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Perceptions on Online Homeworks Given through Edu2.0 in Calculus Classes

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Philippine Normal University

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Perceptions on Online Homeworks Given Through Edu2.0 in Calculus Classes

A Special Project

Presented to

The College of Graduate Studies and Teacher Education Research

Philippine Normal University

The National Center for Teacher Education

Taft Avenue, Manila

In Partial Fulfilment of the Requirement for the

Degree of Master of Education with Specialization in Mathematics

By:

Beatrice O. Lee Puetting

March 2014

APPROVAL SHEET

This special project entitled “**PERCEPTIONS ON ONLINE HOMEWORKS GIVEN THROUGH EDU2.0 IN CALCULUS CLASSES**” prepared and submitted by **BEATRICE O. LEE PUETTING**, in partial fulfilment of the requirements for the degree of **Master of Education with specialization in Mathematics**, is hereby recommended for approval and acceptance.

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Acknowledgment

Never has it crossed my mind that I will be able to complete this paper without the help of numerous people. I have been more than fortunate to be associated with many people who freely gave their time and wisdom throughout this process, I cannot list them all because I will undoubtedly miss someone. For those whose name are not listed here, you know who you are and you have my full gratitude.

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Lastly, I thank the Father Almighty for working wonders and for sending these angels in my path. If not because of Your will, none of this will be possible.

Beatrice O. Lee Puetting

This study is dedicated to my mother,
the strongest woman I know and my number one fan.

ABSTRACT

Name: Beatrice O. Lee Puetting

Title: Perceptions on Online Homeworks Given Through Edu2.0 in Calculus Classes

Key Concepts: Online Homework

Edu2.0

Perception

Time spent on homework

Purpose

Parents' involvement

Homework environment

Degree: Master of Education

Specialization: Mathematics

Adviser: Dr. Erminda C. Fortes

The main purpose of this study is to determine the perceptions of the one hundred ninety-one fourth year students (191) of Makati Science High School and their Calculus teacher towards their online homeworks given through Edu2.0 in terms of time spent on homework; purpose of the homework; and parents' involvement and homework environment. Descriptive method was used for this study. Two sets of survey

questionnaires were constructed, validated by experts, and administered. These questionnaires were constructed following the Likert – scale format with a five-point response scale; strongly agree, agree undecided, disagree, and strongly disagree. Aside from the survey, twenty students were randomly picked to be interviewed.

The results of the study found that both the teacher and students had favorable perceptions on online homeworks through Edu2.0 in their Calculus class. The results also show that the perceptions of the students and the teacher on online homeworks seem to differ in terms of parents' involvement. The students seem to have a high regard towards online homework in this area while the teacher seems to think this is where the online homework (Edu2.0) lacks. In addition, it seems to appear that online homeworks through Edu2.0 need a review for improvement. Teachers and students may have even more favorable perceptions on online homework through Edu2.0 if there are provisions for the students not to cheat. A careful look into the amount of time the students are given to comply with the assignments seems to be necessary as well. Too short a time may cause non-compliance while too lax a time may lead to complacency.

This study recommends that teachers who wants to use similar online programs as a manner of giving homeworks may review purposes of giving homework, make provisions so that the students are not encouraged to cheat, give considerable amount of time for everyone to comply, and give at least two exammples in the site that will serve as a review for the students. Since giving online homeworks through Edu2.0nwas

found favourable by the students and the teacher, this study also recommends that seminar and workshops on these online programs for homeworks may be given to teacher. Further studies on online homeworks may be done. This time, the researcher may look into the effectiveness of online homeworks.

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CHAPTER I

THE PROBLEM AND ITS SETTING

Background of the Study

As much as there are those who are exceptionally gifted in Mathematics, there are also those who would bend on and backwards just to survive in this field. Most students would say that they easily understand the lesson in class but when they have to answer on their own, they are struggling. One contributing factor to this issue may be mathematical anxiety. Mathematical anxiety, as defined by Richardson and Suinn (1972) is "feelings of apprehension and tension concerning manipulation of numbers and completion of mathematical problems in various contexts." Although there may be several causes of mathematical anxiety, the researcher thinks that unpreparedness is one of them. Studies have shown "When asked to explain why some children do better in math than others, Asian children, their teachers, and their parents point to hard work, their American counterparts to ability" (Tobias, 1995). This only shows how important hard work and practice are to help students excel in math. In addition, constant practice leads to preparedness that later gives a person confidence, eradicating this mathematical anxiety.

One way for a mathematics teacher to ensure that his or her students have enough practice in math is by giving practice exercises and extra work such as homeworks. "Homework is typically defined as any task assigned to students by their teachers that are meant to be carried out during nonschool hours" (Cooper, 1989). But

in reality, most students would not even bother to go over mathematical concepts introduced in their class when they get home. Most of the time, they submit homeworks done halfheartedly. What is even worse is that sometimes, just for mere compliance, some of them would just copy from their classmates which defeat the purpose why homeworks are given in the first place. Observations such as those mentioned make educators ask why they must insist on giving these extra works for students when in fact, in some ways, these are also additional work for them. "Homework has been a perennial topic of debate in education and attitudes toward it have been cyclical" (Gill and Schlossman, 2000). Throughout a few decades of the 20th century, educators commonly believed that homework helped create disciplined minds. By 1940, growing concern that homework interfered with other home activities sparked a reaction against it. This trend was reversed in the late 1950's when the Soviets' launching of Sputnik led to a concern that U.S. education lacked vigor; schools viewed homework as partial solution to the problem. By 1980, the trend changed again, with some learning theorists claiming that homework could be detrimental to students' mental health. Since then, the arguments for and against homework continued to proliferate.

"Teachers should not abandon homework. Instead, they should improve its instructional quality" (Marzano and Pickering, 2007). Homework has been a component of most students' educational experience for years. And in this age of technology, a growing trend in mathematics courses is the use of textbook-based computer courseware to supplement or replace traditional objects of learning such as homework

and textbook. These mathematics courses are implementing an online format for homework instead of collecting the traditional homework papers from the students.

One of the researcher's colleagues gives homework to his students in a nontraditional way. He said that since educators are now teaching students who are overly exposed to technology, why not use these technologies to capture students' interest? This teacher's judgment seems to be supported by the findings in *Electronic Media in the Lives of Infants, Toddlers, and Preschoolers* (Rideout, Vandewater, & Wartella, 2003) that states that a high proportion of very young children are using new digital media, including 50% of four-six-year olds who have played video games and 70% who have used computers. When asked, students confirm that they are active users of different social networking media, making online interaction truly influential in their personal and academic lives.

In giving homework, the teacher mentioned utilizes Edu2.0. Edu2.0 is similar to the social networking site where the students need to sign up to in order for them to have access to all admin posts. Edu2.0 can handle multiple answering styles, including multiple choices, numerical and algebraic input. The system also features two types of grading process, immediate feedback and the opportunity to complete the homework multiple times before the deadline. For each attempt, the system initially marks the submitted answers correct or incorrect without the answer and the student gets one or two chances to fix any wrong answer, depending on the programmed number of tries. This gives the students the chance to investigate what they did wrong.

Aside from that, Edu2.0 is very flexible because he can set it to serve a particular purpose. He said that if his purpose for a particular homework is to let the students practice until they understand the concept, he can set it that way so that the students can have multiple tries. He can also set it such that each question has a time limit for answering. This system also helps the teacher to minimize the case of cheating. The teacher said that when he inputs several questions and the system randomizes the questions so that each student will have to answer a different set of questions.

The researcher saw great potential in this method of giving homework to the purpose of giving students an opportunity to practice their skills in math to the extent that she is considering adopting it in her class. But no matter how convinced teachers are of the effectiveness of a certain method if the students do not have a favorable perception towards it, might imply that this method will be unsuccessful.

Having these thoughts in mind, the researcher did not just consider her colleague's perception but also the views and opinions of the students towards homework given through Edu2.0 in their Calculus class.

Conceptual Framework

Homeworks, whether given in a traditional manner or through online should follow some guidelines. "Homework, to be effective and support learning, should exhibit

five characteristics: purpose; efficiency; ownership; competence; and aesthetic appeal” (Vatterott, 2010).

The existing researches about homeworks seem to include time spent on homework, purpose of the homework, and parents’ involvement. NELMS (2011) identified practice, interaction, application, extension, and preparation as purposes for homeworks, and to appear vigorous and demanding, to teach material for the first time, to keep students busy, and to assess students’ final summative mastery of a topic as inappropriate purposes for homework. Cooper (2007) and Connors (1992) share the same opinion that time limit recommendation should give consideration of student development level, quality of home support, and grade level. Balli, Demo, & Wedman (1998), and Perkins and Milgram (1996) recommended to define parental involvement to include facilitation of homework completion and not content.

The conceptual framework of this study is supported by the cognitivism learning theory. Cognitivism focuses on the inner mental activities – opening the “black box” of the human mind is valuable and necessary for understanding how people learn. Mental processes such as thinking, memory, knowing, and problem-solving need to be explored. Knowledge can be seen as schema or symbolic mental constructions. Learning is defined as change in a learner’s schemata. Cognitivism believes that people are not “programmed animals” that merely respond to environmental stimuli and that people are rational beings that require active participation in order to learn, and whose actions are a consequence of thinking. Changes in behavior are observed, but only as

an indication of what is occurring in the learner's head. Cognitivism uses the metaphor of the mind as computer: information comes in, is being processed, and leads to certain outcomes.

