the freedom to handle difficult situations in the way they feel is best, sacrifice his/her own interests to meet others' needs, and can recognize when others are feeling down without asking them.

Servant leaders are persons who put service to others before self-interest. They stay out of limelight and let the team accept credit for results (Blanken, 2013). While according to Robert K. Greenleaf, the person who coined servant leadership, stated that "the servant-leader is servant first" and that he has a "servant's heart". It is not about being servile; it is about wanting to help others (Keith, 2017).

This proves true that the leadership of LUCs in the CALABARZON region were rated 'very good' by the respondents since most of them are civil servant administrators. They are trained to practice servant leadership although there are some indicators that were only rated good by the respondents.

Table 7

Leadership Style Practices as to Situational Leaders

Indicators	WM	QD
The administrators …		
1. Are willing to take responsibility for directing their own behavior.	4.33	VG
2. Reduce task behavior and increase relationship behavior.	4.10	G
3. Spend more time directing the person in what to do and how, when, and where to do it, than providing socioemotional support and reinforcement.	3.81	G
4. Develop the follower slowly, using a little less task behavior and a little more relationship behavior as the follower increases in readiness.	3.92	G
5. Reduce a little of the structure or direction (task behavior) by giving the follower an opportunity to assume some increased responsibility.	4.09	G
6. Reinforce the behavior with increases in relationship behavior.	4.14	G
Average Weighted Mean	**4.07**	**G**

Table 7 below shows the frequency and weighted mean distribution of the responses on leadership style practices as to situational leaders. The general weighted mean is 4.07 with a verbal interpretation of "Good." This implied that the leadership style practices of the school administrators gained a good rating.

The top scorers are item nos. 1, 2, 5, and 6 with weighted means of 4.33, 4.10, 4.09 and 4.14, respectively. It indicates that the administrators are willing to take responsibility for directing their own behavior, reduce task behavior and increase relationship behavior, reduce a little of the structure or direction (task behavior) by giving the follower an opportunity to assume some increased responsibility, and reinforce the behavior with increases in relationship behavior.

The bottom scorers are item nos. 3 and 4 with weighted means of 3.81 and 3.92, respectively. It amplifies that the administrators spend more time directing the person in what to do and how, when, and where to do it, than providing socio-emotional support and reinforcement, and develop the follower slowly, using a little less task behavior and a little more relationship behavior as the follower increases in readiness.

Situational Leaders are persons who link behavior with group's readiness. They include being directing and supportive, while empowering and coaching (Blanken, 2013). While Hersey-Blanchard Situational Theory stated that leadership depends upon each individual situation, and no single leadership style can be considered the best. However, the respondents rated most of the indicators simply good, which probably according to them, some of the administrators were not very good when it comes to situational leadership.

Table 8

Differences of the Responses on Leadership Style Practices When Grouped As to Provinces

	Sum of Squares	df	Mean Square	F	Sig	Analysis
Charismatic between groups	193.44	4	48.36	3.58	.01	S
Within groups	1392.19	103	13.52			
Total	1585.63	107				
Innovative between groups	135.20	4	33.80	2.12	.08	NS
Within groups	1677.86	105	15.98			
Total	1813.06	109				
Command & control between groups	362.33	4	90.58	4.65	.01	S
Within groups	2005.77	103	19.47			
Total	2368.10	107				
Laissez faire between groups	287.15	4	71.79	3.12	.02	NS
Within groups	2302.70	100	23.03			
Total	2589.85	104				
Pace setter between groups	174.03	4	43.51	1.95	.11	NS
Within groups	2119.76	95	22.31			
Total	2293.79	99				
Servant between groups	260.48	4	65.12	3.15	.02	NS
Within groups	2171.02	105	20.68			
Total	2431.50	109				
Situational between groups	205.12	4	51.28	2.88	.03	NS
Within groups	1850.70	104	17.80			
Total	2055.82	108				

*F critical value @0.01 level (2-tailed) = 3.41

Table 8 shows the differences of the responses on leadership style practices when grouped as to provinces. In terms of charismatic and command and control, the F computed values are all far greater than the F critical value of 3.41. Thus, the null hypothesis is rejected.

There exists a significant difference on the responses on leadership style practices when grouped as to provinces.

As contrasted, along with innovative, laissez-faire, pace setter, servant, and situational, the F computed values are all far less than the F critical value of 3.41. Thus, the null hypothesis is accepted. There is no significant difference in the responses on leadership style practices when grouped as to provinces.

5. Conclusion

The leadership style practices of the school administrators showed very good manifestations of charismatic, innovative and servant leadership styles while good evidence of command and control, laissez-faire, pace-setter and situational leadership styles. The differences of the responses on leadership style practices when grouped as to provinces, in terms of charismatic and command and control, the F computed values were all far greater than the F critical value of 3.41. Thus, the null hypothesis is rejected. As contrasted, along with innovative, laissez-faire, pace setter, servant, and situational, the F computed values were all far less than the F critical value of 3.41. Thus, the null hypothesis is accepted. Correspondingly, there is no significant difference in the responses on leadership styles of LUCs administrators in the CALABARZON region when grouped as to provinces.

Though the leadership style practices of the school administrators are perceived good, efforts may be directed by leaving members alone as they perform their tasks to further strengthen trust through laissez-faire leadership since people are the lifeblood of the organization, thus, they must be valued. In addition, as leaders of educational institutions, they should employ approaches that are appropriate for different sets of purposes or circumstances to further improve the relationship with his team following the command and control leadership. With regards to situational leadership which also got a good rating, the school administrators should provide socio-emotional support and reinforcement, and develop followers slowly using a little more relationship behaviour as the follower increases in readiness. Finally, a sustainable leadership program based from the results and findings is recommended to be developed. The program can serve as a guide to the LUCs administrators and reference to other researchers in the near future.

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Increasing Students' Mastery in Mathematics 6 through "I Love Math!"
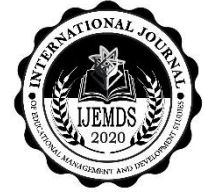
Maricon V. Estrellado

Abstract

This study used the quasi-experimental method of research to assess the effectiveness of the interactive learning module "I Love Math!" in teaching Grade 6 mathematics. It considered the results of the pretest and post-test given to 45 Grade Six-Humble learners in evaluating their mastery level in Math, in each of the 5 content areas in terms of number & number sense, geometry, patterns & algebra, measurement and, statistics & probability to determine significant difference in the mastery level before and after the utilization of I Love Math. Furthermore, the descriptive-survey method was also employed in the analysis of the significant difference in the mastery level when classified according to preferred learning styles. Results showed that the performance was improved from the Pretest Mean of 12.27 and 31. 35% MPS to 30.82 as the mean and 75.40% MPS. On the preferred learning styles, more students (33%) had the preference to two or more learning styles. There was no significant difference in the mastery level in each of the 5 content areas in Mathematics 6 when they were classified according to their preferred learning styles. The findings denoted the importance of ICT-interventions like "I Love Math!" especially in the initial years of Kto12 Curriculum implementation.

Keywords:

interactive learning module, learning styles, mastery level, Mathematics 6

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1. Introduction

Mathematics is described by the Philippines Department of Education (DepEd) (2013) as "*one subject that pervades life at any age and in any circumstance*." Yet, most learners exhibit unfavorable performance and negative attitude towards Mathematics. For instance, Kennedy (2019) cites that 17% of the Americans have math anxiety which leads to negative attitudes towards math as early as first grade. The same holds true in the Philippine context where students' attitude (Callaman & Itaas, 2020) and study habits (Capuno et.al, 2019) are significant factors in mathematics performance. One of the factors for students' liking and disliking of mathematics is instructional factor (Mazana, Montero & Casmir, 2019). However, the use of interactive tools in mathematics increase students' achievement (Yeh et.al, 2019).

In the Philippines, it was on June 2017 when grade six level phased into the K to 12 Basic Education Curriculum. As a standard, a K to 12 pupil must master the newly prescribed competencies in the five content areas in the curriculum which include number and number sense, measurement, geometry, patterns and algebra and probability and statistics (MATHTED & SEI, 2010). The establishment of the firm numerical foundation will equip the young mathletes' concepts and skills essential at present life and in the more challenging years to come. However, the elementary schools nationwide could hardly catch up with the demands of the new curriculum. For instance, in Bukal Sur Elementary School in the Quezon Province, the Grade 6 Mean Percentage Score (MPS) was 51.6% for Year 2015, Quarter 1, 47.54% for Year 2016 and 50.24% for Year 2017 (TMEPA 2015-2018). This fluctuating results, which is far behind the standard of 75%, signified the implementation of an intervention.

Having struggles brought by the initial year of curriculum shift, the researcher deemed the significance to use an ICT-integrated instructional material aligned to the contents of the new curriculum. Hence, the research-based interactive learning module entitled "I Love Math!" was hereby utilized. Using experimental research method, this study assessed any significant difference in the mastery level of the Grade 6 students in number and number sense, geometry, patterns and algebra, measurement and statistics and probability. It also evaluated the learner's preferred styles of learning in terms of activist, reflector, theorist and pragmatist to determine any significant difference in the mastery level of the students.

2. Literature review

2.1. The K to 12 Mathematics Content Areas

The K to 12 Mathematics is a skill subject. It is likewise an instrument subject like in Science and in language. Mathematics is comprised of its very own notations and symbols and "grammar" rules, with which concepts and ideas are effectively expressed (K to 12 Mathematics Guide, 2013).

The K to 12 Mathematics five content areas includes number and number sense, measurement, geometry, patterns & algebra and statistics and probability. (1) Number and Number Sense as a strand include concepts of numbers, properties, operations, estimation and their applications. (2) Measurement includes the use of numbers and measure to describe, understand and compare mathematical and concrete objects. It focuses on attributes such as length, mass and weight, capacity, time, money, and temperature, as well as applications involving perimeter, area, surface area, volume and angle measure. (3) Geometry comprises of two- and three-dimensional figures and their relationships, spatial visualization, reasoning and geometric modelling and proofs. In (4) Patterns and Algebra, studies are about patterns, relationships, and changes among shapes and quantities. It includes the use of algebraic notations and symbols, equations and most importantly, functions, to represent and analyze relationships. Last, (5) Statistics and Probability is all about developing skills in collecting and organizing data using charts, tables and graphs; understanding, analyzing and interpreting data; dealing with uncertainty; and making predictions about outcomes (K to 12 Mathematics Guide, 2013).

2.2. Learning styles

Learning style refers to the learners' unique ways of understanding. Technically, an individual learning style refers to the preferential way in which the student absorbs, processes, comprehends and retains information (Nollen, 2015).

The study is based on the learning styles model developed by Peter Honey and Alan Mumford. These are activist, reflector, theorist, and pragmatist. Honey and Mumford developed these learning styles, based upon the work of David Kolb's Experiential Learning Cycle.

Kolb's learning cycle proposed that people learn from experience in a cyclical way. Moreover, to learn effectively, a person must keep moving around this cycle of experiencing, reviewing, concluding and planning. Most especially for the non-numerates, completing each stage is vital as it may improve learning in the succeeding stages (Rosewell, 2005).

In connection, Honey and Mumford pointed out that there is an association between the learning cycle and learning styles. Peter Honey once emphasized that learning to learn is the most important capability since it provides the gateway to everything else a person want to develop and that how to learn is the key, if not, the key life skill itself.

To further analyze the learning style-cycle, here is an excerpt of Honey and Mumford's (1982) original definitions and the connections to the Kolb's Learning Cycle are as follows:

Activists involve themselves fully and without bias in new experiences. They enjoy the here and now, and are happy to be dominated by immediate experiences. They are open-minded, not skeptical, and this tends to make them enthusiastic about anything new. Their philosophy is: "I'll try anything once". They tend to act first and consider the consequences afterwards. In Kolb's Learning Cycle, these activist style refers to experiencing in which learners prefer learning by doing and by experiencing through various indoor and outdoor activities like games, individual and group works and the like.

Reflectors like to stand back to ponder experiences and observe them from many different perspectives. They collect data, both first hand and from others, and prefer to think about it thoroughly before coming to a conclusion. The thorough collection and analysis of data about experiences and events is what counts so they tend to postpone reaching definitive conclusions for as long as possible. Their philosophy is to be cautious. They are thoughtful people who like to consider all possible angles and implications before making a move. In Kolb's Learning Cycle, this reflector style refers to reviewing. These learners prefer learning through observations and reflections. They may directly observe an actual demonstration or performance, listen to a step-by-step procedure or instruction, or watch educational or tutorial videos. Then, reviewing and reflecting on the presented learnings come after these observations.

Theorists adapt and integrate observations into complex but logically sound theories. They think problems through in a vertical, step-by-step logical way. They assimilate disparate facts into coherent theories. They tend to be perfectionists who will not rest easy until things are tidy and fit into a rational scheme. They like to analyze and synthesize. They are keen on basic assumptions, principles, theories models and systems thinking. Their philosophy prizes rationality and logic. "If it's logical it's good." In Kolb's Learning Cycle, this theorist style refers to concluding. These learners prefer learning by understanding, analyzing and synthesizing underlying reasons, models, concepts and relationships.

Pragmatists are keen on trying out ideas, theories and techniques to see if they work in practice. They positively search out new ideas and take the first opportunity to experiment with applications…They are essentially practical, down to earth people who like making practical decisions and solving problems. They respond to problems and opportunities 'as a challenge'. Their philosophy is "There is always a better way" and "If it works it's good". In Kolb's Learning Cycle, these pragmatist style refers to planning. These learners prefer learning by trying out things and see if they work. They also want to be engaged in problem solving in order to put learning in practice in connection and application to the real life situations.

These are the learning approaches that learners, numerates or non-numerates, usually prefer. In addition, to maximize mastery, each individual learner, especially non-numerate, must first understand his learning style and then, seek out opportunities to learn using that style. However, in becoming an effective learner or an instructional numerate moving towards achieving the mastery level, an individual should also develop the ability to learn in other styles too, moving around the learning cycle (Mobbs, 2013).

2.3. *"I Love Math" Interactive Learning Module*

To shed light on the problem of the school about the considerable numbers of non-numerates, the study considered the implications of the findings of the study in its resolution of utilizing an interactive learning module which is entitled "I Love Math."

"I LOVE MATH!" which is a simple web application, which provides an environment for learners to interact with the learning activity, and learn by watching the animation or visual information (Jamwell, 2012). This web page is developed through Hyper Text Markup Language (HTML) as the most widely used language on web.

"I LOVE MATH!" covers the competencies in the five content areas in Mathematics 6, namely: Number & Number Sense, Geometry, Patterns & Algebra, Measurement and Statistics & Probability. As an Interactive Learning Module, it adopts Honey & Mumford's Learning Style Cycle (1992) which was based on Kolb's Experiential Learning Cycle. Each of the competencies has four parts patterned after the four learning styles, namely: first, "Activist" Activity is named EXPERIENCE IT! in which learners will learn by-doing through indoor and outdoor activities; second, "Reflector" Activity is named REVIEW IT! in which learners will learn from observing, reviewing, watching videos and the like; third, "Theorist" Activity is named TRY IT! in which learners will analyze and synthesize learning through models, concepts, relationships, etc. and; fourth, "Pragmatist" Activity is named WORK ON IT! in which learners will engage in problem solving to put learning in practice in connection to the real world.