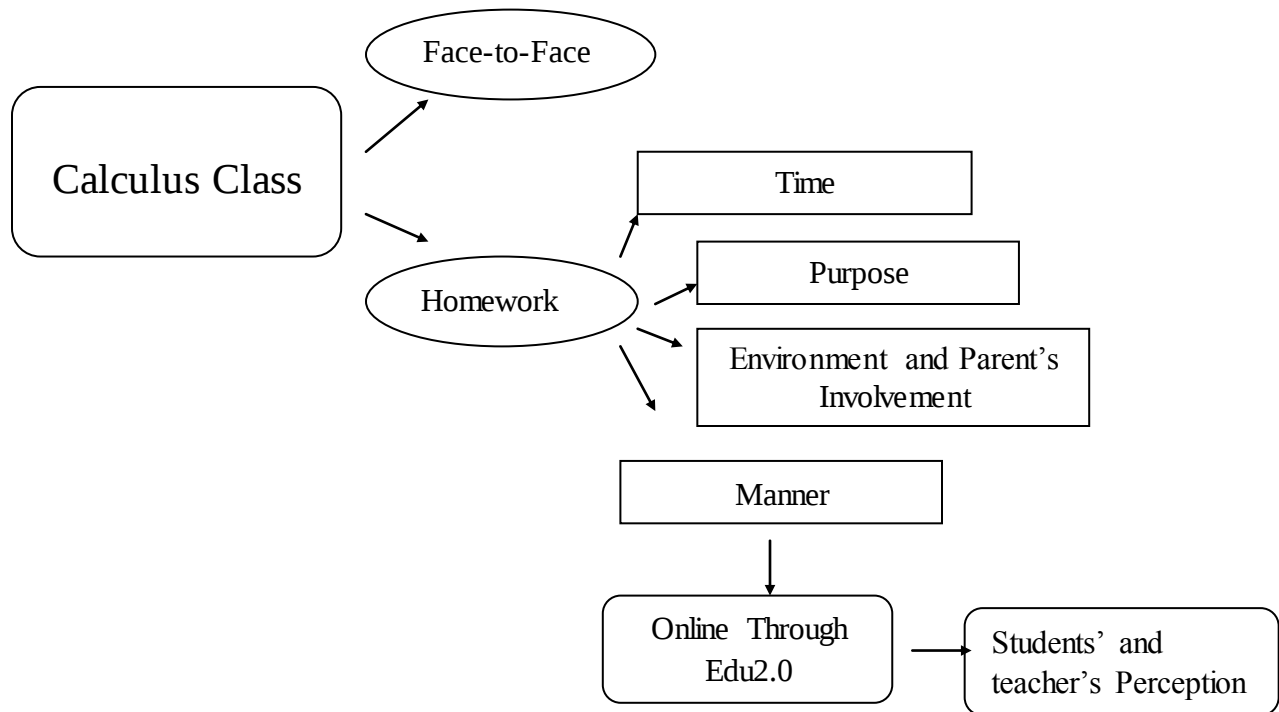


Figure 1: Conceptual Framework of the Study

The paradigm above shows that in the Calculus class, instruction includes face-to-face instruction and homework. In giving homeworks, the important factor includes time spent of homework, purpose, environment and parents' involvement, and the manner of giving it. The students' and teacher's perception on the manner of giving homework in this Calculus class is the focus of the study. Understanding how students perceive online homeworks will make the teacher understanding how the students learn. Thus, the teacher can improve the manner of his/her instruction.

The manner of giving homeworks in this particular Calculus class is online homeworks through Edu2.0. From the review done by 21st Gen EdTech Tools (2013), Edu2.0 is another e-learning platform which serves as a virtual classroom. It is similar to Edmodo but more features. When a person creates an account in Edu2.0, this person will be registered as individual that has at least four positions (administrator, teacher, parent, or student). It offers almost all the works or activity the teacher is going to in the classroom.

News section enables posting and creating message for the school. The dashboard shows the summary of the teacher's classes, people, groups, resources, enrollments, emails and subscription plan. It also provides the option to deactivate or delete a class. The message section shows personal messages and the calendar shows plan of activities. It has the option to display a specific calendar of activity for every class that the teacher has. The figures below are screenshots of Edu2.0 homepage and dashboard.

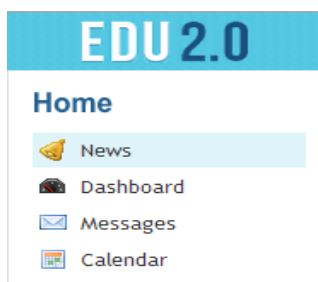


Figure 2. Screen Shot of Edu2.0 Homepage Features

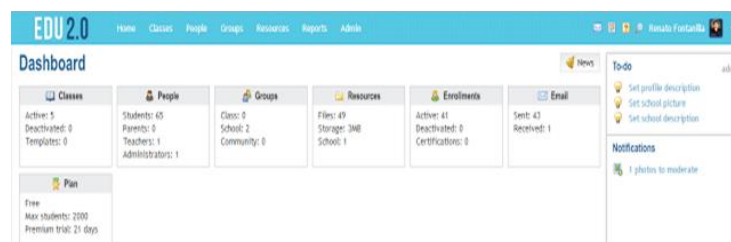


Figure 3: Screen Shot of Edu2.0

Dashboard

Edu 2.0 has seven portals which are: home, classes, people, groups, resources, reports, and admin. The figure below is a screenshot of Edu2.0 tool bar that shows the mentioned portals.

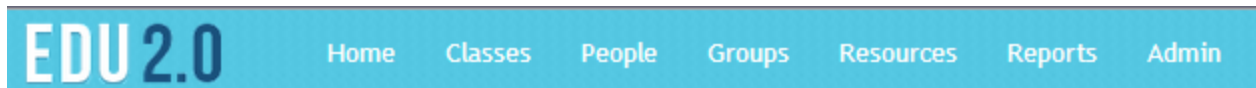


Figure 4: Edu2.0 Toolbar

The portal classes provides the list of classes the teacher handles. In this portal, the teacher can manage each section he/ she handle. For every window of class section, the teacher can manage the news, lessons, calendar, assignments, gradebook, resources, teachers, students, attendance, forums, and analytic. This is the portal where the students can enroll in the class by simply providing the code given by the teacher when they click on “enroll” button. For teachers, they just need to click on “add” button to enroll a specific student. The figure below is a screenshot of Edu2.0 Portal.

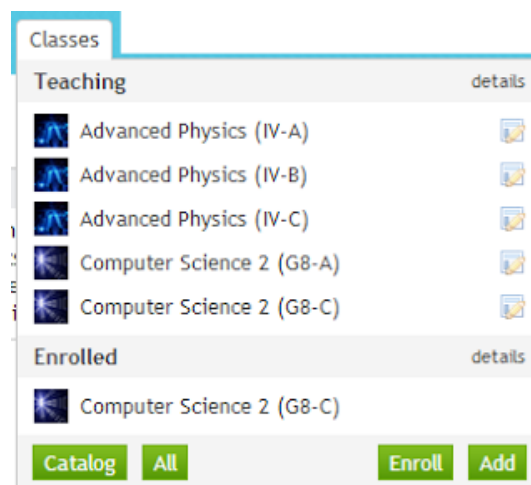


Figure 5: Screenshot of Edu 2.0 Classes Portal

The people portal allows the teacher to see the list of friends, students, parents, and administrators. Sending instant messages directly to a specific person on the list is also allowed in this portion. In friends section, the teacher can send message or remove a friend. In my students section, the teacher can view the grades of the students, the parents, and the date they last logged in. The students section gives the teacher the ability to send message, view grades, see their ids and passwords, give certificates, edit their accounts, or simply remove them from the list. In teachers, parents, and administrator sections, the teacher can send message, manage passwords, edit profile, and remove them from the list. Below are screenshots of Edu2.0 people portal.

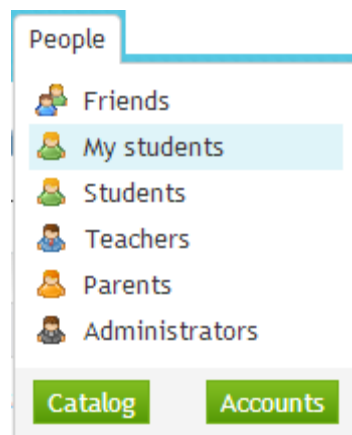


Figure 6: Screenshot of Edu 2.0 People Portal

The groups portal is where the teacher can create groups of people with same views. This section shows the different groups created. Each group can be classified into different types like club, interest, study, hobby, topic, translator, faculty, and student. The group may check how wide their scope is, like private, school or community.

The resources portal will show a variety of materials needed in teaching or work. It is divided into five (5) parts which are: library, locker, favorites, uploaded files and school. The locker portion provides storage and view of personal resources. The favorites section, show the resources that are often use. This section shows files that the teacher has uploaded. In the school portion, the teacher can use this area to share resources with the school, such as a syllabus, videos or documents. The figures below are screenshots of Edu2.0 groups portal and resources portal.

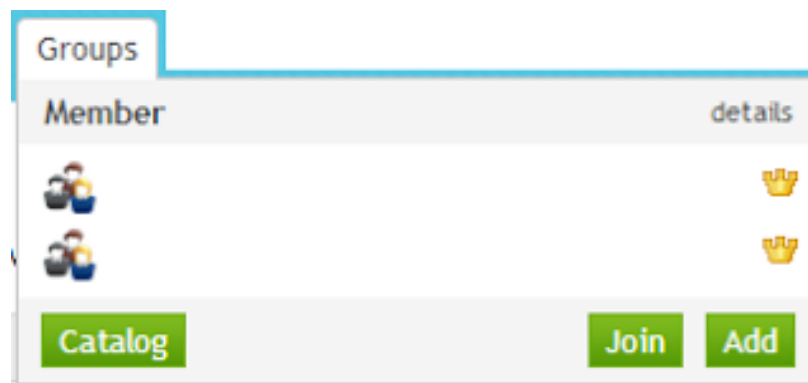


Figure 7: Edu 2.0 Groups Portal

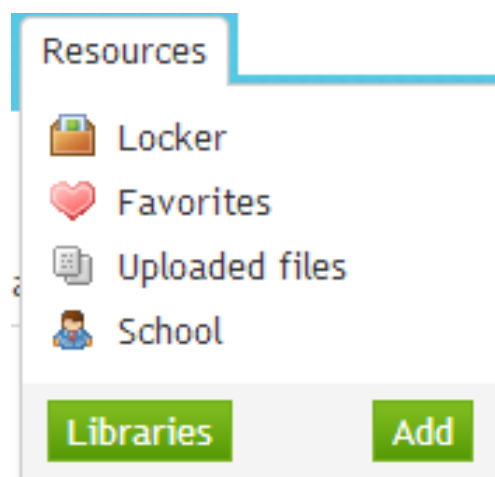


Figure 8: Edu 2.0 Resources Portal

In the section of site statistics, the teacher can view the entire value of the different items in site like number of students, teachers, administrators, parents, classes, archived classes, active enrollments, inactive enrollments, lessons, assignments, assignment submissions, school-scope groups files and storage used, class enrollment, class status, class completion and missing work. Below are screenshots of Edu2.0 reports portal and site statistics.

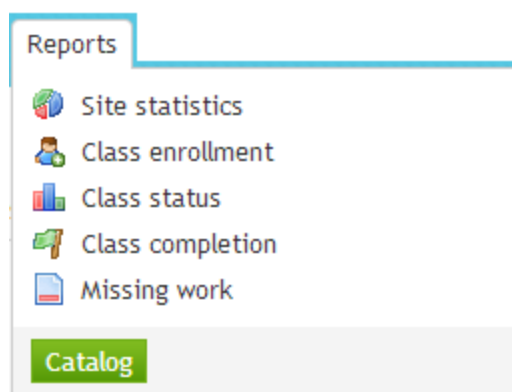


Figure 8: Screenshot Edu 2.0 Reports Portal

Site statistics

Item	Value
Students	65
Teachers	1
Administrators	1
Parents	0
Classes	5
Archived classes	0
Active enrollments	41
Inactive enrollments	0
Lessons	0
Assignments	0
Assignment submissions	0
School-scope groups	2
Files	49
Storage	3MB

Figure 9: Screenshot Edu 2.0 Site statistics

The admin portal brings you to the configuration of the entire site where the teacher can edit the sites information, calendar of activities, manage accounts, edit the different portals, customizing dashboard, configuration options of class catalogs, set your policies which people registered in your site can do or can't do, edit your canned

messages (*auto respond message*) that are sent for various actions that may occur, set or edit a grade map, and view your plan of subscription and the comparison of the different features offered in each plan. Below is a screenshot of Edu2.0 admin portal.

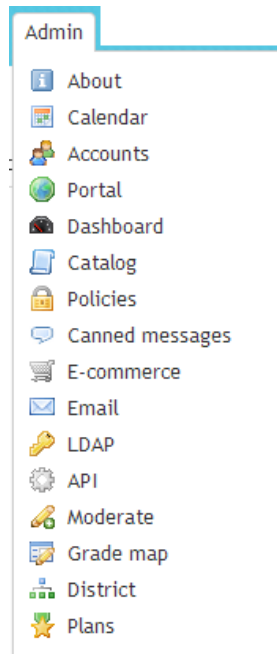


Figure 10: Screenshot of Edu2.0 Admin Portal

With all of these, the researcher decided to focus her study on the teacher's and students' perception on their online homeworks in their Calculus class on these three categories as shown in Figure 1.

Statement of the Problem

The study sought to answer the following questions:

1. What is the students' perception on homework given through Edu2.0 in terms of:
 - 1.1 time spent on homework?

- 1.2 purpose of online homework?
 - 1.3 parents' involvement and homework environment?
2. What is the teacher's perception on homework given through Edu2.0 in line terms of:
 - 2.1 time spent on homework?
 - 2.2 purpose of online homework?
 - 2.3 parents' involvement and homework environment?
3. In what areas are the perceptions of the teacher and students similar and dissimilar?

Significance of the study

This study will be beneficial to the following:

Students. This study helped the students determine whether they have favorable perceptions on online homeworks given through Edu2.0 or not. This study also gave the students the chance to determine their views, opinions, and comments regarding online homeworks that led to the formulation of recommendations necessary for the improvement of the program.

Teacher . This study helped the teacher determine not only his perception on online homeworks but also the students'. Furthermore, the study provided vital information for the improvement of giving online homeworks. In addition, the study also provided teachers inspiration to use or not to use online homeworks in their classes.

School. The study provided information that may give the school inspiration to adapt online homeworks.

Program Developer. The study provided program developers information that they may use to improve their program, Edu2.0.

Setting of the Study

This study is conducted in the city of Makati, specifically in Makati Science High School (MSHS) during the start of the second quarter of SY 2013-2014. The school follows the curriculum of science high schools in the Philippines. Each year level has two Mathematics subject, one is the basic subject and the other is the additional subject. Class hours are from 7:00 A.M. to 5:20 P.M.

Scope and Delimitation

The study is qualitative in nature. It seeks to find out the perceptions of the Calculus teacher and the fourth year students in Makati Science High School (MSHS) during the S.Y. 2013-2014 on homework given through Edu2.0. A survey composed of five-point Likert items was given to all one hundred ninety-one (191) fourth year students of MSHS. Twenty (20) students, representing ten percent (10%) of the population, were randomly picked and were interviewed by the researcher. A parallel five-point Likert item survey questionnaire was also given to the teacher before an interview was conducted.

Definition of Terms

The following terms are used in this study:

Edu2.0. From the program review done by 21st GenTech Tools (2013), Edu2.0 is described as an e-learning platform like Edmodo that serves as a virtual classroom. It offers almost all works/activity that you are going to do in your classroom (for teachers)/ school (for administrators). For this study, Edu2.0 is an online program utilized by the teacher-respondent in giving homeworks in his Calculus class.

Homework environment. It is something that can be greatly influenced by parents through creating appropriate conditions for learning and encouraging their children to accomplish homework task (The State of Queensland, 2004). Similarly, this study considered homework environment as the kind of environment or situation the students have in their homes where they have to do online homeworks

Parents' involvement . In this study, parents' involvement refers to the amount of participation of parents or guardians in the accomplishment of online homeworks

Perception. In this study, perception was considered as observations, views, opinion, and appreciation of the respondents.

Purpose. In this study, purpose was considered as the intention of online homeworks or something that was set up as an object or end to be attained

Time. In this study, time refers to the amount and quality of the time the students need and use to accomplish online homeworks. This also included the time frame given to the students to comply with the assigned homework.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

ON GIVING HOMEWORKS

The debate whether homeworks should be given or not has been around for decades. Despite the many compelling research supports for homeworks dated 1983-2006, done by education theorists of the likes of Graue, Weinstein, Walberg, Paschall, Hattie, Fraser, Robinson, and Cooper, the case against homework is getting popular.

Kralovec and Buell (2000) in *The End of Homework: How Homework Disrupts Families, Overburdens Children, and Limits Learning* asserted that homework contributes to a corporate style, competitive U.S. that overvalues work to the detriment of personal and familial well-being. The authors focused particularly on the harm to economically disadvantaged students, who are unintentionally penalized because their environment often makes it almost impossible to complete assignments at home.

Bennett and Kallish (2006) in *The Case Against Homework: How Homework are Hurting Our Children and What We Can Do About It* criticized both the quantity and quality of homework. They provided evidence that too much homework harms students' health and family time, and they asserted that the teachers are not well trained in assigning homework. The authors suggested that individuals and parent groups should

insist that teachers reduce the amount of homework, design more valuable assignments, and avoid altogether over breaks and holidays.

Kohn (2006a), in the book *The Homework Myth: Why Our Kids Get Too Much of a Bad Thing*, took a direct aim at the research on homework. In this book and in a recent article in *Phi Delta Kappan* (2006b), he became quite personal in his condemnation of researchers. Kohn concluded that research fails to demonstrate homework's effectiveness as an instructional tool and recommended changing the "default state" from an expectation that homework will be assigned to an expectation that homework will not be assigned. In addition, he said that teachers should only assign homework when they can justify that the assignments are beneficial— ideally involving students in activities appropriate for home, such as performing an experiment in the kitchen, cooking, doing crossword puzzles with the family, watching good TV show or reading. Kohn urged the teachers to involve the students in deciding on what homework and how much they should do.

If a district or a school discards homework altogether, however, it will be throwing away a powerful instructional tool. Cooper and colleagues' (2006) comparison of homework with no homework indicates that the average student in a class in which appropriate homework was assigned would score 23 percentile points higher on tests of the knowledge addressed in that class than the average student in a class in which a homework was not assigned.

Perhaps the most important advantage of homework is that it can enhance achievement by extending learning beyond school day. To drop the use of homeworks would mean a school or a district would be obliged to identify a practice that produces a similar effect within the confines of the school day without diminishing other academic activities. But this is not an easy task. A better approach is to ensure that teachers use homework effectively.

Cooper (1989) also recommended homework for elementary students because “homework for young children should help them develop good study habits, foster positive attitudes towards school, and communicate to students the idea that learning takes work at home as well at school.”

In the *Battle Over Homework* (2007), Cooper noted that homework should have different purposes at different grade levels. For the earliest grades, it should foster positive attitudes, habits, and character traits, permit appropriate parent involvement, and reinforce learning of simple skills introduced in class. For students in upper elementary grades, it should play a more direct role in fostering improved school achievements. In 6th grade and beyond, it should play an important role in improving standardized scores and grades. Other good and appropriate purposes of homeworks are to let students practice what they learned, to let students investigate on their own, learn how to find answers to questions, show that the teacher does not have an answer to everything, to finish mundane things that class time didn't permit, and to let students build, work as a team, on their own time, with their own schedule. Epstein and

colleagues (2002) also named practice, preparation, participation, personal development, parent-child relations, parent-teacher communication, peer interaction, policy, and public relations as purposes of homeworks. What homework should not be, according to the researchers, is punishment.

Another issue in giving homework is the amount of time students should spend on it. The Cooper synthesis (1989) reported that for junior high school students, the benefits increased as time increased, up to 1 to 2 hours, and then decreased. The Cooper, Robinson, and Patall (2006) study reported similar findings: 7 to 12 hours of homework per week produced the largest effect size for 12th grade students. The researchers suggested that for 12th grades the optimum amount might lie between 1.5 hours to 2.5 hours per night. Good and Brophy (2003) cautioned that teachers must take care not to assign too much homework. They suggested that “homework must be in length and difficulty given the students’ abilities to work independently. Thus, 5 to 10 minutes per subject might be appropriate for 4th graders, whereas 30 to 60 minutes might be appropriate for college-bound high school students”. Cooper (2007) suggested that research findings support the common “10-minute rule”, which states that all daily homework assignments combined should take about as long as 10 minutes multiplied by the student’s grade level.

Focusing on the amount of time students spend on homework may cause miss the point in giving homeworks. A significant proportion of the research on homework indicates that the positive effects of homework relates to the amount of homework the

student completes rather the time spent on homework or the amount of homework actually assigned. Thus, teachers must carefully plan and assign homework in a way that maximizes the potential for student success.

Another question regarding homework is the extent to which schools should involve parents. Some studies have reported minimal positive effects or even negative effects for parental involvement. In addition, many parents report that they feel unprepared to help children with their homework and that their efforts to help frequently cause stress (Hoover-Dempsey, Bassler and Burrow, 1995; Perkins and Milgram, 1996). Epstein and colleagues conducted series of studies to identify a condition under which parental involvement enhances homework. They recommended interactive homeworks in which parents receive clear guidelines spelling out their roles, teachers do not expect parents to be experts regarding content or to attempt to teach the content, and parents ask questions that help students clarify and summarize what they have learned.

Research provides strong evidence that, when used appropriately, homework benefits student achievement. To make sure that homework is appropriate, teachers must remember these research-based guidelines: assign purposeful homework; design homework to maximize the chances that students will complete it, involve parents in appropriate ways without requiring parents to act as teachers or to police homework completion, and carefully monitor amount of homework assigned. *How To Assign Highly Effective Homework Your Students Will Really Actually Enjoy* in Busy Teacher named 5

secrets of effective homework assignment. These are preparing for it, giving it, checking it, grading it, and returning it.

ON EFFECTIVENESS OF ONLINE HOMEWORKS

In this fast-paced and evolving technological world we live in, educational tools seem to be evolving as well. Traditional practices are becoming obsolete. Educators need to constantly find means to cope with the demands of the society – and that is mainly connected to the use of technology. And since there are numerous social networking sites, utilizing similar programs for giving assessments gave birth to online homework.

Online homework has great appeal for instructors. By using online assignments they do not have to collect, grade, and promptly return large quantities of homework assignments. Online programs provide instructors with feedback on student performance that can be used to modify the presentation of materials in class. Online homework is also beneficial to students. They get feedback promptly. Online homework can also be designed so that it allows students to work on areas that frequently trouble them.