3. Methodology

The study used Quasi-Experimental method of research. It considered the results of the pretest and post-test given to the Grade Six-Humble learners in evaluating their mastery level in Math, in each of the 5 content areas in terms of number & number sense, geometry, patterns & algebra, measurement and, statistics & probability. The significant difference in the mastery level before and after the utilization of "I Love Math" was analyzed. Furthermore, this study also used the descriptive-survey method of research for the analysis of the significant difference in the mastery level when classified according to their preferred learning styles.

This study was conducted in Bukal Sur Elementary School where the researcher serves as an elementary grade teacher. This school adopts a departmentalized teaching from Grade 4 to Grade 6. In terms of curriculum innovations, the school had started to create and implement school continuous improvement projects in connection to the development of reading skills, as the first priority improvement area of the School Improvement Plan (SIP).

In determining the mastery level and the learning styles, the subjects of the study are the learners of Grade Six-Humble of Bukal Sur Elementary School. These participants were chosen to help them grasp the competencies in Mathematics towards building solid foundation

before they finally explore more advanced competencies in high school Mathematics. A total of 45 learners were the actual sources of data.

In the conduct of the study, the research utilized the District Numeracy Test for the mastery level and a survey questionnaire for the learning styles.

To determine the mastery level of the students, the District Numeracy Test, which is a 40-item test, included the five content areas of Mathematics 6. The number of items per content area was in accordance to the number of integrated competencies each area has. Hence, the validated 40-item test have 22 items for Number and Number Sense, 3 items for Geometry, 3 items for Patterns and Algebra, 7 items for Measurement and 5 items for Statistics and Probability. In connection, the District Numeracy Scale in determining index of mastery in Mathematics was adopted to identify the mastery level in each of the five content areas, namely: 0% - 49% is Mastery Least (ML); 50% - 74% is Nearing Mastery (NM) and; 75% - 100% is Mastery (M).

To describe the learning styles of the respondents, the Honey and Mumford's (1992) Learning Style Questionnaire, which was designed to find out learning style preferences, was adopted. There are no right or wrong answers in this 80-item questionnaire. There were 20 statements per learning style. The respondents tick (/)the number of the item which they agree more than disagree; otherwise, cross (x) if disagreed more than agree. To identify the preferred learning styles of the respondents, the following was used as suggested by Honey and Mumford (1992):

7 out of 20 or above -   Prefers ACTIVIST Learning Style

12 out of 20 or above -   Prefers REFLECTOR Learning Style

11 out of 20 or above -   Prefers THEORIST Learning Style

12 out of 20 or above -   Prefers PRAGMATIST Learning Style

To gather all the necessary data, permission was requested from the school head. Upon the approval, the administration of the research instrument followed. Participants, who took the test and answered the learning styles survey-questionnaire, were gathered in one room. Separate session was done for the test and for the survey questionnaire. The researcher personally administered the data gathering so that queries of the respondents were answered at

once. After the administration of the instrument, the researcher retrieved the accomplished copies of the research instruments for analysis and interpretation.

After collecting the data, measurements were needed to interpret and analyze the facts through statistical treatments such as simple arithmetic mean, percentage and t-test for paired samples with two-tailed and 0.05 margin of error. Simplified Statistics for Beginners (SSB) Software was used to aid in the calculations.

4. Results and Discussion

Table 1
Mastery Level in the five content areas in mathematics during pretest and posttest

	Mean	MPS	Mastery Level per Content Area
Pretest	12.27	31.35%	NM - Number & Number Sense
Posttest	30.82	75.40%	M – Number & Number Sense, Geometry
			NM – Measurement, Patterns & Algebra, Statistics & Probability

The Pretest results revealed that the mastery levels of the respondents were nearing master in number & number sense, while mastery least in the other four content areas. While, the posttest results showed that the respondents had mastery in the number & number sense and in geometry, and nearing mastery in the other three content areas. The performance was improved from the pretest mean of 12.27 and 31. 35% MPS to 30.82 mean and 75.40% MPS.

Table 2
Learning styles of the students

Learning style	F	%
Activists	14	31
Reflectors	13	28
Theorists	5	11
Pragmatists	3	7
Two or more learning styles	15	33

Regarding the preferred learning styles of the 45 respondents, 14 or 31% were activists, 13 or 28% were reflectors, 5 or 11% were theorists, 3 or 7% were pragmatists and 15 or 33% had the preference to two or more learning styles.

Table 3
The significant difference in the mastery level of the respondents in number and number sense when classified according to preferred learning styles

Source of Variation	Sum of Squares	df	Mean Square	Computed F-Value	Critical F-Value	Decision	Impression
Between	6.76	4	1.691				
Within	196.98	50	3.940	0.429	3.72	Accept H_0	Not Significant
Total	203.75	54					

Results show that the calculated F-value 0.429 is less than the critical F-value 3.72 for a two-tailed at .05 level of significance. Hence, the null hypothesis is accepted. This indicates that there is no significant difference in the mastery level of the respondents in Number and Number Sense when they are classified according to their preferred learning styles. It implies that appropriateness of learning styles in teaching-learning Number and Number Sense competencies does not directly influence mastery level.

Table 4
The Significant Difference in the Mastery Level of the Respondents in Geometry when Classified According to Preferred Learning Styles

Source of Variation	Sum of Squares	Df	Mean Square	Computed F-Value	Critical F-Value	Decision	Impression
Between	0.25	4	0.061				
Within	31.10	50	0.622	0.099	3.72	Accept H_0	Not Significant
Total	31.35	54					

The table shows that the computed F-value 0.099 is below the critical F-value 3.72 for a two-tailed at 0.5 level of significance. Therefore, the null hypothesis is accepted. This specifies that there is no significant difference in the mastery level of the respondents in Geometry when they are grouped according to their preferred learning styles. It denotes that the learning styles of the non-numerate respondents do not influence their mastery of Geometry competencies.

Table 5
The Significant Difference in the Mastery Level of the Respondents in Patterns & Algebra when Classified According to Preferred Learning Styles

Source of Variation	Sum of Squares	Df	Mean Square	Computed F-Value	Critical F-Value	Decision	Impression
Between	1.61	4	0.402				
Within	36.10	50	0.722	0.557	3.72	Accept H_0	Not Significant
Total	37.71	54					

Results indicate that the calculated F-value 0.557 is less than the critical F-value 3.72 for a two-tailed at .05 level of significance. Hence, the null hypothesis is accepted. This means that there is no significant difference in the mastery level of the respondents in Patterns and Algebra when they are classified according to their preferred learning styles. It suggests that suitability of learning styles in teaching-learning Patterns and Algebra competencies does not merely influence mastery level.

Table 6

The Significant Difference in the Mastery Level of the Respondents in Measurement when Classified According to Preferred Learning Styles

Source of Variation	Sum of Squares	Df	Mean Square	Computed F-Value	Critical F-Value	Decision	Impression
Between	3.35	4	0.838				
Within	36.28	50	0.726	1.155	3.72	Accept H_0	Not Significant
Total	39.64	54					

The table presents that the computed F-value 1.155 is below the critical F-value 3.72 for a two-tailed at 0.5 level of significance. Therefore, the null hypothesis is accepted. This denotes that there is no significant difference in the mastery level of the respondents in Measurement when they are grouped according to their preferred learning styles. It signifies that the preferred learning styles of the non-numerate respondents do not influence their mastery of Measurement competencies.

Table 7

The Significant Difference in the Mastery Level of the Respondents in Statistics & Probability when Classified According to Preferred Learning Styles

Source of Variation	Sum of Squares	df	Mean Square	Computed F-Value	Critical F-Value	Decision	Impression
Between	0.70	4	0.175				
Within	48.68	50	0.974	1.179	3.72	Accept H_0	Not Significant
Total	49.38	54					

To sum it up, it was found out that there is no significant difference in the mastery level in each of the five content areas in Mathematics 6 during the posttest when they were classified according to their preferred learning styles.

Table 8
T-Test on Finding the Significant Difference in the Pretest and Post Test Results

Variables Compared	Df	Means	Computed t-Value	Critical t-Value	Decision	Impression (@ 0.05Level of Significance)
Pretest (X1) &		12.27				
Posttest (X2) Results in Reading	44	30.82	16.81	2.08	Reject Ho	Significant

To strengthen the findings of the study, the researcher used T-Test for dependent /paired samples to analyze if the interactive learning module "I Love Math" was effective. It resulted into a computed t-value of 16.81 which is greater than the tabulated critical value (2.08). Hence, the decision is reject the null hypothesis. Therefore, "there is a significant difference in the pupils' performance when they took the pretest and post test." The findings denoted the importance of ICT-interventions like "I Love Math!," especially in the initial years of Kto12 Curriculum implementation.

Discussion

The developed research output entitled "I LOVE MATH!" or "ILM" primarily aims to aid teachers of Mathematics 6 in helping learners, especially the non-numerates, to acquire mastery of the learning competencies in the five content areas of Mathematics 6.

For the content basis, all of the five areas are incorporated into. These content areas of Mathematics 6 are Number & Number Sense, Geometry, Patterns & Algebra, Measurement and Statistics & Probability. Therefore, the K to 12 Mathematics Curriculum Guide (2013) serves as the blueprint of the ILM. In consonance to the aforementioned curriculum guide, all

the Number & Number Sense-related competencies are expected to be mastered by Grade Six pupils from the First Quarter up to the end of the Second Quarter; Geometry, Patterns & Algebra and some of Measurement competencies be mastered at the end of the Third Quarter; and the other Measurement and all the Statistics and Probability-related competencies be mastered at the end of the Fourth Quarter. (K to 12 Mathematics Curriculum Guide December 2013). Hence, if not completely mastered among all the learners after the expected timeframe, "I LOVE MATH!" will serve its purpose which is to aid teaching-learning process during remediation classes.

With regard the activities, it was found that the dominant preference of learning styles of the non-numerate respondents is the combination of two to four of the Activist, Reflector, Theorist and Pragmatist styles developed by Honey and Mumford (1992). Thus, it served as the framework of the learning module. Each of the competencies have four parts patterned to the four learning styles, namely: first, "Activist" Activity is named EXPERIENCE IT! in which learners will learn by-doing through indoor and outdoor activities; second, "Reflector" Activity is named REVIEW IT! in which learners will learn from observing, reviewing, watching videos and the like; third, "Theorist" Activity is named TRY IT! in which learners will analyze and synthesize learning through models, concepts, relationships, etc. and; fourth, "Pragmatist" Activity is named WORK ON IT! in which learners will engage in problem solving to put learning in practice in connection to the real world.

Recommended modifications in the interactive learning module were also realized as follows:

a) Font-size must be adjusted into a minimum of 40 depending on the font-style used

b) Colors must be adjusted especially some of the used backgrounds which prevents the convenient understanding of the context

c) Make the word problems more contextualized

d) Change the content of the activities in Patterns and Algebra to make it more suitable to the grade six level

e) Separate competencies that can still be sub-tasked

5. Conclusion

This study used the quasi-experimental method of research through pretest and post-test to evaluate the mastery level in math of the 45 grade 6 learners in in each of the 5 content areas in terms of number & number sense, geometry, patterns & algebra, measurement and, statistics & probability. The significant difference in the mastery level before and after the utilization of "I Love Math" was analyzed. It also used the descriptive-survey to classify the students' preferred learning styles. The District Numeracy Test for the mastery level and the Honey and Mumford's (1992) Learning Style Questionnaire were utilized.

Results of the study showed that Grade 6 learners performed quite better in the Mathematics competencies under Number & Number Sense, if compared with other four (4) content areas. Other than Number & Number Sense, learners can develop mastery in the competencies under Geometry that requires no solutions/ formulas, unlike in the other three (3) content areas. With the used of "I Love Math!" as an intervention material, the learners acquired overall mastery of the Mathematics competencies reaching the standard. The pragmatist learning style received the least preference among the non-numerate respondents. Whereas, more than thirds of the non-numerate respondents preferred two or more learning styles. Hence, the respondents must be engaged in learning activities crafted in varied learning styles or approaches to sustain interest. There is no significant difference in the mastery level of the respondents in the five content areas in Mathematics during the post-test when they were grouped according to their preferred learning styles. Hence, suitability of learning styles in teaching-learning competencies may still be incorporated, not for mere development of mastery but for the learners' attention and motivation. "I LOVE MATH!" ILM is created based on the assessed mastery levels and learning styles of the respondents. Hence, this ILM can be

used as a supplementary material to the school's Continuous Improvement Project in dealing with numeracy performance of the learners.

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The Integration of Transversal Competency in Key Stage 4 English Subjects

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Abstract

This research constitutes a relatively new area of competencies that has emerged from the current trend of Philippine Education. It aimed to analyze transversal competencies embedded in Key Stage 4 English subjects and examined whether these competencies were clearly expressed, stated, and articulated in actual practices. The study used mixed-method research design using the data triangulation method. The corpus of the study was composed of curriculum guides in Key Stage 4 selected English subjects, lesson plans, and transcription from classroom observations. The results revealed the integration of transversal competencies in the Key Stage 4 selected English subjects. However, these transversal competencies were hardly found. Yet, teachers provide opportunity but were not fully realized in the actual instruction. Pertinent recommendations were given to the system respondents, teachers, principals, and education stakeholders to uphold in-depth investigation and exploration of this matter.

Keywords:

 English, integration, Key Stage 4, transversal competencies

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1. Introduction

Philippines has undergone profound changes in education, especially with the signing of the Enhanced Basic Education Act of 2013 by the Senate and the House of Representatives. The Republic Act No. 10533 Section 4 states that the K to 12 Program covers 13 years of basic education with four (4) Key Stages wherein Key Stage 1 ranges from Kindergarten to Grade 3 while Key Stage 2 ranges from Grades 4 - 6. In that sequence, secondary education includes four (4) years of junior high school which is the Key Stage 3 and two (2) years of senior high school education which refers to the Key Stage 4. Among these stages, the Key Stage 4 puts a high premium on holistic development through knowledge transformation, skills, values and attitude development (Hidalgo et al. 2014). This level creates opportunities for successful learning to navigate life in a complex and ever-changing environment (Drake and Reid, 2018).

The holistic development calls for the transversal competence. The Philippines Basic Education Curriculum explicitly mentioned the transversal competency (TVC) through the statement, '*every graduate of basic education shall be an empowered individual who has learned... the competence to engage in work and be productive*...[and], the *capability to engage in autonomous, creative, and critical thinking*...(Section 2, Republic Act 10533), as part of the goal of nurturing the 'holistically developed Filipino' (DepEd, 2016). In addition, Asia-Pacific Education Research Institutes Network (ERI-Net) identified the term transversal competency reflected in the Four Pillars of Education- one of the frameworks of K to 12 curriculum.

According to Ercikan and Oliveri (2016), transversal competency refers to the combination of skills which the learners should possess to cope up in modern society and workforce. It includes critical and innovative thinking, interpersonal skills, intrapersonal skills, global citizenship and media and literacy (Hidalgo, et al., 2014). With the transversal competencies integrated in Key Stage 4, the current education will produce holistically developed Filipinos who have 21st century skills and are prepared for higher education, middle-level skills development, employment, and entrepreneurship.

Despite the importance of transversal competencies, there are limited researches currently conducted in the Philippines. Of the few conducted, Care (2019) analyzed the Philippine K to 12 curriculum and found challenges in the definitional, operational and systemic matter which hinders the study and implementation of transversal competency. Moreover, an exploratory study of Bustos and Marabe (2016) was also conducted. It

considered the policies, plans, legislation, curriculum and possible challenges on assessing transversal competencies at school of Junior High School (Key Stage 3). Furthermore, Hidalgo, et al. (2014) also conducted a case study regarding the integration of transversal competencies in the Philippine education policy. It is an attempt to look into the skills embedded and expressed in actual teaching practices. The possibility of transversal competencies was also found. However, due to time constraints, the data in terms of the translation of skills into actual practices were not collected.

Given the aforementioned gaps observed, this study delves into the analysis of transversal competencies in English subjects. It aimed to examine the transversal skills embedded in the Philippine curriculum. Similarly, it is important to note whether the transversal skills identified are articulated and translated into actual teaching practices. By means of triangulation method, it is possible to capture different dimensions in the study from the same phenomenon using multiple data sources (Carter, et al., 2014). It conceived ideas and established keystones to identify methods in integrating transversal competence in Key Stage 4 of the Philippine curriculum. These methods are the set of teaching strategies identified during the conduct of the study which were enhanced to conform to the needs of the competencies embedded in the English subjects of Key Stage 4. Thus, it may be reflected or deviated in actual teaching practices. Curriculum developers and education stakeholders, in general, can use the information as an indirect recommendation for the globally changing society.

This study analyzed the transversal competencies identified in the Key Stage 4 English subjects in terms of critical thinking, collaboration and problem-solving. It also examined whether the transversal competencies are clearly expressed, stated and articulated in actual practices as evident in the planning and preparation as well as the instruction. Although transversal competencies were already integrated in the Philippine educational policy, the question remains whether it is translated explicitly in the curriculum guides, actual teaching process and lesson planning.

2. Literature review

2.1. Transversal Competency in the Philippines

On 2013, the Asia-Pacific Education Research Institutes Network (ERI-Net, 2015) begun an investigation on the process of introducing policy and curriculum changes. There were various terminologies referring to "non-academic" knowledge, skills, values, and attitudes integral to life in the 21st Century, which previously occurred. Some international research projects referred to it as "21st century skills," which also referred to as "transversal competencies".

Transversal skills or transversal competencies are defined as a general terminology that groups the skills, which are highly valued globally. This notion was retrieved from the conclusion of the various approaches from different country in the Asia-Pacific region identified by United Nations Educational, Scientific and Cultural Organization (UNESCO) and reported by the Australian Council for Educational Research (ACER) headed by Esther Care with United Nations Children's Fund Philippines (UNICEF) as part of the project of the Department of Education (2019).

In the Philippines, transversal competencies are found to be deeply embedded and integrated into an overall framework of educational policies. These are treated as broad skills that aim to meet the challenges in technological advances and intercultural communication. However, Choo and Villanueva (2012), as cited in 2013 Asia-Pacific Education Research Institutes Network (ERI-Net)- Regional Study on Transversal Competencies in Education Policy and Practice (2015), found that one of the major challenges in embedding transversal competencies in learners is how to best integrate transversal competencies into existing curricula.

Since the focus of the study was laid on transversal competency, it was anchored on the framework from the product of the exploration in the 21st Century skills policy and practices in the Asia-Pacific region. The framework is composed of three transversal competencies with the strands, sub-strands, and appropriate descriptions, which identify the difference among each competency (critical thinking, collaboration, and problem solving). The curriculum guides, lesson plans, and transcription from classroom observation were analyzed and interpreted using the representation of exemplars guided by the tool from the DepEd UP-

ACTRC and justified by the related literature and studies sought to be useful to strengthen the claim of the study.

2.2. Critical Thinking

Critical thinking is utilized in the study with the following strands: (a) knowledge construction; (b) reasoning; and (c) application. It is an integrated skill that involves the generation and evaluation of ideas. It is obvious given that in 21st century workplace, people are expected to have additional skills and attributes. The world faces global challenges, which require global solutions. Lai and Viering, (2012) on an article in assessing 21st century skills, defined critical thinking as a complex process that demands high-order reasoning processes to achieve the desired outcome. It is also defined as an "*intellectually disciplined process*". Students are considered critically thinking if encompassed by analyzing arguments, claims, or evidence, making inferences using inductive or deductive reasoning, judging or evaluating, making decisions or solving problems, making decisions or solving problems.

Before further explanation of the TVCs is presented, it is essential to identify such indicators that connect the bridge between the ideas of critical thinking in explicit manner depending on the use of words in a statement. For example, comparing and contrasting when applied into the competency of the students refer to the capacity of seeing how two things are alike and how two things are different (The writing Center, 2012). Silver (2010) explicates these words in his book "Comparative Thinking to Strengthen Student Learning" as a natural capacity of human (to make comparison) and most effective strategy for critical thinking. Naturality in the extent of its occurrence even in infants makes it the first natural form of thought essential in learning. Likewise, the word "differentiates" and "distinguishes" dealt in showing or finding the difference between one thing or another and how two things are different from each other (Collins Dictionary online, 2019). Each of these definitions shows an opportunity to do and think critically.

2.3. Collaboration

Collaboration is composed of four general strands: (a) communicating with others; (b) collectively contributing; (c) perspective-taking; and (d) maintain shared understanding. Among the transversal skills, collaboration is the most prominent and commonly identified

skill. It was traditionally recognized as something to do with the interaction between groups of people and commonly known to be included in cooperative or collaborative learning. However, it does not merely evolve within the task of the students in a group; rather it may also refer to the participation of students in an interactive process or conversation.

Students' engagement in classroom learning is often used to indicate that the task to perform is collaborative. According to the Glossary of Education (2016), student engagement refers to the extent of the interest given by the students in an activity. Furthermore, Dmytro (2018) argues that the presence of speaker and listener are necessary in order for an effective communication to take place. These were the central link of a communicative situation. By these means, one should be able to communicate to others, be a listener or a speaker for a communication to take place and engagement to occur.

To prepare students in maintaining shared understanding in a workplace, one should have the capacity to reflect on group progress. Collaboration is not only a product, it should be viewed as a process and integrating this skill in today's education will offer great possibilities for the next generation. It also maintains understanding while learning, applying and practicing deep structure of knowledge acquisition and planning. This brought in the problem-solving skills such as analytic method. In this scenario, the teacher's role is to teach students how to apply the content to an appropriate problem-solving skill. However, the common problem is that problem solving is taught in an unsystematic manner.

2.4. *Problem Solving*

Problem solving is guided by four strands, which are used for the analysis of the data gathered. These are: (a) problem analysis; (b) planning; (c) executing; and (d) monitoring. The knowledge construction is being followed by the development of strategies and techniques for problem-solving skills to gradually take place. Aytekin (2012) introduces a quick access to technology and new techniques brought by the skill of identifying a single problem to a productive solution - strategy. It suggests that people should be encouraged to simplify and increase the use of strategies or techniques in performing a task.

The definitions point out generally to the vivid description of the transversal competencies which uses logic, reasoning, and argument. However, it is also important to note that the interpretations of these skills depend on the application in real-life practices. The

current study postulates that the embedded competencies in the curriculum guide and lesson plans are not be effective to the learners if not applied in classroom instructions.

2.5. Danielson's Framework For Teaching

Danielson (2013) defines teacher's classroom instructional practice as one of the most important yet least understood factors contributing to teacher effectiveness. Thus, the Framework for Teaching (FFT) was constructed. Danielson's framework was a research-based protocol developed by renowned education expert Charlotte Danielson in 1996. It was one of the two protocols used to evaluate both Math and English Language Arts lessons across grade levels included in the MET project. It indicates planning and preparation and instruction as possible domains in which the transversal competencies can be translated. Each domain is supported by elements that served as its components. Planning and preparation include the elements of teacher's knowledge content and the structure of the discipline, knowledge of relationships between areas (e.g., subject integration), and knowledge of content-related pedagogy. On the other hand, the instruction domain focused on the expectations for learning, directions for activities, explanations of content, and use of oral and written language.

3. Methodology

3.1. Research Design

This study used the data triangulation through mixed-method research design. The method was used to generate a concrete proposition through the quantitative component from the corpus and qualitative inquiry validation. It offers powerful tools for the investigation of complex systems that underlie the Philippine Key Stage 4 English curriculum, lesson plan and transcriptions from classroom observation, which serves as the corpus of the study. Leech & Onwueghbuzie as cited by Cameron (2015) defined mixed-method research design as a method that collects, analyzes and interprets quantitative and qualitative data in a single study that investigates the underlying phenomenon. It shows that the integration of qualitative and quantitative data enhanced the value of the mixed method.

On the other hand, the data triangulation method sought a convergent result between the transversal competency in the Philippine curriculum and the actual practices of transversal

competencies in a classroom setting. It provides stronger inferences, reduces the limitations of a single method and increases the validity of the current research study. According to Loeb et al. (2017), descriptive analysis reveals relevant aspects on the given phenomenon, identifies variations and describes samples. This sheds light on the alignment between the written policy provided in the curriculum guide and practice in classrooms setting.

3.2. Participants of the Study

This study utilized a purposive sampling technique to identify the participants of the study. Specifically, the criteria for the selection of the teacher-respondents include: (1) Senior High School teachers, (2) teaching subjects of English for Academic and Professional Purposes or Oral Communication in Context, and (3) willing to participate in the study. Considering the given criteria, two teachers were identified to be the participants of the study. The first was handling all the tracks in Key Stage 4 English for academic and professional purposes while the second was teaching all the tracks in Oral Communication in Context.

To identify the competencies translated in a classroom setting, a classroom observation was conducted in the Talipan National High School located at Talipan Pagbilao, Quezon. This school put a great emphasis on students' ability to work as a team, problem solving, acceptance of different perspectives and critical thinking through organizational clubs, empowering laboratory facilities and focusing on research development for both students and teachers.

3.3. Corpus of the Study

The study used three corpora necessary to answer the research objectives, which include curriculum guides in key stage 4 English subjects, lesson plan or daily lesson log and transcriptions from the conducted classroom observations.

A. Curriculum Guides

The primary corpus of the study was the English curriculum guides in Key Stage 4 obtained from the webpage of the Department of Education. This source was publicly available through an online search using relevant keywords such as Core Curriculum Guide, Curriculum guide, K-12 Learning materials, Senior High School CG.

The selection of the sample used the following criteria: (1) category- it is an English subject/s under the core or applied subjects; (2) description- the subject description focuses on

the development of effective communication skills. After the selection process, four subjects met the given standard of the study. These subjects are English for Academic and Professional Purposes- applied subject, Oral Communication in Context- core subject, Reading and Writing and 21st Century Literature of the Philippines and the World.

B. Lesson Plan/ Daily Lesson Log

The materials were sought from the participants who consented and agreed to participate and support the conduct of the data gathering. The samples were handed before the classroom observation and the selection used the following criteria: (1) category- it is an English subject/s under the core or applied subjects; (2) availability- it is being offered during the first semester of School Year 2019-2020 and is open for possible actual observation.

The samples gathered were composed of one (1) lesson plan for the subject English for Academic and Professional Purposes and one (1) for the subject Oral Communication in Context. These samples were evident to answer the objective of the study that calls for the analysis of transversal competencies in planning and preparation.

C. Classroom Observation

A total of eight (8) classroom observations were personally conducted to identify the actual integration of transversal competencies in the English subjects of Key Stage 4. The classes were purposively chosen using the following conditions: it should belong to the target subjects needed in the study taken under the Key Stage 4 K to 12 curriculum; it is from school that offers four different tracks (ABM, STEM, TVL, and HUMMS) with 249 heterogeneous students with more than one class per track. From the four classes of grade 11, two subjects were observed per class of the two teachers. Furthermore, the observations were extended from one (1) to two (2) weeks as scheduled by the head officer of the senior high school department. These classes were objectively selected.

Originally, there were only four (4) classroom observations. It was anchored on the stated number of classroom observations from the study of Bustos and Marabe (2016). However, as the second condition was applied, the study extended to the four (4) tracks offered by the school.

An overt voice recording through the entire hour of class observation was used to gather the necessary data. The recording was transcribed verbatim for results transparency. It is used to translate the audio content into text form without losing the integrity of the content (Suante, 2019). This method of data transcription was guided by Jefferson Transcription System (2009).

3.4. Research Instrument

The researcher used the teacher observation tool adopted from DepEd-UP-ACTRC (2019) DepEd Central Office. It is a standardized instrument used to evaluate the translation of transversal competencies in classroom instructions. It offers an explicit view of the identified transversal competencies.

3.5. Data Gathering Procedure

The researcher sought approval for the conduct of the study. During the process, samples of curriculum guides was initiated to analyze the primary corpus of the study. The permission for the conduct of the study in the school was also sought from the school principal. An orientation on the purpose of the study was conducted prior to the scheduled classroom observation.

Eight (8) classes were observed in a span of five (5) days within two weeks. Before the classroom observations, the lesson plan or Lesson Log was handed to the researcher-observer.

3.6. Ethical Considerations

To ensure the authenticity of the research and to give respect to the intellectual property, privacy, confidentiality of the participants, the researcher provided sufficient information about the nature of the study as well as the issues surrounded by the conduct of the study. The subject teachers and students were informed of the overt voice recording during the classroom observations. The identities of the participants remained confidential and credits were properly given for any contributions from other researchers and literature.

3.7. Data Analysis

This study sought three (3) specialist informants who ratified the findings. These were all English majors and Master Teacher I in their respective schools with varied experience and expertise. The first specialist informant has experience, training in curriculum auditing, the

second was head of Senior High School department with knowledge and expertise in lesson planning, and classroom observation and the third was an expert of the subject matter itself.

The Miles and Huberman (2014) was used in the qualitative analysis. This method used (a) generating raw data, (b) chunking/ coding, (c) clustering and (d) making sense of the data. This involved collection of the curriculum guides and the lesson plans and transcription of the audio recording from the classroom observation. Afterwards, the data were classified and categorized repeatedly. Meanwhile, the coding process was through memoing and color coding (e.g. orange- observed CRT: critical thinking). This started with the analysis of the description followed by the inferences of the data. The third step called for the interpretation of data where the 'chunks' of related data were clustered according to its category. The last step was the data representation. The data were interpreted using the representation of exemplars.

For the quantitative part, frequency count and percentage were used for the distribution of transversal competencies identified in Key Stage 4 English curriculum guides.

4. Findings and Discussion

4.1. Transversal Competencies in the Key Stage 4 English Curriculum Guide
A. Critical Thinking

Critical thinking leads to good decisions. It provides an edge for every situation in the age of globalization. The exemplar shows the learning competency from the English curriculum guide, which embodied the characteristics of critical thinking skills.