Despite the beneficial design offered by online homework, there is a need to look into the quantitative reports that completion of online homework positively impact students achievement. Several studies on online homeworks looked into its

effectiveness. In a research done by Arasasinghama, Martorell, and McIntire (2011), it was found out that online homework system provided an overall benefit that promoted student learning in large-scale introductory science instruction. Completion of homework led to higher scores in final assessment. Even when the researcher adjusted for the students' level of preparation for class, "the online homework substantially influenced exam performance."

Kulik and Kulik (1991) conducted a meta-analysis of 254 evaluation studies that compared student learning in classes taught with and without computer-based instruction. Of those studies, 248 suggested that the average student from computer-based instruction classes would outperform 62% of the students in the control group on exams given at the end of the instruction. Computer-based instruction raised exam scores by 0.3 standard deviations, a moderate but significant effect. In a study by Hirsch and Weibel (2001), students in web-based sections of general calculus at Rutgers University improved their grades on the final exam by 4%, a small but a statistically significant change. Nguyen and Kulm's (2005) quantitative study on web-based instruction involved 95 students divided into groups of web-based practice and traditional practice. The results revealed the mathematics achievement of the students using web-based practice was significantly higher on a posttest than those using paper and pencil. These results also indicated web-based practice could improve student learning, aid in self-motivation in learning mathematics, and allow students to have independent practice.

Hauk and Segalla (2005) also found out that online homework was at least as effective as traditional paper and pencil homework for students in college algebra. Their study examined survey data and test scores from 644 students enrolled 19 sections of college algebra at a large university in the western United States. Survey results showed 65% of the students in the seven sections doing paper and pencil homework turned it in, while 78% of the students doing homework online completed their work.

In addition, Halcrow & Dunnigan (2012), wrote an article that describes a quantitative and qualitative assessment of a study done on the possible effectiveness of including an online homework component in first-semester Calculus. This study the classes of two instructors (two classes each), for which one teacher's classes were treated as the experimental group and the other teacher's class as the control group. Students in the experimental group were given access code from the publisher of the book used in the course to an online site that reflected the problems at the end of each of the text's chapters. One of the teachers had great success and significant results for his experimental section with the online homework program, whereas the other did not.

ON PERCEPTIONS ON ONLINE HOMEWORKS

Dillard-Eggers, Wooten, Childs and Coker (2008) evaluated the impact of homework done online on students' performance in accounting principles class. Surveys of 223 students were conducted to determine their perceptions on the

effectiveness of online homework in enhancing their learning. Regression analysis revealed that the course grade was positively affected by the extent of homework done. The researchers concluded that online homework increased student performance and that students believe that using online homework was an effective method of study.

In the study entitled “Online Homework, Help or Hindrance? What Students Think and How They Perform” (Richard-Babb, Drelick, Henry, and Robertson-Honecker, 2011), it was found out that online homework attitudes were generally positive with a large majority of students viewing the online homework favorably (80.2%), as worth the effort (83.5%), relevant (90.5%), challenging (83.4%), and chemically thought provoking (79.0%).

ON PERCEPTIONS ON ONLINE HOMEWORKS IN MATHEMATICS AND CALCULUS

The quantitative research study by Hodge, Richardson, and York (2009) investigated the degree to which web-based homework affected student motivation and perceptions of learning mathematics. Survey data was collected from 1333 students enrolled in college algebra course, of which 1125 had previously used web-based homework in a mathematics course. The researchers found a majority of the students were motivated to complete more homework using web-based learning system than completing traditional paper and pencil problems. In addition, one-third of the students in their study felt web-based homework increased their mathematical learning.

In the study conducted by Stanley Chu and Harvey Man entitled “Students’ Attitude Toward Online Homework in Accounting Courses,” it was found out that 89% of the students indicated that online homework was helpful in improving their understanding of accounting 85% of the students believed that online homework was helpful in preparing them for exams 68% said they increased that amount of time spent in studying for class; and 78% of the students find online homework more valuable than traditional homework assignments.

Scott (2008) in his study found out that most students surveyed felt that the online homework helped them learn the course material and were pleased that the course uses an online homework system. The researcher also found out that since Fall of 2005, 72% of the surveyed students believed they learned the material covered in the online homework more thoroughly because they could keep doing the assignments until they mastered the material. In addition, the most desirable aspects cited by the students are the two-step grading system, multiple attempts, availability, detailed help on missed problems and immediate feedback.

From all of these, the researcher inferred that homeworks, whether given traditionally or with the use of technology, should follow some guidelines in order for homeworks to be useful and favored by students, parents, and teachers. Discussions about homeworks seem almost everytime to involve time spent on homework, purpose of homework, and parents’ involvement and homework environment. The sentiments of these studies likely to include: giving the right amount of homework considering the

amount of time the students might need to spend on it, giving purposive homeworks to maximize the benefits that the students and teachers might get from it, and giving homeworks to make sure that the parents will not have to act as homework police or even make them teach the content, and giving homeworks that consider the kind of homework environment the students have.

These findings, suggestions, and conclusion provide support to what this study wants to explore –the perception of the students and teacher on online homeworks in a Calculus class. These literatures provided the researcher the basis to limit the focus of the study in these three criteria or areas.

CHAPTER III

METHODOLOGY

This chapter presents the method used in this study, as well as the respondents, instruments, data gathering, and statistical tool.

Research Design

Descriptive method was used in the study. The mean perception on online homeworks in Calculus class of both the students and the teacher was calculated and corresponded to a particular verbal interpretation: “very favorable”, “favorable”, “fairly favorable”, “unfavorable”, and “very unfavorable”. Data was drawn from students through survey, interview, and observation.

Respondents

The intended sample for the study was one hundred ninety-one (191) fourth year students of Makati Science High School (MSHS) during the S. Y. 2013 – 2014 who were given online homeworks in Calculus through Edu2.0. Included in the study is their teacher in the said subject.

The researcher picked the respondents because they serve the purpose of the study, that is, to determine whether the teacher and students have favorable or unfavorable perceptions towards homeworks given online. All one hundred ninety-one

(191) of them answered a survey questionnaire and twenty (20) of them were randomly picked for an interview with the researcher.

The teacher also answered a different set of survey questionnaire constructed with parallel statements as of the one constructed for the student.

Instrument Used in the Study

Two sets of survey questionnaire were constructed to determine the perception of both the teacher and the students on online homeworks in Calculus in three (3) criteria: time spent on homework, purpose of the online homework, and parents' involvement and homework environment. The researcher included these three criteria for the study because most studies about homeworks as shown in research reviews done by The Center for Public Education (2007) and The State of Queensland (2004) seem to include these factors. Each of the two sets of questionnaires originally contains thirty (30) parallel statements written in two perspectives: student and teacher. These questionnaires were composed of statements based on the probable perceptions of the students and the teacher about the online homeworks in their Calculus class. Examples of these probable perceptions may be that the belief of students that using online homework was an effective method of study as one of the conclusions from the study of Dillard – Eggers, Wooten, Childs, and Coker (2008) or that students felt web-based homework increase their mathematical learning from the study of Hodge, Richardson, and York (2009).

Other statements were drafted based on what a good homework possesses in terms of these three criteria. For instance, for the time spent on homework, the seven statements included in this criterion were formulated based on the research findings and suggestions and other sources such that: “the optimum amount of homework might lie between 1.5 hours to 2.5 hours per night” (Copper, Richardson, and Patall, 2006), “not to assign too much homework and that 30 minutes to 60 minutes might be appropriate for college-bound students” (Good and Brophy, 2003), and “do not give homework during weekends or holidays” (NELMS, 2011). Other points and concerns about homeworks like how homework harms students’ health and family time as stated in the book of Kralovec and Buell (2000) were also used as references for the draft of the statements.

The thirty statements to which the respondents agree or disagree upon were divided into three categories. Some are positive statements and some are negative statements. Positive statements are statements that are based on what is good about homeworks and online homeworks, and negative statements are the opposite. An example of a positive statement in the survey is:

“It usually takes me less than an hour to accomplish my online homework.”

This statement was considered positive because it is in accordance to what is suggested that the optimum amount of time for homework is between 1.5 hours to 2.5

hours (Copper, Richardson, Patall, 2006) and 30 to 60 minutes might be appropriate for college-bound high school students (Good and Brophy, 2003).

On the other hand, an example of a negative statement is a statement like:

“I do not get enough sleep because of these online homeworks.”

This statement is considered a negative for it seems to prove the claim of Kralovec and Buell (2000) in their book *The Case Against Homework: How Homework are Hurting Our Children and What We Can Do About It* that homework harms students' health.

The questionnaires were constructed in such a way that the respondents will be able to answer it easily. It was constructed using the Likert format with a five–point response scale. The respondents just need to check the box that corresponds to the level of their agreement or disagreement to a given statement.

To quantify the student and teacher responses, the following point system was utilized:

Response	Positive Statement	Negative Statement
Strongly Agree	5	1
Agree	4	2
Undecided	3	3
Disagree	2	4
Strongly Disagree	1	5

After the instrument construction, the survey questionnaire was face-validated and critiqued by the researcher's adviser and another expert on this field. The researcher's adviser went over each of the statements in the questionnaire, checking also for grammar, She then instructed the researcher to develop an evaluation form for the survey questionnaire which will be utilized by five experts to see whether the questionnaire is acceptable and ready to be administered or not.

Originally, the researcher only intended to let the experts rate the clarity and suitability of each of the statements (see appendix C). However, the researcher's adviser commented that clarity and suitability of each of the statements will not be enough to say whether the questionnaire is acceptable and ready to be administered or not. With this, the evaluation sheet was constructed (refer to appendix D).

To interpret the average rates of the evaluators, these points were originally considered:

Scale	Range	Level of Acceptability
4	3.51 – 4.00	Highly Acceptable
3	2.51 – 3.50	Acceptable
2	1.51 – 2.50	Fairly Acceptable
1	1.00 – 1.50	Not Acceptable

After the face-validation, however, the second expert commented that there was no need for the scaling and that since the scores the evaluators will choose from are from

1-5, then, there should also be five levels of acceptability. This led to the new scale below which was used to interpret the evaluator's rates:

Range	Level of Acceptability
4.20 – 5.00	Highly Acceptable
3.40 – 4.19	Acceptable
2.60 – 3.39	Fairly Acceptable
1.80 – 2.59	Unacceptable
1.00 – 1.79	Highly Unacceptable

After these revisions, the researcher had these questionnaires, using the evaluator's instrument, evaluated by another five (5) experts. These experts include four (4) professors from the Philippine Normal University (PNU) and one (1) professor from the Malayan University (MU). The four professors from PNU were recommended by the researcher's adviser while the fifth expert from MU was chosen for he gives online homework in his Math class using a similar program as EDU2.0

After the evaluation, the researcher tabulated the ratings of the experts. The data on the table below is the summary of the scores of the experts to the self-constructed survey questionnaire:

Qualities of the Questionnaire	Mean	Interpretation
Clarity	4	Acceptable
Readability/Format	4	Acceptable
Comprehensiveness	3.6	Acceptable
Suitability	3.8	Acceptable
General Average	3.85	Acceptable

The computed general average of 3.85 gave an interpretation that the self-constructed survey is “acceptable” and was ready to be administered. However, considering an evaluator’s comment about statements 23, 25 and 27 as stating the same ideas, the researcher reduced the original thirty-item (30-item) survey questionnaires to a twenty-eight-item (28-item) survey questionnaires.

Data Gathering Procedures

The first step of the researcher in gathering data was to secure consent from the school’s principal and ask for the cooperation of the subject teacher and respondents.

The researcher personally administered the survey to all six (6) sections of the fourth year class of Makati Science High school and their Calculus teacher. They were given the instruction to check the appropriate box on the right side of each statement. These boxes represented the level of their agreement or disagreement of the statement: strongly agree, agree undecided, disagree, and strongly disagree, following the Likert scale. For positive statements, the scores 5, 4, 3, 2, 1 were given for strongly agree, agree, undecided, disagree, and strongly disagree respectively. The scores were reversed for negative statements.

After the survey was administered, twenty (20) students were randomly picked for interview. They were asked what they like and dislike the most about their online homeworks in Calculus class and why so.

Statistical Tool

The results of the survey were analyzed and interpreted by computing the weighted mean of the scores of the students in each survey item and the weighted mean as a whole. As for the data for the teacher survey, only the weighted mean was computed because there was only one (1) teacher respondent. The following arbitrary points and corresponding verbal description to perception were used to interpret the responses:

Rating	Remarks
4.20 – 5.00	Highly Favorable
3.40 – 4.19	Favorable
2.60 – 3.39	Fairly Favorable
1.80 – 2.59	Unfavorable
1.00 – 1.79	Highly Unfavorable

The researcher also looked into items where the student and the teacher have completely the same or completely opposite level of agreement.

CHAPTER IV

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This chapter includes the presentation, analysis, and interpretation of data gathered from the survey and interview.

Problem 1. What is the students' perception on homework given through Edu2.0 in terms of: (1) time spent on homework, (2) purpose of online homework, and (3) parents involvement and homework environment?

Table 1 below shows a detailed summary of students' survey answer for the criterion of time spent on homework.

Table 1. The Mean Perception of Students On Time Spent on Homework

Statement	Mean	Interpretation
<i>1. I am given enough time to accomplish each online homework.</i>	4.71	Highly Favorable
<i>2. It usually takes me less than an hour to accomplish my online homework.</i>	4.53	Highly Favorable
<i>3. Answering online homework disrupts my time for my family.</i>	4.1	Favorable
<i>4. I do not get enough sleep because of these online homework.</i>	4.17	Favorable
<i>5. These online homeworks are designed to maximize my chance of accomplishing them.</i>	4.1	Favorable
<i>6. I missed a family event because I have to accomplish my online homework.</i>	4.38	Highly Favorable
<i>7. I usually reserve my weekends to answer online homework.</i>	2.59	Unfavorable
	4.08	Favorable

Table 1 shows that the students' perception on online homework in their Calculus class for the criterion time spent on homework is "favorable." Out of the seven (7) statements for the criterion, three (3) statements received a "highly favorable" perception and three (3) statements received a "favorable" perception. The only flaw of online homeworks through Educ2.0 in this criterion, as the result may suggest, is in the area of giving homework during weekends.

The statement "*I reserve my weekends to answer online homework,*" to which most of the students strongly agreed upon, is perceived as a negative statement. Based on "The Case Against Homework" (Bennett and Kalish, 2006), the authors provided evidence that too much homework harms students health and family time. In this book, they also suggested that individuals and parent groups insist that teachers reduce the amount of homework and avoid homework altogether during breaks and holidays. In "Homework in the 21st Century Classroom: Practices, Myths, and Innovation" (NELMS, 2011), included in the eighteen (18) motivating homework assignments is "*Do not give homework on weekends or holidays.*" Thus, even though majority of the respondents agreed to this statement, it gave the implication that the students have unfavorable perception on online homeworks in this area.

The researcher wondered why students reserved their weekends to answer their homeworks when in fact, weekends should be reserved for family and personal activities. The researcher also wondered whether this was imposed by the teacher or whether this was the only allotted time for them to do homeworks. However, through the

interview, the researcher found out that doing homeworks during weekends is the students' preference. They are given ample time to accomplish the homework but most of them chose to do it on a weekend. Student 37 even said:

“Pag weekend po kasi ginawa, Ma’am, mas relax ako sa paggawa ng assignment. Hindi po ako pressured. Tsaka hindi naman po buong weekend ang paggawa ko ng homework sa Calculus, mga isang oras lang po”.

Although studies like the ones done by Bennett & Kalish(2006) and NELMS (2011) suggest that no homeworks must be given during weekends and holidays, it can be implied that students prefer doing homeworks during this time for they are not time-pressured. Most of the students, in fact, favor online homeworks for the reason that they are given ample time to accomplish the assigned work and that they have the liberty to decide when they can do the homework. Student 13 said, *“you can pick a time you are comfortable to do it.”* This student also said that this is what he likes about online homework in Calculus the most. Four more students picked the same reason as their favorite thing about their online homeworks (students 33, 7, 59, 101).

Although there was a flood of good comments about time spent on homework, there are also some negative issues about it. Student 2 said, *“Madalas makalimutan dahil mahaba iyong time given”.* This is seconded by student 96. Moreover, student 88 said: *“Nagiging complacent dahil mahaba ang time.”* This may imply that although it is beneficial to give the students sufficient time to accomplish the homework, there is also

a need to be cautious whether the time given provides an opportunity for students to slack off on their homeworks.

Table 2 is a summary of students' responses on the survey for the criterion of purpose of online homework.

Table 2. The Mean Perception of Students On Purpose of Giving Online Homework

Statement	Mean	Interpretation
8. <i>I understand concepts taught when I answer online homework.</i>	4.16	Favorable
9. <i>Answering online homework gives me a chance to review learned concepts in Calculus.</i>	4.49	Highly Favorable
10. <i>I like answering online homework better than answering homework given traditionally.</i>	3.78	Favorable
11. <i>It is easy for me to be reminded of my Calculus homework because I am online most of the time.</i>	3.73	Favorable
12. <i>I feel like my Calculus teacher is demanding because he assigns online homework.</i>	4.43	Highly Favorable
13. <i>I am able to know my scores right after submitting my online homework.</i>	4.82	Highly Favorable
14. <i>These online homework are used to introduce a lesson.</i>	3.12	Fairly Favorable
15. <i>The contents of these online homework are application of the concepts taught to us by our teacher.</i>	4.66	Highly Favorable
16. <i>I enjoy answering online homework.</i>	4.12	Favorable
17. <i>Online homeworks make it easier to copy my classmates work.</i>	3.44	Favorable
18. <i>I do not stop answering online homeworks unless I have completely finished it.</i>	4.58	Highly Favorable
19. <i>These online homeworks give me the assurance that I will not lose my homework.</i>	4.59	Highly Favorable
20. <i>Online homeworks give me the sense of progress.</i>	4.32	Highly Favorable
21. <i>Online homeworks lessen my interaction with my classmates.</i>	3.61	Favorable
22. <i>I get worried each time an online homework is assigned.</i>	3.22	Fairly Favorable
	4.07	Favorable

Table 2 shows that the students have a highly favorable perceptions on the following purpose of online homeworks: provide them the chance to review learned concepts (9), are not given to make the teacher look demanding (12), provide immediate feedback (13), provide contents that are applications of what is learned (15), catch the students' interest (18), give them assurance not to misplace or lose their homework (19), and giving them sense of progress (20). This shows that seven out of the 15 statements from this criterion received a "highly favorable" perception.

Table 2 also shows that the purposes of online homeworks like making students understand lessons better (8), making homework more relevant (10), giving reminders about homework (11), making answering homework enjoyable (16), providing easy means of cheating (17), and making the students interact with their classmates lesser (21) garnered "favorable" perception; and purposes like introducing the lesson (14) and causing students to worry (22) garnered "fairly favorable" perception. An overall average of 4.07 was computed for this criterion which is interpreted that the students have a "favorable" perception towards the purpose of online homework.

These data may imply that the students might have the feeling that the purpose of giving homeworks like postering positive attitudes, practice, etc. (Copper, 2007) is met by these online homeworks in their Calculus class.

Item 10, which is about how students like answering online homeworks better than traditionally-given homeworks, received an average of 3.78 which show that the

students have a “favorable” perception towards this idea. However, the researcher could not help but notice that there were a great number of students who were undecided. There are statements that seem to show how the students prefer online homeworks more than traditional homeworks like the following:

“I strongly prefer online homeworks because I can check them anytime.”

– student 114

“I think online homeworks should be implemented, thus giving us a more reliable way of learning because traditional homeworks, most of the time tempt the students to just do it in school and copy from another student.”

– student 30

“I believe that these online homeworks make it easier for the students. I think that giving online homeworks should be continued.”