Exemplar 1
- Differentiates language used in academic texts from various disciplines. (CS_EN11/12A-EAPP-Ia-c-2)

                -English for Academic and Professional Purposes

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The competency used the word "differentiates" or the ability to recognize the difference between one thing from another (Collins dictionary online, 2019). Likewise, the term itself is apparent to the framework from the analysis of the 21st century skills in the K to 12 program. It states that one of the descriptions of critical thinking is the ability to discriminate between information, which is under the umbrella of CRT1.1 Analyses information - a sub-strand of

Knowledge Construction. Furthermore, the succeeding words of the first statement point out the way in analyzing the information using the term "various perspectives" (Care, 2019).

B. Collaboration

Collaboration does not evolve merely in the division of group labor and compilation of group efforts. The analysis focused on the word/s or text that describes the skill.

Exemplar 2
- "Engages in communicative situation using acceptable, polite and meaningful communicative strategies". (EN11/12OC-IIab-21)

                                      -Oral Communication in Context

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The word "engage" refers to the degree of attention and interest of students in an activity (Glossary of Education Reform, 2016). Dmytro (2018) states that the communicative situation is composed of the speaker and the listener as the central link of the communicative situation. By these statements, the necessity of students' interest is important for effective communication to take place. The means of engaging students is a predicate for interaction. Students' engagement in communicative situations brings the opportunity of communicating with others (COL 1.1,1.2 & 1.3).

C. Problem-Solving

Problem-solving competency is one's ability to understand and resolve problems through the methods used that were not apparent (PISA 2012 framework (OECD, 2010).

Exemplar 3
-      Uses various strategy in order to avoid communication breakdown. (EN11/12OC-Ia-6)

                                        -Oral Communication in Context

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Strategy in the context of education refers to perspective and position (Aytekin, 2012). However, the word "strategy" was used in the statement with an indication of an expected action to happen if performed. Therefore, it indicates the use of a plan or pattern in actions. Based on the framework, executing a strategy and following actions outlined in a plan is considered problem solving.

Table 2

Transversal Competencies Identified in Key Stage 4 English Subjects

	EAPP	%	OC	%	R&W	%	21ST	%	Total
Total number of competencies	36		26		13		26		101
Competencies									
1. Critical Thinking	4	11	3	12	2	15	4	15	13
2. Collaboration	0	0	2	8	0	0	2	8	4
3. Problem-solving	8	22	1	4	1	8	0	0	10
Total number of TVC per subject	12	33	6	24	3	23	6	23	
							Grand Total		**27 or 27 %**

There were 27 learning competencies with explicit integration of transversal competencies in the curriculum guides for Key Stage 4 English subjects. There were identified 13 learning competencies for critical thinking, four (4) learning competencies for collaboration, and 10 for problem solving. These were found to have an explicit integration of critical thinking manifesting the task for further analyses of information.

On the other hand, the learning competencies found to have an explicit integration of collaboration were those, which contain words that refer to the capacity to actively participate in an interactive process using shared rules, norms, and structure. There were 10 learning competencies reflected in problem-solving skills.

4.2. Translation of Transversal Competencies in the Lesson Planning and Preparation

A. Critical Thinking

> **Exemplar 4**
> - Students will watch the video about the art of defining and they are going to share in the class what they have learned from the video.
>   -English for Academic and Professional Purposes

Exemplar 4 was found in the lesson plan under the English for Academic and Professional Purposes. Previously, listening, speaking, reading, and writing were considered as the common macro-skills in English language for a long period of time (Hilario, 2016). However, technology emerged and several frameworks started to observe the importance of viewing skills relating it to different learning theories of education. For instance, Barrett's taxonomy of viewing comprehension discusses different levels of comprehension related to

viewing skills (Isdor, 2018). The levels of the framework explicitly give a person chronological stages to critically comprehend something through viewing. Consequently, the statement calls for the participation of the student to share his/ her inferences from the video presented. By this means, the need for the analysis (CRT 1.1) and synthesis (CRT 1.2) of information as well as providing an inference and causal links (CRT 2.1) are important to perform the task.

B. Collaboration

Exemplar 5

Student Activity: I believe…

- The class will be grouped into 4 groups. Each group will give their definition of the following terms and share it with the class.
  o calculator
  o accountancy
  o Business

-English for Academic and Professional Purposes

This part of the lesson provides a link between different knowledge that rests in the diversity of opinions where collaboration is present. In particular, a simple knowledge sharing behavior and/ or response to a question associated with learning by doing is considered collaboration (Littlejohn, 2011; COL 1.2).

C. Problem Solving

There was no integration of problem solving skills identified to be explicitly integrated in lesson planning and preparation under all subjects and strands of problem solving.

Table 2

Transversal Competencies Translated in Key Stage 4 Lesson Planning and Preparation

Strand	Frequency-Percentage Distribution								
	Activity	%	Analysis	%	Abstraction	%	Application	%	Grand Total
1. Critical Thinking	0	0	1	8	1	8	0	0	2 or 16%
2. Collaboration	1	8	1	8	1	8	0	0	3 or 24%
3.Problem-solving	0	0	0	0	0	0	0	0	0 or 0%

Based on the findings from the lesson planning, the existence of transversal competencies in the analysis and abstraction of the lesson was confirmed. There were five (5) identified occurrences of transversal competencies translated in lesson planning and preparation. Thesee were three (3) critical thinking skills and two (2) collaboration skills. These were found solely

in the subject English for Academic and Professional Purposes. The integration of transversal competencies in lesson planning was translated in the part of the analysis and abstraction. On the other hand, collaboration was sought to reflect in almost all of the parts of the lesson plan. These were found in the activity, analysis, and abstraction. It was used as an activity to start up the lesson, as part of the analysis, and in the abstraction. It was also found that there were critical thinking and collaboration at the same time.

4.3. Translation of Transversal Competencies in Classroom Instructions

The transversal competencies were identified to be integrated into the classroom setting in terms of instructions. The learning environment and instruction of the learners is an important variable that offers a significant impact on their adaption and growth.

A. Critical Thinking

Exemplar 6 CRT 2.1 Applies Logic

186	Tr : for example, if the term is calculator, <they related it to (love)>. Oh, if you were be given - *if you will be given the chance to define calculator by relating it to love, how will you define it?*
187	Tr : yes, A?
188	A : **If I will be given a chance to define calculator and connect it in love, I will define it this way (2). Calculator can be use to find your X and ask him Y's**
204	C : **(2) I believe, ABM is just like a calculator (2) wherein you can add your effort, subtract your distraction and divide you:r cooperation** ((laughing))
205	AT: ((laugh)) SYNTAX ERROR!
205	T : @okay in that way you can define that term on your o:wn way by making it another:: concept.

-Observation #2
-English for Academic and Professional Purposes

Logical thinking is another term for critical thinking. Applying logic to give a response brought by an extemporaneous situation is really a challenge. In this exemplar, an opportunity was given to define a concrete concept (calculator) logically by linking it with an abstract concept (love). This instruction is called "the muddiest point" (Rutman and Kipper, 2011).

B. Collaboration

Exemplar 34

297	T : so you are going to follow this format table and write it in the manila paper. And *choose a representative from your group who are going to discuss your answers.*
	: so I'm giving you 25 minutes to work.

-Observation #2
-English for Academic and Professional Purposes

In this exemplar, the idea of collaboration was not limited to an act of sharing ideas or working together towards one goal. According to Binkley, et al. (2012), not all group work is either collaborative or cooperative. This means that students assume to share a goal of arriving at a shared solution when asked to do group work. Likewise, the instruction given in this exemplar was an opportunity to share the task, but mostly to identify and resolve differences and to come up to one in which all members agree in order to proceed with the activity.

C. Problem-Solving

Exemplar 37

106　　Tr : once the clash begins, the members will no longer help the : clashers. Understood? [
　　　　　　clarification request] <2>
107　　AT : yes. ((nodded))
114　　Tr : and additional, you also have what we called- the power of steal.
115　　 : Each group has three stealing power (2*) in case their group mates finds it hard, you can
　　　　　　steal it for them* (2) and you can be the one : to : replace them.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　-Observation #1
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　-Oral Communication in Context

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Exemplar 37 presents an instruction in which the students were given the chance to implement an alternative strategy, procedure, or solution to the given problem. The so-called "stealing power" provides students an opportunity to adapt quickly to outcomes.

Table 3

Summary of the Integration of Transversal Competency in Classroom Instruction

Competencies	Opportunity	Observed
1. Critical Thinking	19	17
2. Collaboration	22	83
3. Problem-solving	2	0
Grand total	43	100

In terms of the reflection of transversal competencies in classroom instruction, it was found that there were 19 opportunities that reflect critical thinking, yet only 17 was fully realized in actual instruction. For collaboration, there were 28 chances and 83 observed responses from the students and only two (2) opportunities of transversal competency integration in problem-solving skills with no observed response from the students.

Table 4

Transversal Competency Integration in Curriculum Guides, Lesson Plans, and Classroom Instruction

Transversal Competencies	Curriculum Guides		Lesson Plan		Classroom Instruction	
	Evident	Non-Evident	Evident	Non-Evident	Evident	Non-Evident
Critical Thinking	/		/		/	
Collaboration	/		/		/	
Problem-solving	/			/		/

Table 4 shows the possibility of transversal competency integration in curriculum guides, lesson planning and preparation, and classroom instructions. The first column includes the transversal competencies of the target study. Moreover, the succeeding columns manifest the integration of these competencies in the corpus of the study as evident and non-evident. It was found that critical thinking skills and collaboration were clearly expressed among the curriculum guides, lesson planning and preparation, and classroom instruction. However, problem solving was hardly found in both the lesson planning and preparation as well as the classroom instructions.

5. Conclusion

Transversal competencies were explicitly integrated into the curriculum guide of Key Stage 4 English subjects. However, there is a limited number of learning competencies found with the integration of critical thinking, collaboration, and problem solving. The integration of transversal competencies is translated in curriculum guides but not actually expressed in lesson planning and preparation yet teachers provide opportunities for its integration in actual instruction. Though there was a minimum occurrence of transversal competency integration in lesson planning and preparation as well as the opportunity offered by teachers during the instruction, it is a challenge for the educators to address and achieve the critical elements of success by providing best practices that bring these transversal skills in the classroom.

This study set forth a sensible thought towards the efforts exerted by the Department of Education to improve the educational system, uplift the quality of education, and produce

learners that can cope with life changes. When people experience a crisis, they deem real, they act. Employing the transversal skills in the 21st century, learners will be able to adapt quickly to urgency- a quality or condition suggesting immediate or pressing importance. Nevertheless, they are expected to take responsibility for their own learning by means of responding to the task that provides higher-order thinking, interactional learning, and in-depth investigation. However, it still depends on the field facilitator and students whether to follow or refuse the given opportunity. This calls for the conduct of a similar study with consideration on students' contribution to understand and realize the integration of the transversal competencies during instruction.

6. Acknowledgement

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The Instructional Leadership Practices of School Heads
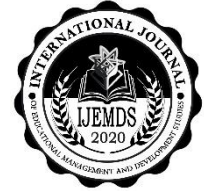
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Abstract

This qualitative research study investigated the instructional leadership practices of the school heads in the City Schools Division of Tayabas City and related them to the students' achievement. Using purposive sampling, a triangulation approach as used to interview a total of 55 teachers and 25 school heads who were responsible for grade 6 students. The 60-minute interviews were held at the school premises during the visitation and monitoring period. It also evaluated several documents and the National Achievement Test. The results showed school heads mostly carried out functions related to mission, management of curriculum and instruction, supervision and support teaching, monitoring of student progress and promoting an effective instructional climate. However, there was no proper monitoring and evaluation. The teachers' competencies, or the lack of it, have not been closely monitored and evaluated. It was concluded that school heads had more difficulties fulfilling duties related to teaching and learning than managerial functions. The results are beneficial to the school superintendent as baseline for the continuous improvement of the instructional leadership. It is highly beneficial for the conduct of further research correlating the instructional leadership with the students' academic achievement.

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1. Introduction

The role of the school heads is vital to the management of the curriculum as well as the delivery of the instruction. This constitutes instructional leadership which Glanz (2006) refers to as a leadership style that encourages best practices in teaching and Jenkins (2009) as the role of th school principal to promote growth in student learning. Aside from the prime duty of teaching and learning, school heads are responsible for management functions such as scheduling, reporting, handling relations with parents and the community, and dealing with the multiple crisis and special situations that are inevitable in schools (Fink & Resnick, 2013). Hallinger (2012) concurs that effectiveness is achieved when a correct balance among these roles is attained. For this, Leithwood, Jantzi, and Steinbach (2014) argue that the critical focus for attention by leaders is the behaviors of teachers as they engage in activities directly affecting the growth of students. Thus, school leaders must initiate changes so that teamwork with proper accountability is achived (Ruebling, 2004).

School heads must be true instructional leaders who keep their focus on teaching and learning. School improvements cannot be achieved without the support and participation of school heads (Zheng, 2010). Lip service is a no-no to being an instructional leader but rather school heads must adopt and follow a model that will allow them to accurately and effectively monitor accountability (Leithwood, 2014). The challenge of implementing change in the school community lies on the hands of the school heads. These changes are necessary for the development of the school and instructional development of the teachers so that the students' learning progress continuous. In this cycle, the primary role of the school heads is the initiation of best practices that ultimately lead to improved school performance.

Numerous studies affirm to the positive effect of instructional leadership to students' academic performance (Ismail et al., 2018; Leithwood, 2014; Johnson, 2006; Khan, et al., 2020). According to Dufour (2011), where school heads are effective instructional leaders, student achievement escalates. In a study conducted by McEwan (2013), it was confirmed that significance between instructional leadership and student achievement exists. It was described that effective or excellent schools has the leadership abilities of the building school heads, particularly in the instructional arena. Moreover, Hou, Cui and Zhang (2019) found that instructional leadership showed a significantly moderating influence on the relationship

between high school entrance scores and college entrance scores for Chinese students. This relationship was confirmed by Ross and Gray (2006) that principals contribute to student achievement indirectly through teacher commitment and beliefs about their collective capacity which was also explained in the study of Liu, et al. (2020) that instructional leadership is positively and directly associated with teacher self-efficacy. However, Heaven and Bourne (2016) found a positively weak statistical correlation between the performance of students and instructional leadership. Similarly, Dutta and Sahney (2016) found that principal leadership behaviors were not associated directly with either teacher job satisfaction or school-aggregated student achievement.

Eventhough various researches suggest the positive effect of instructional leadership on academic performance, many school leaders failed to manifest instructional leadership practices. There are numerous factors cited on these. Carraway and Young (2014) identify that school heads are uncomfortable visiting teachers' classrooms and have little time focusing on instructional tasks. By redefining the roles of school heads, they become more dynamic and flexible in terms of functions and scope of responsibility.