– student 26

“Online homeworks in Calculus are fun, exciting, thrilling, challenging, and great”

– student 8

Although there was a flood of compliments about online homeworks in Calculus, there are also comments that seem to give a number of suggestions to improve online homeworks through Educ2.0. The following statements relate some of these suggestions:

“I suggest topics in Calculus should also be posted in the website so that it will serve as a reviewer before answering the online homework.” (student 113)

“Dapat po sana meron ding online lessons and examples para masagutan ng maayos iyong homework.” (student 9)

“Actually, maganda po iyong online homework naming sa Calc kasi po mas mahaba ang chance na makasagot ng homework. Minsan po kasi three days pwede sumagot. Pero minsan po nakakabaliw kasi po iyong iba di ko masagutan,eh malapit na po matapos time, to the hula na lang po ako.” (student 5)

“Online homeworks make me uncomfortable. Nakkataranta eh!” (student 11)

The two latter comments are about the items in the homework having time limit to lock in the answers. This is another feature of the Edu2.0. Figure 12 below is a screen shot showing this feature of Edu2.0:

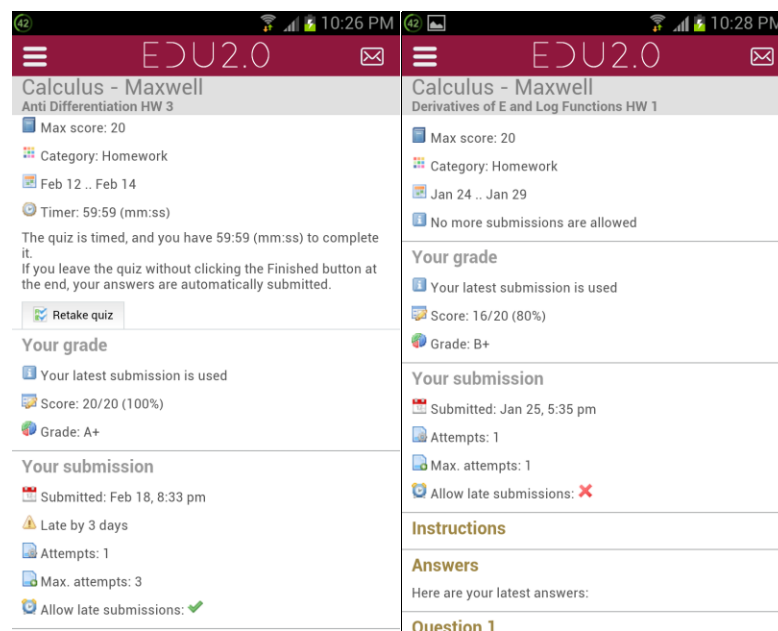


Figure 12: Screenshot of Edu2.0 Questionnaire Settings

These comments tend to imply that there are some areas in online homeworks in this Calculus class through Edu2.0 that might need to improvement for better student perception. The comment of student 5 seems to be in accordance to what Jones (2008) delineated as one of the several disadvantages of online homeworks, that is, “allowing multiple attempts encourages students to use trial and error approach to complete assignment.”

The researcher intended item 11, which is about how easy it is to remind students about their online homework because they are online most of the time, to show how giving homework is made relevant through Educ2.0. It received a “favorable” perception. Some students seem to think of it positively in this area:

“Gusto ng mga students dahil lagi na rin din naman silang online” (student 75)

However, some students seem to feel that they are at a disadvantage because of it.

“It is not really bad to have these online homeworks. But the disadvantage for me with these is that I’m not usually online in Facebook wherein that is where they announce some of these homeworks. So, there are times I wasn’t able to answer because I honestly didn’t know there was an assignment given to us.” (student 14)

This seems to show that even if the students are almost online all the time, it is still important to give them reminders about online homeworks in class.

Item 12 was intended to evaluate whether online homeworks were given for the right reason. In *Homework: Let's Get it Right* (AFT Teachers, 2011), it was suggested that a good homework is not given as to punish, to fill time, to cover left topics, and to seem demanding. The data shows that the students do not seem to feel that their Calculus class is demanding for the teacher assigns online homeworks.

Item 13, which is about immediate feedback, garnered 4.82 mean score which means a “highly favorable” perception from the students. This is the item in this criterion which got the highest score. This statement represents the idea that a good practice in giving homework is giving feedback and giving it as soon as possible. In *Homework in the 21st Century Classroom: Practices, Myths, and Innovations* (NELMS, 2011), “feedback means holding up a mirror, showing them what they did and comparing it to what they should have done,” while “assessment is defined as gathering data so we can make a decision.” This article also gave emphasis on the importance of returning papers in a timely manner, of making sure there is feedback, and of understanding that feedbacks do not necessarily have to be from the teacher.

Although this statement received a highly favorable perception, comments of the students seem to support the claim of Jones (2008) that the disadvantages of online homework includes “feedback may not be as detailed as paper grading,” and “automatic grading may be time saver for the instructor but may be considered impersonal by the students.” These are the following comments:

“Solutions on a problem can't be explained;”

– student 36

“The results must show the correct answer, not just if I’m wrong or right;”

– student 69

“If I am wrong in a question, I do not know how to solve for the right answer because it is not stated there on how to solve for the right answer.”

– student 17

Figure 13 below shows how feedbacks are given to online homeworks through Edu2.0 in the Calculus class.

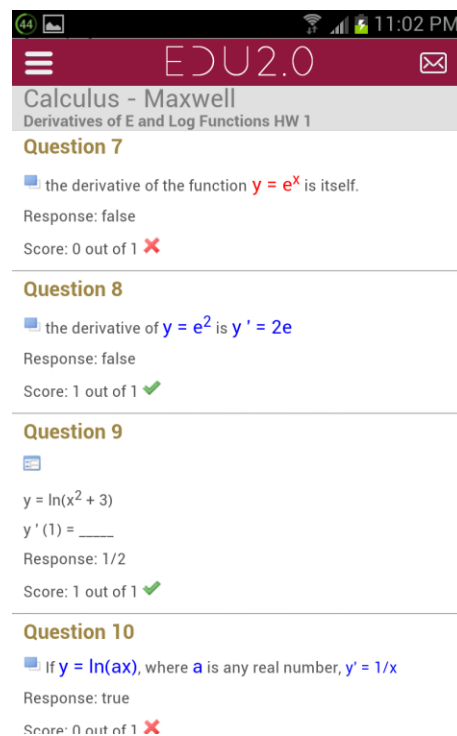


Figure 13: Screenshot of Edu2.0 Homework Feedback

“Homework is never given to teach the material the first time. We assign homework only after checking to make sure students already understand the material” (NELMS, 2011). The data in table 2 shows that item 14, which is about the use of online

homeworks to introduce a lesson, garnered 3.12 mean score which means a “fairly favorable” perception from the students. This may imply that online homeworks in their Calculus class are sometimes used to introduce a lesson. This is another area where giving of online homework in this class seems to need improvement.

“Make sure homework practices what you’re teaching” (NELMS, 2011). This is followed by “Homework is most effective when it covers materials already taught and when uses to reinforce skills already learned in the previous week or month” (Moles and D’Angelo, 1993). Regarding this, it is also shown in Table 2 that item 15, which is about the contents of online homeworks being the application of learned concepts in class, garnered 4.66 mean score which means a “highly favorable” perception from the students. This tends to prove that the online homeworks are really applications of what they are learning in class.

Table 2 shows that item 16, which is about students enjoyment in answering online homeworks, garnered 4.12 mean score which means a “favorable” perception from the students. This is supported by students’ comments like the following:

“I like it when I answer online homeworks via online because it’s easier.”

– student 140

“Sometimes I like answering online homeworks especially when I fully understand the lesson and I think it is good because you can focus on your homework because there is a time limit.”

– student2

“Online homeworks make it easy for me to copy my classmates work” is the statement in item 17. This statement is considered negative in meaning because the more students agreed to this statement, the less favorable their perception is. Although the perception was favorable, there were a lot of comments regarding this item as stated below.

“On no. 17, it is hard to copy answers during the time-pressured homework but the students may open the account of another student who just finished answering.”

– student 6

“I think online homeworks test the student’s honesty, but unfortunately, most students cheat on their online homeworks because getting a high score for them is just a click away. And that is why I am not in favor of online homeworks/ because scores of the students are not reliable.”

– student 48

“Madaling magcheat and na-e-encourage mag-cheat dahil walang nakakakita.”

– student 87

“Sometimes, these online homeworks will just make the students be dependent on their classmate who shares answer to everyone in the class.”

– student 157

“madaling makakopya.”

– student 74

This seems to show that although most of the students might not care about the issue of cheating as a disadvantage of online homeworks, there are some students who seem to think greatly about it. Student 85 even went further to explain that this is why she does not favor online homeworks.

Item 18 looks into how much the students enjoy answering online homeworks to the extent that, once started, they will not stop unless they are done with it. Table 2 shows that this item garnered 4.58 mean score which means a “highly favorable” perception from the students.

Aside from the idea that the students really enjoy answering online homeworks, another thing that may have influenced the result is that the items in their online homeworks are time-pressured. It means that once they start, they really need to finish it in one sitting.

“I lost my homework,” and *“it was just in my bag a while ago, now I can’t find it,”* are just some of the excuses of students for not submitting homeworks on time.

Students cannot use these excuses in the case of online homeworks. This is what statement in item 19 is all about. Table 2 shows that this item garnered 4.39 mean score which means a “highly favorable” perception from the students. Student 114 even commented:

“I always lose school papers like homeworks and seatworks so I truly appreciate the online site for studying”.

Table 2 shows that item 20, which is about online homeworks giving students the sense of progress, garnered 4.32 mean score which means a “highly favorable” perception from the students. This seems to show that the students acquire a sense of progress through online homeworks.

In addition, Table 2 shows that item 21, which is about online homeworks causing less interaction amongst students, garnered 3.61 mean score which means a “favorable” perception from the students. This may lead to the inference that online homeworks do not cause students to experience lesser interaction with their classmates.

Furthermore, Table 2 shows that item 22, which is about online homework causing students to worry, garnered 3.22 mean score which means a “favorable” perception from the students. This shows that online homeworks do not seem to cause the students to worry.

Table 3 below gives a summary of students' responses on the survey for the criterion parents' involvement and homework environment.

Table 3: The Mean Perception of Students On Parents' Involvement and Homework Environment

Statements	Mean	Interpretation
<i>23. My parents/guardian were informed about the existence of these online homeworks.</i>	4.27	Highly Favorable
<i>24. There was an instance where I needed my parents to teach me how to answer my online homework.</i>	4.28	Highly Favorable
<i>25. Online homework requires my parents' supervision.</i>	4.27	Highly Favorable
<i>26. I can't submit online homeworks on time because I do not have money to go to computer shops.</i>	4.51	Highly Favorable
<i>27. Answering online homework brings me discomfort because I have to do it in a rowdy computer shops.</i>	4.37	Highly Favorable
<i>28. It is hard to accomplish online homework because our home do not have access to internet.</i>	4.27	Highly Favorable
	4.33	Highly Favorable

For this criterion, all items had a highly favorable perception that led to a general average of 4.33. This led to the interpretation that the students have a highly favorable perception on online homeworks in this criterion.

"Involve parents in appropriate ways (for example, as a sounding board to help students summarize what they have learned from the homework) without requiring parents to act as teacher or to police student's homework completion (Manzano and Pickering, 2007)." This is the benchmark of the statements in item 23-25.; "My parents/guardians were informed about the existence of the online homeworks" which

garnered and average of 4.27; “there was an instance where I needed my parents to teach me how to answer my online homework” received lesser agreement than disagreement yielding to an average of 4.28; “online homeworks require my parents supervision” got an average of 4.27. These statements represent the parents’ involvement.

The last three items represents the homework environment. Item 26, which is about students not being able to submit online homeworks on time because they do not have money to go to computer shops, garnered an average of 4.51; item 27, which is about online homework causing discomfort, 4.37, and item 28, which is about students not being able to accomplish online homeworks because they do not have internet access, 4.27. The table shows that the students disagreed more than the agreed which is appropriate because the statements were considered negative. Here are some of the comments of the students for this matter:

“I find online homework easier to do because it is harder to procrastinate when the task to be accomplished is also the same place where I go to avoid it.” (student 7)

“I’m not usually online in Facebook where they announce these online homeworks so there are times I wasn’t able to answer because I honestly did not know there was an assignment given to us.”(student 14)

“Online homeworks are difficult to do when the internet access is mostly unstable.”