In this context, school heads are responsible for ensuring improvement process that would impact positive student achievement. In a public school setting, school superintendents need to ensure that school heads are effective instructional leaders. For this, the role of the superintendent encompasses the need to identify school heads' behaviors which exhibit instructional leadership, assess how the school heads are managing the dimensions of instructional leadership, and whether leadership is impacting student achievement positively. They are held accountable for high levels of student achievement. To achieve this, they need to ensure that the entire range of incentives and conditions in schools fully support teaching and learning.

This study was initiated in the City Schools Division of Tayabas City in the Philippines where a one-year professional development plan around instructional leadership for all administrators was developed to assist the school heads in mastering this dimension of leadership. Teaching staff were brought up to date on this program by explaining to them the concept of instructional leadership and identifying what leadership behaviors they could expect their school heads to demonstrate that would affect the quality of teaching positively.

Specifically, this study examined the behaviors of school heads, determined if school heads' behaviors reflected instructional leadership, and described how teachers perceived the behaviors that school heads. Three sub-questions guided the inquiry.

1. To what extent the school heads demonstrate instructional leadership?
2. How the teachers perceive their school heads' leadership?
3. What is the relationship between the school heads' behaviors and levels of student achievement in grade 6?

2. Literature review

This study is informed by two areas of literature: accountability in education and leadership. The narrow sense of accountability in education focuses only on student achievement. It is important then to broaden the scope of accountability to include all the various factors the principal is held accountable that affect student achievement.

2.1. Accountability in education

Accountability for educators measures more than the test scores which was agreed by the leading advocate on results Schmoker (1999). It includes all the things teachers do to help students learn. It includes both measurable elements of instruction (pedagogy, assessment and teaching strategies) and results (student achievement). Zheng (2010) adds that accountability must include both quantitative and qualitative indicators which should give the complete story behind the results achieved on tests. Teachers feel more comfortable with accountability when it includes more than academic achievement.

Accountability needs to be student-centered or holistic. It needs to refer to a system that includes specific information on curriculum, teaching practices and leadership practices. A student-centered accountability is more constructive than the traditional accountability because it focuses on the improvement of teaching and learning rather than merely rendering an evaluation and the publication of a report (Zheng (2010). It must go beyond the simplistic concept that knowledge is just information and skills that can be codified, simplified, and unchanged (Null, 2011). The heavy emphasis on standardized testing is not always necessary to improve education (Sahlberg, 2015). A new system of accountability must balance qualitative and quantitative measures built on professional responsibility and trust. Under this

model, the schools work effectively and efficiently toward both the public good and the development of students.

2.2. *Educational leadership*

Leadership has many definitions and styles from getting things done to influencing people. Educational leadership has no exception. For Leithwood, Jantzi, and Steinbach (2014), leadership is usually described using adjectives such as good, effective, exemplary, and poor. It seems easy to measure and equate leadership with different subjective parameters. However, Leithwood (2007) believes that leadership is about the internal state and the overt behavior of leaders. The internal states refer to the values, beliefs, skills or knowledge while overt behavior is the leadership practices. Leaders should put to practice whatever values and skills to be effective. For this, school heads need to create a team spirit so that the academic community functions toward one specific goal (Neuman & Simmons, 2014).

Leadership can take many forms. There has been new conceptual models of educational leadership (Hallinger, 2012). The most commonly researched styles are situational leadership, servant leadership, constructivist leadership, cultural leadership, instructional leadership, transformational leadership, and moral leadership. Although all of them applies to all types of organizations, instructional leadership specifically address the needs of an academic community which encompasses both the nature of leader and application of leadership in the academic setting. For Leithwood (2014), school leaders must not pay lip service to being an instructional leader.

3. Methodology

This study used qualitative research design. The research questions that guided this study call for a qualitative approach since the study is seeking to understand the live experiences of the informants in order to evaluate the link between leadership and student achievement. According to Patton (2012), the qualitative data gathering can take the form of interview, observation, and document analysis. This study used the interview and document analysis strategies.

3.1. Interview

This study interviewed a total of 55 teachers and 25 school heads who were responsible for grade 6 students. The focus of the individual interviews differed. The teachers were asked on their perception on the day-to-day leadership behavior of the school head. On the other hand, school heads shared instructional leadership practices and the day-to-day duties and functions.

The purposive sampling technique was criterion-based wherein all informants must met the entire set of criterion (Patton, 2012). The minimum qualification for the school heads and teachers was at least two years of experience in a school with at least offerings of kindergarten to grade nine.

The interviews were held at the school premises during the visitation and monitoring period. The entire data collection was completed over a three-month period. The participants were interviewed face-to-face for approximately 60 minutes. These were conducted with the use of an interview guide that allowed interviewer the freedom to explore, probe, and ask questions within a topic or subject area. According to Patton (2012), this approach helps interviewer to ask spontaneous questions and establish a conversational style approach to the interview.

Limitation. According to Patton (2012), interview could include distorted responses due to "*personal bias, anger, anxiety, politics, and simple lack of awareness since interviews can be greatly affected by the emotional state of the interviewee at the time of the interview*." This study notes that data collected through the interview were based on the interpretation of the teachers' experiences while interacting with their school heads. In addition, the school heads' personal assessment of the instructional leadership behaviors is subjective in nature. However, the confidentiality of the interviews should have alleviated any need for the school heads and teachers to give a socially desirable response.

3.2. Document Analysis

The collected documents consisted of the records maintained by the school heads as part of monitoring activities such as classroom walkthroughs and observations, grade level meetings, discussions with teachers about professional growth plans, school improvement

plans, staff meeting minutes, quarterly accomplishment report, and achievement results analyses. These documents provided evidence on the presence of instructional practices that contributed to the improvement of teaching and learning process.

For the measurement of the student achievement, data were obtained from the National Achievement Test Results of Grade 6 for the school year 2014-2015.

The qualitative data were analyzed using thematic analysis. These were organized according to themes and categories.

4. Findings and Discussion

The data gathered were organized into five broad categories that emerged from the school headsa: vision/goals, learning environment, leadership, accountability, and communication. Each of the broad themes was subdivided into sub-themes.

Table 1

Emerging Themes and Categories

Themes	Categories
Vision/goals	
Learning/achievement	Opportunities
	Daily Operations
	Student Assessment
	Community of Learners
	Best Practices
Leadership	Shared Leadership
	Decision Making
Accountability	Monitor curriculum alignment
	Analyze student work
	Student reach learning potential
Communication	Visibility
	Communication with staff
	Meaningful involvement from parents
	Recognizing achievement and improvement

Table 1 shows the emerging five themes which were divided into different categories. Emerging from the data were findings that were organized into five broad themes, which include vision/goals, learning/achievement, leadership, accountability, and communication.

Each broad theme was further divided into categories. The interview responses were sorted and grouped together. In addition, the documents were analyzed to corroborate with the interview results. The document analysis formed part of the instructional leadership framework.

Table 2

Identified Practices Shared by the School Heads

Categories	Identified Practices by the School Heads
Vision/goals	Believed that clear vision is essential, Reviewed and reflected at the start of school plan, Revisited with parent group and staff, Modelling of the vision
Opportunities	Various programs were established to support learning needs, School heads believed the importance of having the best teacher, Teachers teach only his/her specialization as opposed to mismatch (major-teaching load)
Daily Operations	presence of timetable, class program/teacher program was maximized to fit in time for collaboration,
Student Assessment	establishment of school wide approach to assessment
Community of Learners	provided opportunities for learning conducted professional development modelling of 'life-long learning' engaging in professional reading attending professional conference taking graduate course
Best Practices	School to school partnership Creating networks Sharing best practices
Shared Leadership	Fostering leadership in others Supporting leaders Recognizing teacher's strength Providing opportunities for leadership roles Developing leadership abilities
Decision Making	Consultation Sharing information Involvement of staff
Monitor curriculum alignment	Felt that school head are too busy of operational task Walk-through is bringing message to them Felt the school head trusted them to do their job properly Believed that professional growth is up to them
Analyze student work	School head insisted that they analyze periodical test Required to inform parents
Student reach learning potential	Expected them to ensure that student reach their learning potential Dialogue was sometimes conducted when there is a problem with students They are required to conduct interventions Encouraged to engage in professional development
Communication with staff	Expect them to create welcoming environment PTA volunteerism is encouraged
Recognizing achievement and improvement	Believed that student improvement is ongoing basis They have choices as to positive reinforcement Observe sit Giving positive reinforcement

The table 2 shows the data gathered from the interview of the school heads. The 25 school heads answered positively when asked about the manifestation of instructional leadership in daily activities.

Table 3

Identified Practices of School Heads as Perceived by the Teachers

Categories	Identified Practices by the Teachers
Vision/goals	believed vision is articulated in the school modelling by staff and administrator, felt that goals must be learning goals
Opportunities	Agreed in the presence of programs Believed that there are supports available Felt they were accountable to the students
Daily Operations	Believed they must reach out to parents believed daily activities are focused on student learning class programs are satisfactory programs are checked
Community of Learners	Believed they are given opportunities to work together although methods vary Stated that time for teacher reflection was never scheduled Saw that semestral break INSET is the only opportunity for in-depth discussion of their need
Best Practices	Spent more time in planning than what they had don and its impact Believed that best practices are adapted by schools
Monitor curriculum alignment	Required teachers to submit plans Provided feedback Classroom walk-through
Analyze student work	Reviewing reports cards Talking to students Viewing samples of their work Encourage teacher to utilize test results
Student reach learning potential	Expected teachers to do their job Head teacher accountable for this Believed they provided supports Confirmed teachers are professionals
Communication with staff	Open door policy Informal communication Weekly assemblies
Visibility	Expected teachers to communicate with parents Being in the hallways at recess/breaks/lunch hour Attending school events Believed they are Maintaining communication
Meaningful involvement from parents	Talk to parents when there is a problem Encourage volunteerism Encourage teachers to invite parents Encourage parent participation
Recognizing achievement and improvement	Conduct of year-end awards program

Table 3 shows the summary of findings from the interviews of the 55 teachers handling Grade 6 students. These data describe the perception of each teacher on the day-to-day behavior of the school head.

The inclusion of the teachers as informants validates the responses of the school heads. According to Patton (2002), this method of triangulation contributes to the validity and credibility of the data analysis. Through this method, the data collected from the teachers' interviews were compared to the data collected from the school heads' interviews.

Discussion

The school heads' manifested behaviors were observed to be positive in all the five themes identified. There were clear manifestations of instructional leadership. For instance, all school heads expressed the importance of a clear vision: knowing where the school is going; what they stand for; and what they are working towards. It was clearly indicated that it was not individual but a shared vision. There were consistencies among all the school heads in managing certain areas of the instructional program. In the aay-to-day operations, the focus was on student achievement, which was manifested by programs, activities, projects and certain support systems already in place to accommodate the learning needs of students. The school heads also encouraged and supported individual professional development through reflection on the teachers' professional growth plans and discussion on the areas of growth from time to time. However, it was observed that there was lack of proper monitoring and evaluation.

There were inconsistencies among the school heads in managing other areas of the instructional program. All school heads embraced the importance of classrooms visitations to work with the teachers. However, this priority was not reflected in practice. Except for a few school heads, classroom visits were eliminated from their daily duties to make time for other matters perceived more compelling. Time was a factor and other duties took precedent over working with teachers. Even though school heads believed on the importance of monitoring the teaching by classroom visits, this was not manifested in the actual practice.

All school heads unequivocally stated that time was a limiting factor. All the good intentions were strongly interrupted by small administrative tasks setting instructional practices on least priority. For instance, school heads did not allot specific time to work with

the teachers while the teachers were not given time to reflect and collaborate with colleagues on a regular basis. Everyone relied on professionalism that teachers were expected to perform their duties and held them accountable for student achievement.

Based from the teachers' perspectives, school heads were considered instructional leaders. The teachers were accountable for student achievement but provided with the necessary support. However, it was consistent that the school heads' monitoring of the teaching and learning through classroom observations, technical assistance, regular dialogue, conferencing and teaming with other teachers were lacking. The teachers believed that the school heads wanted to visit classrooms but they felt the day to-day pressures of running a school prevented them from completing walkthroughs. The teachers also felt recognized as professionals and trusted to do what was expected from them. From this premise, it was clear that the teachers' perception of the school head's responsibility was not focused on the teaching and learning.

The collaboration time for teachers was provided through professional development. However, both school heads and the teachers were not satisfied with the small amount of time to collaborate. The time allotment was not regular or long enough to build teacher capacity, which also required teachers to be away from their class. The teachers also believed that school heads created a community of learners to provide them with the opportunity to work together. It was assumed that once an opportunity to learn together was available, the application of learning to the classroom will provide the true meaning of a community of learners. This brings progress to the teaching practice.

In relation to the level of student achievement in Grade Six, the National Achievement Tests were analyzed by teachers to identify strengths and weaknesses in the teaching and learning. Although the NAT Average Mean Percentage Scores of school was below the national standards, consistent increase in the ratings was observed. The school heads' positive expectations and belief transcend to the teachers and students. It was evident that the day-to-day operations were connected to student achievement. For example, all the daily, weekly and monthly announcements were focused on school goals, celebration of student success, and issues that threatened the school climate. The visibility of the school head and the open door policy promoted positive relationships with the parents and the community. The school heads

also addressed the relational aspects of leadership through communication, motivation, and facilitation. All of these contributed positively on the teaching and learning process.

Some of the pressing issues and concerns arising from the study data were sustaining time on task, balancing co-curricular activities, participating in competitions, and observing the affairs and events mandated by DepEd. School heads struggled with the quality of instructional time for learners and the time for special occasions and extra-curricular activities. In fact, one of them stressed the struggle to provide quality learning time as there are so many co-curricular activities such as assemblies, science, arts and cultural presentations and competitions, sports building activities and other activities and celebrations stipulated in DepEd School Calendar.

5. Conclusion

This study used qualitative research design to describe the instructional leadership practices of selected school heads in the City Schools Division of Tayabas City, Philippines. Using purposive sampling, a triangulation approach as used to interview a total of 55 teachers and 25 school heads who were responsible for grade 6 students. The 60-minute interviews were held at the school premises during the visitation and monitoring period. In addition, several documents were collected and analyzed including classroom walkthroughs and observations, grade level meetings, discussions with teachers about professional growth plans, school improvement plans, staff meeting minutes, quarterly accomplishment report, and achievement results analyses. The qualitative data were organized according to themes and categories.

The results of the study showed that most school heads carried out functions in the dimensions mission, managing curriculum and instruction, supervise and support teaching, monitoring student progress and promoting an effective instructional climate. A highly significant insight garnered was the consistency with the school heads' beliefs and intentions towards carrying out their duties that deal directly with teaching and learning. There was strong evidence of knowledge on instructional practices that guided the day-to-day activities. However, there was no proper monitoring and evaluation. The school heads just relied on the professionalism of teachers to ensure that duties were done. Being accountable to the student achievement was strongly communicated to the teachers, which the teachers carried out with conviction. The teachers' competencies, or the lack of it, have not been closely monitored and

evaluated. Although school heads believed instructional directions were provided, the lack of structures and mechanisms to carry out directives were noticeable. It was concluded that school heads had more difficulties fulfilling duties related to teaching and learning than managerial functions.

The results of the study are beneficial to the school superintendent as baseline for the continuous improvement of the instructional leadership. It may also serve as basis for the evaluation of the effectiveness of the implemented professional development plan in the creation of more instructional leaders. It is highly beneficial for the conduct of further research correlating the instructional leadership with the students' academic achievement.

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Impact Assessment and Clients' Feedback towards MATHEMATICS Project Implementation

Jupeth Toriano Pentang

Abstract

The Western Philippines University - College of Education's Project MATHEMATICS (Mathematics Enhanced Mentoring, Assistance, and Training to In-need and Challenged Students) was implemented as part of the Adopt-a-School Program to address the mathematical needs of Laura Vicuña Center - Palawan youths. To evaluate the extent of the project implementation, the study assessed its impact through the feedback gathered from the clients served. It specifically described the quality of project implementation, determined the attainment of project objectives, and enumerated client feedback. A concurrent triangulation mixed-method research design was used with 32 clientele samples selected purposively. The study utilized a survey, problem set test, and focus-grouped interview to obtain data pertinent to the study's objectives. The findings revealed an aspirational quality of the implemented project, improved mathematical performance, and the client's desire for ongoing mentoring. The implications and limitations of the study are discussed, along with recommendations for future extension projects, monitoring and evaluation, and re-planning activities.

Keywords:

client feedback, extension services, impact assessment, mathematics education, project implementation

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1. Introduction

Mathematics is undeniably relevant to every field nowadays. Students who may face difficulties and cannot overcome their struggles with math may hardly understand, appreciate and apply its concept to daily-life situations. Additionally, he/she who was unable to acquire the necessary mathematical knowledge and problem-solving skills may not be likely to succeed in his/her studies, careers, and life-undertakings (Domingo et al., 2021; Ibanez & Pentang, 2021; Pentang et al., 2021).

The 2018 Programme for International Student Assessment and the 2003 Trends in International Mathematics and Science Study revealed the underperformance of young Filipino learners in Mathematics. These results are parallel with local studies, which found that students' mathematical ability needs urgent attention (Balanlay, 2021; Ceria, 2021; Lazo & De Guzman, 2021; Pentang et al., 2020; Ramos et al., 2015). Therefore, it is vital to mentor, assist and tutor students, especially the in-need and challenged individuals, to improve their performance (Chiew et al., 2021; Kendricks et al., 2013; Nguyen, 2013).

In pursuit of its commitment to sustainable development, the Western Philippines University - College of Education (WPU-CED) extends services for the empowerment of individuals and communities based on relevant research outputs. In light of the results of Pentang et al. (2020), WPU-CED established the project MATHEMATICS (Mathematics Enhanced Mentoring, Assistance, and Training to In-need and Challenged Students) under the Adopt-a-School Program to meet the mathematical needs of Laura Vicuña Center - Palawan (LVC-P). The College considers mentoring and other interventions to address the mathematical challenges faced by the LVC-P youths. Lerner (2007) maintained that the essential developmental asset associated with positive youth development is adult mentors in the community. Additionally, mentors serve as role models and sources of support for youths (Anastasia et al., 2012).

Project MATHEMATICS was made possible through the strong linkage between WPU-CEd and LVC-P. Ngaka and Zwane (2018) emphasized that partnerships are essential in extension services. Besides, partnerships can help to strengthen, support, and even transform individual partners, resulting in higher program quality, more efficient resource use, and better alignment of goals and curricula (Harvard Family Research Project, 2010). As a result, several

sessions of mentoring and tutorials among LVC-P youths were successfully conducted with all support from the University Extension Services Office and the partner institution.

A total of 65 LVC-P youths benefitted from the project through a series of mentoring and tutorial sessions from 2019 to 2020. The University funded the project with the supervision of Dr. Eulenia C. Pizaña (former University Extension Services Director), Dr. David R. Perez (College Dean), and Asst. Prof. Aylene D. Pizaña (College Extension Coordinator). The project was managed by Ms. Susana P. Egger (Campus Extension Coordinator) and Jupeth T. Pentang (Project Leader and Training Coordinator). All CED faculty and staff were involved in the project planning and implementation. The project is extended this year; however, further sessions were not yet implemented due to the risk posed by the COVID-19 pandemic. Linkages are being established to support the project and its target clients.

To evaluate the project strengths and weaknesses, this study assessed its impact through the client feedback. The goal of impact evaluation is to provide information about the effects of intervention while also ensuring that the project stays on track (Landau, 2018; Peersman, 2015; Verma, 2021), whereas client feedback identifies areas that require additional attention as well as specifics on what they need for a tremendous success (Levine, 2021; Verma 2021). Accordingly, impact assessment and client feedback are relevant for evaluating the extent of the project implementation and re-planning future extension projects and initiatives to be carried out. Furthermore, project evaluations are a vital tool for a team to learn from and improve their performance the next time (Bos et al., 2013). Specifically, this paper aimed to:

1. describe the quality of project implementation in terms of aspirations, appropriateness, and acceptability;
2. determine the attainment of project objectives in terms of the client's performance in numbers, measurement, geometry, algebra, and probability; and
3. enumerate the client's feedback regarding their experiences and on how the project be improved.

2. Methodology

2.1. Research Design

The study employed a concurrent triangulation mixed-method research design. The design entails a single analysis that collects both quantitative and qualitative data

simultaneously, which aims to validate the results generated by each method using evidence caused by the other (Andrew & Halcomb, 2009). The quantitative phase described the quality of the project implemented and determined the attainment of project objectives in terms of the client's performance. The qualitative phase enumerated the client's feedback regarding their experiences and on how the project be improved.

2.2. Respondents

The quantitative and qualitative study respondents include grades 7 to 10 LVC-P youths who were mentored and tutored on several math concepts for four sessions in 2019 and eight sessions in 2020. Respondents were chosen purposively using total population sampling since the population size is relatively small and shares distinctive characteristics (Laerd Dissertation, n.d.). The study drew 32 respondents who were then available and willingly participated in the survey in December 2020. The LVC-P management approved consent letters.

2.3. Data Gathering and Analysis

To address the questions posed, a survey, problem set test, and focus group interview were utilized.

Survey. A survey was utilized to identify the quality of the project implemented following the recommendations of Preston (2009). The level of quality emphasizes the relevance, timeliness, and efficacy, which are rated as aspirational (or excellent) quality, appropriate (or average), and acceptable (or week) (Bos et al., 2013; Harrin, 2016). Aspirational quality indicates that clients' needs and aspirations were met excellently and exceeded clients' expectations (91% to 100% completion or over). Appropriate quality denotes average achievement of the project objectives (76% to 90% completion), while acceptable quality signifies minimal or simply compliant (51% to 75% completion). This range was based on the initial assessment and pilot testing of the instruments used. Since the study involves youths, the survey and its content were elaborated on to the respondents to ensure that pertinent data will be gathered. Frequency counts and percentages were used.

Problem Set Test. A problem set test modified from SEI-DOST and MATHTED (2011) containing elementary concepts in numbers, measurement, geometry, algebra, and statistics similar to Pentang et al. (2020) was administered to the respondents to determine the attainment of the project objectives in terms of the client's performance. Arithmetic Mean was

used to determine the level of mathematical performance of the LVC-P learners along with descriptions such as excellent (0.81-1.00), very satisfactory (0.61-0.80), satisfactory (0.41-0.60), unsatisfactory (0.21-0.40), or poor performance (0.00-0.20).

Focused Group Interview. Through focused group interviews applying Krueger and Casey (2015), the LVC-P clients could enumerate their experiences throughout the project. Their suggestions and recommendations on improving the project and its components, such as schedules, lectures, speakers, and materials, were also recorded. Feedback from the clients was themed accordingly. Finally, triangulation was conducted to establish the validity of the results reported.

Limitations. Video documentation and voice recording were not permitted due to the age of the respondents. Only half of the total population were able to participate since 50% were allowed to stay in the center while the other group was sent home with the restrictions brought by the COVID-19 pandemic. With such, a comparison of means was not conducted using inferential statistics between before and after performances. The study did not cover the LVC-P management and staff.

3. Findings and Discussion

3.1. Quality of Project Implementation

The quality of the project implemented was defined to the extent of its relevance to the clients' needs. Table 1 presents the quality of project implementation rendered by WPU-CED to LVC-P. Of the 32 respondents, twenty-six (or 81%) rated aspirational (or high) quality, while five (or 16%) and one (or 3%) evaluated appropriate (or average) and acceptable (or little) quality, respectively. The data shows that most respondents have high regard for the project implemented, which expresses their acceptance and contentment of the mentoring, tutorial, and assistance rendered by the Extension Team. Bos et al. (2013) and Harrin (2016) mentioned that achieving the aspirational level of quality implies the project exceeded both objectives and clients' expectations. Indeed, satisfying client needs and striving to exceed client expectations are at the heart of quality service (International Organization for Standardization, 2015).

Table 1

Quality of Project Implementation

LEVEL OF QUALITY	FREQUENCY (n=32)	PERCENTAGE
Aspirational	26	81
Appropriate	5	16
Acceptable	1	3

WPU-CED extensionists are committed to providing aspirational or high-quality extension services. This was revealed in the study conducted by Pizaña et al. (2021) on the lived experiences of extension project implementers, ensuring that activities and community connections are not hampered by the challenges posed by the COVID-19 pandemic. The project implemented certainly achieved aspirational (or high) quality with the commitment and dedication of WPU-CED extensionists, who took responsibility and accountability for the mentoring and tutorial services provided (Bos et al., 2013; Harrin, 2016; Miller, n.d.; Pizaña et al., 2021).

However, 19 percent have appropriate (or average) and acceptable (or little) quality assessments of the project implemented. Data speaks that minimum expectations were met (Bos et al., 2013; Harrin, 2016). This suggests re-planning of extension activities to achieve the aspirational level of quality. Since much more has to be done, the results may indicate a desire to extend the services provided for the MATHEMATICS project to achieve excellence fully.

3.2. Attainment of Project Objectives

Attainment of the project objectives was ascertained through the client's performance. In Pentang et al. (2020), unsatisfactory performance was recorded among LVC-P youths (Mean = 0.25). However, this inquiry revealed a very satisfactory performance (Mean = 0.71). Table 2 displays the level of performance of the LVC-P clients before and after the project was implemented. Data shows improved mean performance in numbers (from 0.33 to 0.81), measurement (from 0.26 to 0.74), geometry (from 0.17 to 0.65), algebra (from 0.16 to 71), and statistics (from 0.34 to 0.62).

Table 2

Attainment of Project Objectives

CONTENT AREA	MEAN	
	Before Project Implementation (Pentang et al., 2020)	**After Project Implementation (Current Study)**
Numbers	0.33	0.81
Measurement	0.26	0.74
Geometry	0.17	0.65
Algebra	0.16	0.71
Statistics	0.34	0.62
GRAND MEAN	**0.25**	**0.71**

MATHEMATICS project of WPU-CED aimed to deliver mentoring and tutorial extension services to aid clients in learning and doing mathematics. Accordingly, the project objectives were attained based on the enhanced performance of the clients considered. This indicates that the services rendered were able to address the clients' mathematical needs and related learning concerns, especially in dealing with their self-learning modules. Besides, this signifies that the clients could apply the fundamental knowledge specific to the mathematical content areas discussed to them. Results may further imply that the LVC-P youths are now confident with their mathematical abilities due to the effective delivery and implementation of the project.

Nevertheless, achieving an excellent performance challenges the MATHEMATICS project implementers to improve its services. Also, the result needing further implementation may direct WPU-CED to consider continuing its mentoring and tutorial extension services.

3.3. Clients Feedback

The following themes were derived from the client's feedback vis-à-vis their experiences and how they improved. Bos et al. (2013) highlighted that listening is critical, as is understanding the project from another person's perspective.

Theme 1: Friendly Learning Experience. The clients mentioned that they enjoyed learning mathematics in the friendly environment provided by WPU-CED and LVC-P. Clients 1, 6, 10, and 31 noted, *"...the mentor/tutor teaches us well even if he is funny. We felt no pressures and fears with him and mathematics...".* Besides, clients 11, 13, 15, and 29 admitted,

"...we do not like mathematics before, but with the mentor's friendly approach, we become comfortable learning and doing mathematics even though it is difficult...". Furthermore, clients 19, 23, 24, 31, and 32 said, *"...we are confident even if we fail in our activities since our tutor always makes way for us to learn. Sir (our tutor) makes ways for us to know, understand and appreciate mathematics, especially that we learn on our own...we may have uneasiness; however, we do not feel it as hard as the way it is before we were tutored"*. These adhere to Harris et al. (2004), stating that a learning-friendly environment welcomes, nurtures, and educates all students regardless of their background.

Theme 2: Extension of Project Implementation. Clients voiced their interest in extending the MATHEMATICS project. Clients 2, 3, 5, and 28 stated, *"...if it is possible, we hope that the project will be extended next month or the following year. The sessions are timely and relevant as we learn concepts provided in our modules..."*. Additionally, clients 10, 16, 17, 23, 25, and 30 agreed, *"...the project helps a lot, it is useful as we independently learn what we have in our modules, we want to request the extension of the tutorial sessions..."*. Moreover, clients 13, 18, and 29 clarified, *"...the project being implemented is a great opportunity for us to learn from a mentor outside LVC-P, that the mentor acknowledges our mathematical needs and concerns, and tries to address them..."*. Pentang et al. (2020) and Pizaña et al. (2021) support this claim, where the WPU-CED Extension Projects and project implementers pursue to deliver sustainable and relevant extension services.

Theme 3: Source of Encouragement. Clients of LVC-P expressed that they are encouraged and motivated to complete their studies and pursue their dreams in addition to learning mathematics. Clients 4, 7, 8, 9, 20, 26, and 27 said, *"...we are encouraged by the words of our teacher-mentor to complete our studies despite any difficulty...we are being told to focus even if we encounter several challenges"*. Also, clients 5, 7, 12, 18, 21, 22, and 32 added, *"...we are encouraged to be a math teacher with the inspiration from our mentor...we want to teach and help needy individuals too..."*. More importantly, most clients cited that having a mentor who is willing to help them learn basic and advanced concepts is a source of hope and positivity. *"We are learning mathematics in a fun and easy way...more than our mentor's quotes and jokes, we are indeed encouraged to make it as a way of life to keep learning despite any hindrance, and we are greatly motivated to love math and apply it to our*

daily life…". Encouragement indeed helps in advancing education (Alcott, 2017), and motivation is an essential predictor of learning (Mahler et al., 2018).

   Theme 4: Dedication and Commitment. Several clients emphasized the utmost dedication and commitment of their teacher-mentor. Clients 1, 6, 10, and 11 acknowledged, *"…we admire the dedication of our teacher-mentor to clarify our queries even if we ask the same questions repetitively…some do not, especially math teachers…"*. In agreement, clients 8, 26, and 29 mentioned, *"…when we request solutions and explanations for several problems, the tutor and his fellow teachers offer ample ways to facilitate us…they even provided us with materials aside from the module provided by the center…"*. More so, clients 15, 19, 27, and 31 averred, *"despite the distance, weather disturbances, and COVID-19 pandemic, we are moved by the commitment of sir (our mentor) to teach and assist us with our modules… he's a genius in mind and great in heart for all of us"*. Undeniably, teachers who are committed to their students recognize and make an effort to fulfill their responsibilities (Maiyani, 2017).