(student 114)

“Not all students have access to internet. Many have to go to computer shops to accomplish the homework. If the student has to attend to other things and get home late, it is a hassle to go to computer shops late at night.” (student 85)

“Nakakatamad kasi kailangan pang mag-computer, mas gusto ko ng hard copy.”(student19)

“Mas nakakapagsagot kasi walang distractions. You really do it at home.,” (student 111)

The statement of student 85 agrees with what was written in the article “Assigning Effective Homework” (AFT Teachers, 2011). In this article, suggestions for do’s and don’ts in assigning homeworks were provided. One of the don’ts is *“do not assume that all homes have equal resources, that all parents have equal skills and talents to support their children, or that all neighborhoods provide access to resources.”* So, even if there was only one student who complained about this, there seems to be a need for improvement of this method of giving homework in this area.

Problem 2. What is the teacher’s perception on online homeworks given through Edu2.0 in their Calculus class in terms of (i) time spent on homework, (ii) purpose of online homework’ and (iii) parents’ involvement and homework environment?

Table 4 shows the summary of the teacher's responses on the survey.

Table 4: The Mean Perception of Teacher On Online Homeworks

Statements	Score	SD
A. On time Spent on Homework		
1. I give enough time to my students to accomplish each online homework.	5	SA
2. It usually takes be less than an hour to accomplish my online homework.	5	SA
3. I don't think answering online homework disrupts my students' time for their family.	5	SA
4. I make sure that online homeworks do not interfere with my students' sleeping time.	5	SA
5. I designed these online homeworks to maximize my students' time in accomplishing them.	5	SA
6. I make sure that online homeworks do not cause my students to miss family events.	5	SA
7. I give these online homeworks during the weekend.	2	A
MEAN/INTERPRETATION	4.57	Highly Favorable
B. On Purpose of Online Homework		
8. My students understood the lesson better through answering online homework.	5	SA
9. Answering online homework gives my students a chance to review learned concepts in our class.	5	A
10. I feel like my students prefer answering online homework more than answering traditionally-given homework.	4	SA
11. It is easy for me to remind my students about their homework because they are online most of the time.	5	SA
12. I don't give online homework to seem demanding.	5	SA
13. I like online homework because it allows my students to know their scores right after submitting their work.	5	SA
14. I use these online homeworks to introduce a concept.	1	SA
15. The contents of these online homework are application of the concepts discussed in our class.	5	SA
16. I make sure my students enjoy answering online homework.	5	SA
17. Online homeworks lessen my students' chance in copying their classmates' work.	4	A
18. My students tell me that they do not stop unless they finish answering their online homework.	4	A
19. Because of these online homeworks, my students' can't use the reasoning that they lose their homework as an excuse for not submitting.	5	SA
20. These online homeworks give my students the sense of progress.	5	SA
21. Online homeworks lessen interaction between my students.	3	U
22. Online homeworks are worry-free.	5	SA
Mean/Interpretation	4.4	Highly Favorable
C. On Parents' Involvement and Homework Environment		
23. My students' parents/guardian were informed about the existence of these online homeworks.	5	SA
24. Parents'/guardian's help in accomplishing the homework are not needed.	3	U
25. Online homework requires parents' supervision.	3	U
26. Some of my students ask for extension because they do not have money to go to computer shops.	1	SA
27. I hear of my students complain that they are uncomfortable in answering online homework because they have to do it in rowdy computer shops.	2	A
28. My students find it difficult to answer online homework because they do not have internet access.	2	A
Mean/Interpretation	2.67	Fairly Favorable
General Average	4.14	Favorable

Table 4 shows that the averages are 4. 86 for time spent on homework with a high favorable perception, 4.4 for purpose of online homework with a high favorable

perception, and 2. 67 for parents' involvement and homework environment. The general average is 4.14 which is interpreted as a favorable perception.

It is shown in Table 4 that the teacher strongly agreed with every statement on the criterion time spent on homework except the statement *"I give these online homeworks during the weekend."* This statement, which the teacher agreed to, is a negative statement, thus, receiving a low score. This seems to imply that the online homeworks given through Edu2.0 is almost perfect for the teacher in terms of time spent on homework.

For the first item which is about the teacher giving enough time for the students to accomplish online works, the teacher said that he usually gives his students three days to accomplish online homeworks. He even added that for some instances, if the students can provide a valid reason, he allows late submission.

For items 3 and 6, which is regarding family time, the teacher seems to strongly believe that online homeworks neither disrupt students' time for their family, nor cause them to miss a family affair. He said that online homeworks in his class are designed to be accomplished within an hour and can be done in one sitting. He said: *"If there was ever a time when they miss a family affair because they had to meet my deadline, that only shows they procrastinated and not because the homework is complicated."* In this regard, the teacher also strongly believes that answering online homeworks does not interfere with students' sleeping time (item 4). He gave support to this by stating:

“They are fourth year students. They are given ample time. Again, if ever there was a time when they slept late because they did online homework, that only means they started late. It is completely their decision.”

This statement of the teacher seem to be supported by the comment of student 13: *“You can pick a time you are comfortable to do it.”* This seems to imply that some students do online homeworks during late nights or weekends may be because these are the time they are most comfortable doing it.

The last item in time spent on homework is about the teacher giving online homeworks during the weekend, which according to NELMS’ (2011) suggestion, should not be done. The teacher admitted that he sometimes announces or assigns online homework on weekends. However, he reiterated that students are given a couple of days to accomplish them. Thus, even if he assigns homework on a weekend, it does not mean the students are required to do it on that weekend. Student 37 supported the teacher’s thought with the statement like:

“Pag weekend po kasi ginawa Ma’am, mas relax ako sa paggawa. Hindi po ako pressured. Tsaka hindi naman po buong weekend ang paggawa ko ng homework sa Calculus, mga isang oras lang po.”

This seems to show that although earlier researches like the ones done by NELMS (2011) and Bennett& Kallish (2006) suggest that no homework should be given during

weekends or holidays, this study seems to show that students actually do not mind, if not prefer, doing homeworks during the weekend.

For the criterion of purpose of online homework, table 4 shows that the teacher strongly agreed to 11 out of the 15 statements. These statements are about online homeworks being used to make students understand the lesson better (8), online homeworks provide students the chance to review learned concepts (9), provide easy reminder because students are online most of the time (11), online homeworks are not given to make the teacher seem demanding (12), provide instant feedback (13), online homeworks are used to introduce a concept (14), the contents of the homework are applications on lessons in class (15), online homeworks are enjoyable (16), online homeworks provide assurance of not losing homeworks (19), online homeworks give students sense of progress (20), and online homeworks are worry-free (22).

The teacher said that since the contents of the online homeworks are applications of what are discussed in class and since online homeworks give instant feedback, these homeworks provide students a chance to review and practice leading them to understand the lesson better. Student 60 supported these beliefs of the teacher with the statement:

“I am able to review my lessons as the computer automatically checks my answers. I could use it for review purposes.”

The statement *“I use these online homeworks to introduce a concept (14),”* which the teacher strongly agreed to, received a score of 1. As suggested by earlier research (NELMS, 2011) and as stated earlier, *“homework is never given to teach the material the first time.”* When asked about this, the teacher admittedly said that there are a few times when he used online homeworks to introduce a lesson. However, he explained that:

“This only happened a few times, when there are a lot of school activities and there is not enough time to cover what needs to be discussed. But I don’t just give questions about a new topic right away. I post online lessons or presentations the students can view before answering.”

This seems to imply that the teacher needs to be reminded of this for the improvement of this method of giving homeworks.

The teacher agreed to the statements that show his beliefs that online homeworks are more preferable for the students than traditionally-given homeworks (10), online homeworks lessen the chance of copying others work (17), and make the students do not stop answering unless completely accomplished (18). When the researcher asked the teacher why he agreed with these statements and not strongly agreed like majority of the statements for this criterion, the teacher answered *“for benefit of the doubt.”* For statement in item 10, he agreed that students prefer online homeworks over traditionally-given homeworks because he hears a lot of good comments from the students. He also added that the students seem to be more

enthusiastic in answering online homeworks. However, he is also aware that some students still have complaints regarding online homeworks. For item 17, although the teacher is aware that it is still possible for the students to cheat in their online homeworks, he minimizes the chance by programming a pool of questions and set Edu2.0 to randomize the questions, giving assurance that each students answer different sets of questions. For item 18, the teacher agreed that some of his students come to him and tell him that, once started, they do not stop answering unless accomplished. The researcher's intent for this item is to see how much the students enjoy answering online homeworks. Although the teacher agreed, he said that *"They really need to do it in one sitting because I sometimes give timed homeworks"*. When asked what is meant by this, he elaborated that there are times when the students' online homework are deigned where the students have a certain amount of time to lock in their answers. This seems to imply two things, either the students really enjoy doing online homeworks or because they have to.

Another item for this criterion that the researcher could not help notice is item 21, which is about online homeoworks causing lesser interaction amongst the students, where the teacher's response was that he is undecided. When asked why the teacher answered as such, his reply was *"Although I give online homeworks with the intention that the students work on their own, there is no concrete means for me to really say whether they are doing so or not. Thus, I am not sure if online homeworks lessen their interaction."* The teacher's reply seems to imply that online homeworks in their class may have an intention of limiting the students' interaction but is not necessarily

achieved by assigning online homeworks. This, furthermore, seems to give the implication that online homeworks do not lessen students' interaction.

Table 4 also shows that parents' involvement and homework environment garnered the lowest mean score amongst the three criteria. The teacher strongly agreed to the statements that says parents are aware of the existence of online homework in his class (23) and students ask for deadline extensions (26), agreed to the statements about complaints of students on having to do online homeworks in rowdy computer shops (27) and difficulties on answering online homeworks because the students do not have internet access (28), and undecided to the statements about the parents help being needed (24) and parents' supervision being required.

From the interview with the teacher, the teacher said that he is well aware of the fact the students are having difficulties of submitting or complying with the homeworks because not everyone has internet connection. The teacher shared that students often ask for deadline extension because of this reason. The teacher, to address this issue, gives consideration. The teacher also said he gives a reasonable time frame for the completion of the homework so the students cannot use this as a reason for not complying.

It is also shown in table 4 that the statement "Some of my students ask for extension because they do not have money to go to computer shops" received the lowest possible score of 1. This item was intended to determine whether the teacher is

aware that in assigning homeworks, educators should not assume that students have equal abilities in accomplishing homeworks (AFT, 2011) or not. The teacher's strong agreement on this item may imply that he is aware that the students have difficulties meeting deadlines because of financial reasons and that there is a need for the teacher to review these areas for the students to have a more favorable perception on online homeworks through Edu2.0 in his class.