   Theme 5: Additional Materials and Mentors. The clients asked for additional materials and mentors to help them. Clients 3, 14, 17, 27, 29, and 30 suggested, *"…video tutorials will help us learn our lessons, we cannot always access online materials…"*. Clients 5, 11, 15, and 23 also mentioned, *"…other learning materials such as books and other reading resources will help us understand the lessons included in our module…we hope to have other mentors too so that Sir (our mentor) will not be exhausted to accommodate all of us in one session…"*. Further, clients 8, 9, 10, 24, and 31 emphasized, *"…mentoring and tutorial sessions are helpful, however, when it is no longer possible due to restrictions caused by pandemic, video and reading materials will be helpful…may we also request more mentors especially in other subject areas that challenge us like Science and Reading…"*. Accordingly, supplementary learning materials foster motivation, which is one of the most critical factors influencing learning (Karki, 2018). In addition, mentors play an essential role in guiding and supporting young people in need (Jucovy & Garringer, 2008).

4. Conclusion

The majority of the LVC-P clients rated the MATHEMATICS project as excellent. The high-quality impact of the project implemented manifests that the WPU-CED was able to address the mathematical needs and module concerns of LVC-P clients. Thus, the College may sustain its programs and projects to mentor and tutor youths who need help and are willing to receive assistance and to provide comprehensive services, particularly during the COVID-19 pandemic. Still, further monitoring and evaluation, and re-planning efforts must be undertaken by the College Extension Unit to achieve a full aspirational quality.

LVC-P clients had a very satisfactory mathematical performance compared to the unsatisfactory performance recorded before implementing the project. This improved performance establishes the attainment of the project objectives to enhance mathematical knowledge, understanding, and appreciation among youths. With this impact, the WPU-CED is challenged to pursue its goals to impart an excellent performance among its clients through intensified mentoring and tutorial sessions supplemented by materials to facilitate the effective transfer of learning.

Feedback from LVC-P clients has shown the positive impact of the project concerning their experiences. Nevertheless, the WPU-CED may consider the production and distribution of learning materials and the invitation of more mentors/tutors to meet the clients' requests. Re-planning must consider outsourcing of funds for the provision of Information, Education, and Communication (IEC) materials as well as support the mentors/tutors or resource speakers invited. Moreover, the WPU-CED Research, Development, and Extension Unit are highly encouraged to develop IEC materials. Further, other faculty and student may also serve as mentors/tutors to aid in delivering quality and relevant extension services.

LCV-P management and staff were not included, and only half of the participants took part in the study. With such constraints, additional studies and impact assessments may be conducted to extend and confirm the findings reported.

5. Acknowledgement

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The Effect of Social Learning-Related Variables on Academic Achievement
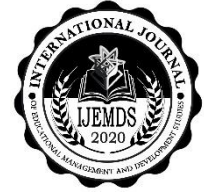
Edilberto A. Magsino Jr.

Abstract

This study determined the relationship between the social learning-related variables and the skills achievement in Mathematics of the 200 Grade 8 students in a public school in the Philippines. Descriptive research design was used through a self-constructed questionnaire and an assessment test. The data gathered were presented in a tabular mean while the relationship between variables was tested using Pearson r correlation coefficient. The students' social learning-related variables were highly manifested (WAM = 3.44, SD = 1.11). However, only 11.5% of the students have satisfactory performance in Mathematics. Among the demographic profile, only mothers' educational attainment has shown significant relationship with mathematics achievement in terms of estimation (r = 0.184). Among the social learning-related variables, attitude of the students indicated significant relationship with both estimation (r = 0.184) and problem solving (r = 0.196). Peer support also revealed significant relationship with both representation (r = 0.167) and estimation (r = 0.159). The mathematics teacher must find effective ways on how to overcome the students' difficulties and thus develop their mathematical skills. Efforts to thresh out problems in vocabulary development especially solving worded problems may be exerted. A parallel study may be conducted using variables not considered in this research.

Keywords:

mathematics, social learning-related variables, academic achievement, effect on academic achievement

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1. Introduction

In one of the reports in the World Economic Forum, de Leon (2011) cited that in the recent results of international studies, the Philippines was second least among the eight ASEAN countries in terms of students' performance in mathematics, science, innovation, and education. Similarly, the Philippines was 99th out of 138 countries in the basic education. The country also ranked 69th on the world educational system, 112th in Science and Math, and 76th on online usage. In general, the Philippines is lagging behind its regional neighbors in terms of education and academic performance (Kolar, et al, 2012).

This scenario of the country's performance calls for attention to improve the teaching and learning in all the levels of education. There are so many factors associated with the poor performance in mathematics but a number of researchers commonly agree on the students' attitude towards mathematics (Makondo & Makondo, 2020; Chand, et al., 2021; Michael, 2015; Sanchal & Sharma, 2017). This attitude constitutes cognitive, affective and behavioural reactions (Han & Carpenter, 2014). According to Davadas and Lay (2017), students' attitude is affected by such other factors as parental influences, teacher affective support and classroom instruction. Ayob and Yasin (2017) also consider opportunity to learn and teaching practice as contribution factors. Although there are several factors affecting the poor performance of students in mathematics, the students' characteristics and the influence of the people around them are dominant predictors.

Considering the various factors affecting academic performance in mathematics, this study identified the social learning-related variables, indicators of students' qualities and the people around them. It assessed the social learning-related variables such as study habits, attitude, interest and motivation in terms of parental guidance, peer support and teacher support in order to determine any significant relationship with the achievement level of students in number sentence, representation, spatial sense, measurement, estimation and problem solving.

The following are the hypotheses of the study:

HO1: There is no significant relationship between the social learning-related variables and students' academic achievement in mathematics.

HO2: There is no significant relationship between the students' demographic profile and academic achievement in mathematics.

2. Literature review

The learner's school achievement and performance is a primary gauge of a society's efficient education status both in the developed and developing countries. As such, international assessments and evaluation of the academic index largely affects the policies and decisions of countries around the world to further enhance their communities and to achieve their collective goals (Yalcin, 2017). Thus, the existence of the regular national achievement tests, and other international standardized evaluations such as the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS).

There are numerous social learning variables identified that affect students' performance in mathematics. For instance, the effects of age on various outcomes such as academic achievement or earned wages have been addressed in many studies in education and economic research. Most of the studies analyzing achievement and relative age effects at the beginning of formal schooling have found that relatively older students perform better academically than relatively younger students (Small, 2015). Person related factors such as age and gender have been linked to affect the Mathematical achievement of students. Ganly and Lubienzki (2016) stressed that gender differences on Mathematics tests tend to be more pronounced when the content of the assessment is less related to the material that is taught in school (for example, on the SAT- Mathematics as opposed to a Mathematics test in school). In addition, researchers consistently find that gender gaps are larger among higher-performing students, which may partially explain why we see gender gaps in Mathematics-related careers, as these are often pursued by the highest-performing students (Ganly and Lubienzki, 2016).

Several studies proved relationship between gender and mathematics achievement. For instance, Recber, Isiksal, and Koc (2018) found that gender is a key factor and has a significant relationship to Mathematical self-efficacy, anxiety, and attitudes among the seventh grade learners. Similarly, Hannula (2012) noted that the Finish senior high school students' Mathematical satisfaction is primarily affected by gender, and that their perceived competence is related to their Mathematical performance. This was also elaborated by Watt (2005) that the performance in Mathematics can be associated with their ability to process critical problem solving skills in the context of their education, occupation, and personal choice. However,

Mutai (2016) found that girls had formed negative attitudes towards the subject while boys have a positive attitude towards learning of Mathematics.

Attitudes and values also affect the Mathematical achievement since age and gender also affect those variables. Research consistently shows that, even from a fairly young age, girls are less confident and more anxious about Mathematics than boys. Moreover, these differences in confidence and anxiety are larger than actual gender differences in Mathematics achievement. For example, researchers have found that boys tend to use more novel problem-solving strategies, whereas girls are more likely to follow school-taught procedures. Moreover, Brown and Kanyongo (2018) found in their study that girls performed better than boys on all categories and all skill areas on the test, the effect sizes were small. The results of a follow-up descriptive discriminant analysis also indicate that while boys and girls did not differ with regard to the perception of the school environment, educational values and goals, and general academic self-concept, they differ significantly on the persistence and Mathematics self-concept factors. Girls tend to persist more, but hold lower Mathematics self-concept than boys.

Another factor is socio-economic background which is relative standing of a family in a society based on its income, power, background and prestige (Gouc, 2013; Illiyas, 2017). It includes family socio-economic background includes family income, standard of house occupied or rented, family size, parental education and level of family stability among other factors (Ovute, 2012). The socio-economic status of a parent goes a long way to mold a child's personality both morally, academically, economically, socially, spiritually or otherwise (Eccles & Daviskean, 2015). In addition, Iruka and Barbain (2008) stated that parents and guardians are the primary influence especially during the early part of their development. Such influence may result to a particular stress in their residence (Cross, Woods, & Schweingruber, 2009). Friedel, Cortino, Turner, and Midgley (2010) argued that parents' interaction and influence in different ways is a key measurement for developing children's Mathematical engagement. Recent studies have shown that some clear factors that affect and link the primary role in creating and influencing Mathematical performance of children are as follows – parental vision, family communication, the family organization, and parental support in the children's academic involvement (Wang, 2004). Bicer, Capraro, and Capraro (2013) also found that parents with above-average educational profile is prone to set a higher expectation to their

children which provides positive reinforcement to their children (Hong, You, & Wu, 2010) transmitted and demonstrated during the parent-children interaction (Demir, Kilic, &Unal, 2010; Fox & Larke, 2014). This was further supported by the study of Wang and Li (2014) that several important constituents of SES, such as parents' education and family income have influence on the mathematics achievement of the Chinese students which suggest that low SES has a significant negative relationship with Mathematics achievement (Hernandez, 2014; Qiang Cheng & Hsien-Yuan Hsu, 2016) .

On parental guidance and support, Nyabuto (2014) mentioned that students whose parents are involved in their education are more likely to perform better in Mathematics and achieve more than other students. The parents' contribution to their children's education has a consistent and positive effect on the self-concept of elementary students (Chohan, 2010) and academic achievement of the primary school pupils (Fajoju, Aluede, & Ojugo, (2015).

The learners' nature and their environment also play a crucial role in the academic achievement. The nature of learners – their inner motivation, personality, character, expectations, and aspirations integrates dynamically to their environment. The students' environment not only refers to their immediate classroom and social groups, but extends more to their school, family, and all the way to the community (Visser & Fezza, 2015). It is also a predictor of self-efficacy and achievement (Bitar & Zedan, 2014). However, Blazar and Kraft (2017) found that upper-elementary teachers have large effects on self-reported measures of students' self-efficacy in Mathematics, and happiness and behavior in class.

The attitude towards mathematics and study habits also have strong impact on the academic performance. Sakirudeen and Sanni (2017) found a significant relationship between note taking, students' use of library, time allocation for study and students' academic performance in Mathematics. Meanwhile, Um (2017) added that intrinsic motivation positively affects whereas external regulation negatively affects Mathematics performance. There was also significant positive correlations between internal motivation and self-reported Mathematics grades, self-reported grades and enjoyment, and self-reported grades and confidence (Herges, Duffield, Martin & Wageman, 2017). Similarly, Odiri (2015) found significant relationship between study habits and Mathematics achievement and there was a significant difference in Mathematics achievement between good study habits and poor study

habits of secondary students in Nigeria. There is also positive relations between achievement and self-efficacy (Saileela, 2012; Yara, 2014; Heinze, 2014; Sekhar & Karanam, 2014; Tudy, 2014) and achievement and student attitude (Yara, 2012; Mata, Monteiro & Peixata, 2012; Vardardottir, 2012; Adeyinka, 2013; Hernandez, 2014).

3. Methodology

This study used the descriptive correlation research design. Demographic variables and other social learning-related variables were tested for statistical relation with the achievement in mathematics.

A pre-tested questionnaire consisting of two parts was used. The first part describes the profile of the students such as age, gender and their parents' educational attainment, occupation and monthly income. The second part covered relevant social variables such as study habits, attitude, interest and motivation, which include parental guidance, peer support and teachers' support. This part used the five-point Likert scale. In addition, a self-constructed achievement test, which was referred to the classroom teachers for validation, was also used. This 60-point examination aims to measure the skills of the students in number sentence, representation, spatial sense, measurement, estimation, and problem solving. Each item for the mathematical skill is given one point except for representation and problem solving with two points each. The test scores were the indicator of skills achievement in mathematics.

The respondents of the study consisted of 200 Grade 8 students in one of the public high schools in Quezon Province during the school year 2018-2019. The sample size comprises 94% of the total students in the six (6) classes. Purposive sampling procedure was utilized in the study. The demographic profile of the students showed that majority of student-respondents are in the age bracket 14-15 (53%), majority are female (57%), whose fathers and mothers are mostly high school graduates (29% & 32%, respectively), with combined family income of P 5, 000.00 and below (47%).

The researcher asked permission from the school head in the research locale to conduct the study among the Grade 8 students. The researcher also asked permission for the involvement of other Mathematics and English teachers in validating the tests for assessing the

performance of the students' respondents. The researcher conducted the survey and assessment test personally.

The statistical treatments used were frequency count, percent distribution, mean, standard deviation and Pearson - Product Moment Coefficient at the .05 level of significance.

4. Findings and Discussion

Table 1
The Perceived Social Learning-Related Variables

Indicators	WAM	SD	Interpretation
Study habits	3.27	1.11	Moderately manifested
Attitude	3.65	1.06	Highly manifested
Interest	2.88	1.21	Moderately manifested
Parental Guidance	3.64	1.10	Highly manifested
Peer Support	3.48	1.09	Highly manifested
Teacher Support	3.69	1.07	Highly manifested
Overall	**3.44**	**1.11**	**Highly manifested**

Legend: N=200, 1.0-1.80 (Not At All Manifested), 1.81-2.60 (Slightly Manifested), 2.61-3.40 (Moderately manifested), 3.41-4.20 (Highly Manifested), 4.21-5.0 (Very Highly Manifested)

The summary on perceived social learning-related variables is indicated in Table 1. The overall mean of 3.44 is interpreted as "highly manifested" with standard deviation of 1.11. The standard deviation suggests that there is homogeneity in the students' perception on the social learning-related variables. Results indicate that the students perceived social learning-related variables as may have influenced mathematics are highly manifested. The highest mean obtained is on teacher support (3.69) with standard deviation of 1.07, which is 'Highly Manifested' while lowest mean gathered is on interest (2.88) with standard deviation of 1.21 interpreted as "moderately manifested".

In terms of the study habits, students have high regards to asking for help on confusing ideas or lesson in Mathematics (WAM = 3.52, SD = 1.13) while low regards to studying and practicing mathematics drills during free time (WAM = 3.09, SD = 0.95). The overall mean of 3.27 reveals that the students "sometimes practiced" their study habits. As noted by Sakirudeen

and Sanni (2017) that these habits have significant relationship with the academic performance. However, results indicate that students need to improve their study habits in order to improve their academic performance in mathematics.

Meanwhile, the attitude of the students shows high respect for teachers and classmates (WAM = 4.60, SD = 0.08). However, they may have issue with the Mathematics textbooks and other learning resources in school and at home (WAM = 3.2, SD = 1.02). This supports the study of Yara (2014) showing that students' attitudes towards Mathematics were positive and that many of them believed that Mathematics is a worthwhile and necessary subject, which can help them in their future career.

The interest of the students was reflected by their perception that "numbers appear the least" (WAM = 3.32, SD = 1.14) as the highest and that "mathematics book does not interest them" (WAM = 2.44, SD = 1.24). As explained by Heinze (2014) that interest could be regarded as a predictor for Mathematics achievement. The results indicated that students are uncertain as to whether their interest is a variable to learning skill development probably because they have not fully acquired the needed competencies and skills in the four fundamental operations.

The students generally "agree" that parental guidance is indeed a variable in skills development as shown by their highest regards to parental support in studies (WAM = 4.4, SD = 0.78) which was verified by lowest assessment on the statement "My parents cannot afford to support my studies" (WAM = 2.55, SD = 1.34). The overall standard deviation of 1.10 indicates homogeneity in students' perception. It implies that students perceive parental guidance as very important in developing skills in solving Mathematical problems that supports Nyabuto (2014). The parental involvement directly affects their children's Mathematics achievement. Students whose parents are involved in their education are more likely to perform better in Mathematics and achieve more than other students.

The students' perception of peer support was also positive. Among the indicators, the item "My friends motivate me to study well." has the highest mean of 4.04 but the item "My friends give me money to support my studies" has the lowest mean of 2.15. The value of peer support as mentioned by Vardardottir (2012) was clearly reflected in the results. The peer effects and academic achievement are two interrelated variables. It clearly shows that peers have strong influence on the habits and performance of the students.

Lastly, the students generally "agree" that teacher support is indeed a variable in skills development. "My teachers give me advice regarding Mathematics." and "My teachers encourage me to learn." are indicators with both the highest mean with 4.13 and standard deviations of 0.95 and 1.07, respectively. In addition, teachers give students' money (WAM = 2.03, SD = 1.22) was the least rated. This supports the claims of Adeyinka (2013) that the negative performance of student towards educational aims and objectives could be associated to the low moral support of teachers most especially in the area of Mathematics. The students' high regard to their teachers inspires them to achieve more in the class.

Table 2

The Achievement Level of Students in Mathematics Skills

Rating	Number Sentence		Representation		Spatial Sense		Measurement		Estimation Solving		Problem Solving		Interpretation
	F	%	F	%	F	%	F	%	F	%	F	%	
95 and above	11	5.5	5	2.5	46	23	4	2	1	0.5	15	7.5	Excellent
88-94	5	2.5	1	0.5	30	15	5	2.5	4	2	1	0.5	Very Satisfactory
82-87	13	6.5	6	3	27	13.5	50	25	38	19	28	14	Satisfactory
76-81	16	8	19	9.5	10	5	14	7	8	4	20	10	Fair
70-75	155	77.5	169	84.5	87	43.5	127	63.5	149	74.5	136	68	Poor

The mathematical skills assessed were number sentence, representation, spatial sense, measurement, estimation, and problem solving. Table 2 presents the distribution of respondents through Mathematics skills test. The results reveal that most of the respondents' scores are within the range of 70 - 75 interpreted as "poor" in their performance. Only 21 or 10.5% of the respondents got scores within the 76 - 81 range interpreted as "fair". The students in this particular group still have the knowledge on how to convert length, mass/weight, capacity/volume and time to another unit even if they had taken the lessons for far too long before. Also, they are possibly interested in this part of the lesson.

A little less than 75%, that is, 74.50% or 149 are "poor" in their performance. They got scores within the range of 70-75 since it has been observed that they know the lessons well when such were explained but when the test came, most of what had been taken were already forgotten. It implies then that there is still a need for some reinforcement and enrichment activities in Mathematics especially in measurement to overcome the difficulties of the

students in order to improve their Mathematical skills. It is quite ironic to note that the students' perception of the social learning variable are high but the test results show otherwise.

Table 3

Correlation between Mathematics Achievement and Social Learning-Related Variables

Variables	Number Sentence	Representation	Spatial Sense	Measurement	Estimation Solving	Problem Solving
Study habits	0.093	0.003	0	0.008	0.079	0.011
Attitude	0.08	0.134	0.071	0.036	.184**	.196**
Interest	0.059	0.027	0.07	0.018	0.117	0.029
Motivation						
Parental guidance	0.02	0.028	0.021	0.056	0.059	0.059
Peer support	0.087	.167*	0.103	0.037	.159*	0.099
Teacher support	0.043	0.089	0.023	0.027	0.067	0.108

*Legend: N = 200, r is significant at ** p<.01, *p<.05*

Table 3 shows the correlation between mathematics achievement in terms of number sentence, representation, spatial sense, measurement, estimation and problem solving and social learning-related variables such as study habits, attitude, interest, and motivation in terms of parental guidance, peer support and teachers' support.

Based on the statistical results, there is significant relationship between mathematical achievement and social learning-related variables such as: attitude and estimation (r = 0.184), attitude and problem solving (r = 0.196), and peer support in terms of representation (r = 0.167) and estimation (r = 0.159).

Findings indicated that if students have positive attitude towards mathematics. It is most likely that they will perform better in estimation and problem solving. Moreover, with enough and sufficient peer support, students will likely have better achievement in representation and estimation. These results affirm the study of Tudy (2014) and Yara (2012).

Table 4

Correlation between Mathematics Achievement and Person-Related Factors

Variables	Number Sentence	Representation	Spatial Sense	Measurement	Estimation Solving	Problem Solving
Age	0.046	0.027	0.05	0.008	0.003	0.001
Gender	0.04	0.048	0.034	0.051	0.062	0.019
Father's educational attainment	0.021	0.011	0.051	0.001	0.109	0.079
Mother's educational attainment	0.08	0.05	0.122	0.056	0.184**	0.05
Father's occupation	0.016	0.088	0.065	0.001	0.049	0.036
Mother's occupation	0.078	0.023	0.002	0.095	0.098	0.012
Parent's monthly income	0.039	0.039	0.051	0.075	0.091	0.047

*Legend: N = 200, r is significant at ** p<.01, *p<.05*

Table 4 shows the correlation between Mathematical achievement in terms of number sentence, representation, spatial sense, measurement, estimation and problem solving and person - related factors such as age, gender, parents' educational attainment, parents' occupation, and parents' monthly income.

There is no correlation between mathematical achievement and person-related factors, except mother's educational attainment and estimation ($r = 0.184$). This implies that mother's educational attainment is significantly related to mathematics achievement in terms of estimation ($p < 0.01$). This means that as educational attainment of mothers' decreases, the achievement level of the students in estimation also decreases and vice-versa. This confirms the studies of Eccles and Daviskean (2015), Friedel, Cortino, Turner and Midgley (2010), Bicer, Capraro, and Capraro (2013) and Hong, You and Wu (2010).

5. Conclusion

The study evaluated the social learning - related variables and Mathematics skills of the respondents to determine any significant relationship between these variables. The social learning - related variables were study habits, attitude, interest, parental guidance, peer support, and teacher support. The mathematics achievement was measured through a test on number sentence, representation, spatial sense, measurement, estimation and problem solving. The respondents of the study were the 200 Grade 8 students of a public school during the academic year 2018-2019. The study utilized descriptive research design using self-constructed questionnaires. The arithmetic mean and Pearson r were the main statistical tools used.

The results showed that the students' social learning - related variables were highly manifested by the overall mean of 3.44 and standard deviation of 1.11. However, only 11.5% of the student-respondents have at least satisfactory performance in Mathematics. The contrasting results of the two variables showed that only mothers' educational attainment has significant relationship with mathematics achievement in terms of estimation ($r = 0.184$). Furthermore, the attitude of the students indicated significant relationship with both estimation ($r = 0.184$) and problem solving ($r = 0.196$) while peer support has significant relationship with both representation ($r = 0.167$) and estimation ($r = 0.159$).

There is really an impending problem with the students' academic performance in mathematics. For this, the teacher may find other more effective ways on how to overcome the students' difficulties and thus develop their mathematics skills. Efforts to thresh out problems in vocabulary development especially solving worded-problems may be exerted. Coordination between teachers in English and teachers in Mathematics may be encouraged. Measures may be adopted to find out in what aspects students may be weak. Thus, greater emphasis may be placed in such aspects to upgrade their learning competency.

Classes for remediation maybe organized and the researcher's proposed learning plans may be used once approved by proper authorities. Teacher concerned may work with school administrators, or supervisors to look into or check the demands of the program. This might be especially on the provision of learning materials and facilities or devices. The attention of teachers of mathematics may focus on the students' difficulties resulting from detected variables as revealed by the findings in the study. A parallel study may be conducted using variables not considered in this research.

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APPENDICES

Appendix A

Perceived Social Learning - Related Variables as to Study Habits

Indicators	M	SD	Interpretation
1. Reading notes after class is included in my regular routine.	3.14	0.84	Sometimes Practiced
2. Playing any games with my friends is my daily routine after class.	3.12	1.21	Sometimes Practiced
3. Watching television and playing on the internet café are my hobbies after school.	3.43	1.38	Often Practiced
4. Homework in Mathematics is interesting and mind-boggling.	3.4	1	Sometimes Practiced
5. Studying Mathematics as well as doing Mathematics practice drills during vacant times is my option.	3.09	0.95	Sometimes Practiced
6. Clarifying vague concepts about the lesson from my classmate is an option to me.	3.1	0.89	Sometimes Practiced
7. I attend group studies related to Mathematics.	3.24	1.28	Sometimes Practiced
8. I do my homework because I do get support and assistance from home.	3.23	1.26	Sometimes Practiced
9. If there are confusing ideas or lesson in Mathematics, I ask for help.	3.52	1.13	Often Practiced
10. I spend time doing my homework/assignment in Mathematics.	3.48	1.2	Often Practiced
Overall	**3.27**	**1.11**	**Sometimes Practiced**

Appendix B

Perceived Social Learning - Related Variables as to Attitude

Indicators	M	SD	Interpretation
1. I enjoy doing task in Mathematics with or without the instruction of the teacher.	3.29	1.15	Sometimes True To Me
2. I am excited to receive incentive for the good work I have done in Mathematics.	3.5	1.05	Often True To Me
3. I obey the rules and regulations set by my Mathematics teacher.	3.8	1.14	Often True To Me
4. I interact with my classmates with proper tone and volume.	3.4	1.03	Often True To Me
5. I feel confident every time I attend my Mathematics class.	3.71	1.01	Often True To Me
6. I accept suggestions and criticisms when my answer/s is/are wrong.	3.8	**1.1**	Often True To Me
7. I respect my classmates/teachers/others.	4.6	0.8	Very True To Me
8. I perform Mathematics exercises on my own or with a friend.	3.3	1.07	Sometimes True To Me
9. I feel excited and anxious during Mathematics examinations.	3.37	0.98	Sometimes True To Me
10. I am well-provided with Mathematics textbooks and other learning resources in school and at home.	3.2	1.02	Sometimes True To Me
Overall	**3.65**	**1.06**	**Often True To Me**

Appendix C

Perceived Social Learning-Related Variables as to Interest

Indicators	M	SD	Interpretation
1. Numbers appeal to me the least.	3.32	1.14	Sometimes True To Me
2. Polynomial is alien to me.	2.64	1.47	Sometimes True To Me
3. Symbols give me headache.	2.87	1.12	Sometimes True To Me
4. Working on Mathematics homework is stressful for me.	2.8	1.26	Sometimes True To Me
5. Limited time pressures me which resulted to poor comprehension.	2.93	1.1	Sometimes True To Me
6. Any Mathematics book does not interest me.	2.44	1.24	Sometimes True To Me
7. Limited knowledge in Mathematics is a hindrance in finding a job.	3.24	1.21	Sometimes True To Me
8. Homework will always be left undone if I do not know how to do it.	2.99	1.18	Sometimes True To Me
9. Nothing can force me to answer Mathematics questions.	2.86	1.17	Sometimes True To Me
10. Calculator application is complicated and I will never get used to it.	2.7	1.21	Sometimes True To Me
Overall	**2.88**	**1.21**	**Sometimes True To Me**

Appendix D

Perception of the Respondents in Motivation in terms of Parental Guidance

Indicators	M	SD	Interpretation
My Parents…			
1. are supportive in my studies.	4.4	0.78	Strongly Agree
2. help me in my assignments.	3.26	1.11	Moderately Agree
3. explain to me the importance of education.	4.21	0.98	Strongly Agree
4. prepare and save for my studies.	3.98	1.07	Agree
5. and siblings encourage me to learn.	3.82	1.13	Agree
6. keep motivating me to study well.	4.03	1.04	Agree
7. cannot afford to support my studies.	2.55	1.34	Disagree
8. are aware of my ability in Mathematics.	3.56	1.15	Agree
9. regularly attend school conferences to monitor my studies.	3.39	1.14	Moderately Agree
10. regularly browse my notes to check whether I am doing my assignments.	3.28	1.21	Moderately Agree
Overall	**3.64**	**1.1**	**Agree**

Appendix E

Perception of the Respondents as to Motivation in terms of Peer Support

Indicators	M	SD	Interpretation
My friends…			
1. motivate me to study well.	4.04	0.92	Agree
2. help me in my assignments.	3.54	1.07	Agree
3. are considerate while I'm studying.	3.65	0.94	Agree
4. give me additional references.	3.42	1.08	Agree
5. encourage me to learn.	3.92	1.02	Agree
6. keep motivating me to study well.	3.79	1.03	Agree
7. give me money to support my studies.	2.15	1.36	Disagree
8. are aware of my ability in Mathematics.	3.45	1.13	Agree
9. regularly visit me to play.	2.9	1.28	Moderately Agree
10. inspire me in my studies.	3.93	1.11	Agree
Overall	3.48	1.09	**Agree**

Appendix F

Perception of the Respondents as to Motivation in terms of Teacher Support

Indicators	M	SD	Interpretation
My teachers…			
1. explain to me the importance of education.	4.5	0.8	Strongly Agree
2. help me in my assignments.	3.03	1.19	Moderately Agree
3. are supportive of my studies.	4.01	0.96	Agree
4. give me advice regarding Mathematics.	4.13	0.95	Agree
5. encourage me to learn.	4.13	1.07	Agree
6. keep motivating me to study well.	4.02	1.12	Agree
7. give me money to support my studies.	2.03	1.22	Disagree
8. are aware of my ability in Mathematics.	3.72	1.1	Agree
9. regularly monitor my progress in Mathematics.	3.74	1.19	Agree
10. regularly browse my notes to check whether I am doing my assignments.	3.65	1.13	Agree
Overall	**3.69**	**1.07**	**Agree**