The teacher being undecided in the items about parents involvement like parents help being needed to accomplish online homeworks and parents 'supervision being required seems to imply that the teacher failed to define the parents role in homework giving. Epstein and colleagues (2002), recommended the following for parental involvement: parents receive a clear guidance spelling out their role; teachers do not expect parents to act as experts regarding content or to attempt to teach the content; and parents ask questions that help the students clarify and summarize what they have learned. In this regard, there seems to be a need for the teacher to improve this method of giving homeworks in this area.

Problem 3. In what areas are the perceptions of the teacher and the students similar or dissimilar?

To answer this problem, the researcher identified the statements where the majority of the students and the teacher have the same or different level of agreement. (Refer to the appendix K for the statistics)

For the criterion time spent on homework, the teacher and 72% of the students strongly agreed with the statement about enough time to accomplish homework; the teacher and 61% of the students strongly agreed with the statement about how answering online homeworks only takes about an hour; the teacher strongly agreed while 46% of the students agreed that online homeworks do not disrupt family time; the teacher strongly agreed but the majority of the students, about 41%, only agreed with the statement about online homeworks interfering with sleeping time; the teacher strongly agreed while 43% of the students agreed that online homeworks are design to maximize the chance to accomplish them; the teacher and 59% of the students strongly agreed that online homework do not cause them to miss family event; and the teacher and 37% of the students agreed with the statement about online homeworks on weekends.

The responses of the teacher and the students in the criterion of time spent on homework are almost the same with just slight differences on the levels for three areas, sleep time, maximum chance to accomplish, and missing family events. For these mentioned areas, the teacher strongly agreed while majority of the students only agreed. This seems to imply that the teacher's and students' perception on online homeworks given through Edu2.0 are the same in terms of time spent on homework. The results, in fact interpret the students' and teacher's responses as favorable.

For the criterion purpose of online homework, the teacher and majority of the students strongly agreed on the statements about online homeworks as a review (9),

online homeworks' easy reminder (11), online homeworks are not given to make teacher seem demanding (12), instant feedback (13), contents of online are applications of lessons in class (15), not stopping until totally accomplished (18), assurance of not losing homeworks (19), online homeworks give students sense of progress (20). This seem to imply that the teacher and the students have the same level of favor on online homeworks on these areas.

The teacher strongly agreed and majority of the students just agreed with the statements about students having better understanding because of online homeworks (8) and online homeworks are made enjoyable (16). This seems to show that there is just a slight difference on the level of agreement between the students and teacher.

For the statement regarding students' preference of online homeworks over traditionally-given homeworks, the teacher agreed while majority of the students, about 35%, were undecided. This may imply that while the teacher is convinced that students prefer online homeworks, the students still cannot decide.

In addition, in the statement that online homeworks on this class are used to introduce a concept (14), the teacher strongly agreed while majority of the students disagreed. This result seems puzzling at first because the responses are conflicting. However, the teacher mentioned from the interview that although he uses online homeworks to introduce a lesson, he includes online lessons or presentation on Edu2.0 the students can view before answering the online homeworks. This seems to give the

implication that the students, since there was the presence of online lesson, do not consider these online homeworks as lesson introduction.

For the item regarding lesser chance of cheating, the teacher agreed while majority of the students were undecided. Although the teacher provides means to lessen the chance of cheating, like randomized questions from a pool, there are some students who commented on how it is easy to copy another classmate's work in these online homeworks. This seems to imply that the teacher needs to improve online homeworks in the concern of cheating.

For item about homework causing lesser interaction (21), the teacher was undecided while majority of the students disagreed. This seems to give the implication that while the teacher has no idea whether the students have lesser interaction or not, the students believes that online homeworks do not cause them lesser interaction with their classmates.

For the last item on purpose of online homeworks, which is about online homework being worry-free, the teacher strongly agreed while majority of the students were undecided. While the teacher strongly believed that online homeworks are worry-free, statements like *"Nakakataranta kasi my time limit for items. Pag nagloko and internet, naapektuhan and score"* seem to imply, the opposite.

The responses of the two groups of respondents (teacher and students) are almost in sync. In general, the teacher and the students have “favorable” perception on online homeworks given through Edu2.0, shown in the general averages 4.07 from the students and 4.14 from the teacher. But looking closely, the students responses gave favorable, favorable, and highly favorable as interpretation to the three criteria while the teacher gave highly favorable, highly favorable, and fairly favorable. There was a great difference between the perceptions on the criterion on parents’ involvement and homework environment.

When 52% of the students (see appendix K for Statistics) said they strongly disagreed with the statement *“Parents’/guardian’s help in accomplishing the online homework is not needed,”* the teacher answered undecided. This could mean the teacher might not be sure whether the students receive help in answering online homework or not. This is the same for statement *“Online homework requires my parents’ supervision.”* The teacher was undecided while 52% of the students strongly disagreed. For item 27, 62% of the students strongly disagreed about answering online homeworks because they have to do it in rowdy computer shops while the teacher is convinced that this is what the students are experiencing. The teacher agreed with the statement *“It is hard to accomplish online homeworks because our home does not have access to internet”* while 57% of the students disagreed.

This seems to imply that the teacher might think that the students are at a disadvantage answering online homeworks in terms of parents’ involvement and

homework environment. However, looking at the results from the students' survey, it may be inferred that the students do not think that they are at a disadvantage in this area. Although there were few complaints, the great majority do not seem to feel any discomfort in answering online homeworks.

Chapter V

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Findings

The use of online programs for giving homeworks, quizzes, and other forms of classroom assessments is becoming popular. There are several websites which provide this kind of program. Edu2.0 is one of these. In deciding to use such method of giving homeworks, a teacher should first, have good impressions in the program and should greatly consider the students, their feelings towards it or the benefits they could gain from it and then later on look into the effective of such method.

This study did not look into the effectiveness of the method of giving homeworks. Rather, it focused on the perceptions of the person giving the homeworks (teacher) and the ones who have to accomplish them (students). The following are the findings of the study:

1. The students have favorable perceptions on online homeworks given through Edu2.0 in their Calculus class in terms of time spent on homework, favorable perceptions in terms of purpose of online homeworks, and highly favorable perceptions in terms of parents' involvement and homework environment. These results seem to imply that the students favor the use of online homeworks.
2. The teacher have highly favorable perceptions on online homeworks given through Edu2.0 in his Calculus classes in terms of time spent on homework and

purpose of online homework and fairly favorable perceptions in terms of parents' involvement and homework environment. Although the results show that the teacher have favorable perceptions on online homeworks through Edu2.0 in his Calculus class, the results also seem to give the implication that the teacher is not as confident on this method in terms of parents' involvement and homework environment as he is in terms of time spent on homework and purpose of online homework.

3. Although both the teacher and students have the general perception which is "favorable," there was a great difference between their perceptions in terms of parents' involvement and homework environment. During the interview, the teacher mentioned that he hears complaints on how uncomfortable and annoying it is to answer homework especially when the internet connection is unstable. This seems to show that the teacher might have had a low perception on online homeworks in this criterion because he might have thought that this is the sentiment of the majority, when in fact, it is shown that the majority of the students do not feel uncomfortable answering online homeworks.

Conclusion

Based on the findings of the study, the following conclusions were drawn:

1. Giving online homeworks through Edu2.0 in Calculus class is acceptable by the students in terms of time spent on homework, purpose of online homeworks, and parents' involvement and homework environment.

2. Similarly, the teacher also found online homeworks given through Edu2.0 as an acceptable method of giving homeworks.
3. There is no big difference between the perceptions of the teacher and the students on online homeworks given through Edu2.0.

Recommendations

In light of the findings of this study, the following recommendations are made:

1. When considering the use of online homework, the teacher may:
 - a. Review the purposes of giving homework;
 - b. Make provisions so that the students are not encouraged to cheat;
 - c. Give considerable amount of time for everyone to comply; but be cautious because to lax a time may lead them to be complacent; and
 - d. Give two or three examples in the site which the students can use as a review.
2. Since giving online homework through Edu2.0 was found favorable by the teacher and students, seminars and workshops on these online homeworks may be given by the school to give teachers the opportunity to use an online program as an option of giving homeworks
3. Further study about the online homeworks should be done. The researcher may attempt to look into the effectiveness of the method.

4. Program developers for such online homework programs conduct a similar study before presenting their program to the public.

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Appendix A
Letter of Request

September 25, 2013

Mrs. Evangelina N. Apolinario, Principal II
Makati Science High School
Poblacion, Makati City

Madam:

May I request from your good office the permission to conduct a survey and interview with the fourth year? This is in connection with my special project entitled "Perceptions on Online Homeworks through Edu2.0. The said study is a pre-requisite towards the completion of the degree Master of Arts in Education major in Mathematics at Philippine Normal University, Taft Avenue Manila

May this request merit your favorable action.

Thank you and may God bless you!

Very truly yours,

BEATRICE O. LEE PUETTING

Approved by:

Mrs. Evangelina N. Apolinario
Principal

Appendix B
Letter of Request (Evaluator)

Mathematics Department
Philippine Normal University
Taft Avenue, Manila

Dear Sir/Madam:

Greetings of peace!

I am Beatrice O. Lee Puetting from Makati Science High School. I am currently enrolled for Special Project for the completion of my masteral degree under the advisory of Dr. Erminda C. Fortes. The title of my study is "Teacher's and Students' Perception on their Online Homework through Edu2.0 in Their Calculus Class".

A colleague in Makati Science High School gives homework through Edu2.0. Edu2.0 is similar to social networking site where the students need to sign up to in order for them to have access in. It is a flexible program where you can design tests or set of questions to suit whatever purpose you have. I am very much interested of not only the teacher's thoughts about online homework in their Calculus class but most importantly, the students' thoughts.

May I request you to spare a fraction of your precious time to look into my self-made survey questionnaire that is needed to gather data for my study entitled "Teacher's and Students' Perception on Online Homework Through Edu2.0 Calculus Class".

Attached here is the copy of the instrument I have made to determine the teacher's and students' perception on online homework in their Calculus class in these areas: time spent on homework, parents' involvement/homework environment, and purpose of homework.

I highly believe that your expertise will be of great help in critiquing this self-made instrument. Your just evaluation and suggestions will be highly appreciated.

Thank you very much!

Respectfully yours,

Beatrice O. Lee Puetting

Appendix C

Evaluator's Instrument before Face Validation

Experts' Evaluation of the Survey Questionnaire

Direction: Attached is a self-made survey questionnaire designed to identify the students perception on their online homework in their Calculus class. Opposite each item set qualities each statement must possess (clarity and suitability).

Clarity – the statement is clearly stated and can be easily understood by the rate.

Suitability – the statement is suitable for the stated category.

Please rate each statement in this criterion, 4 being the highest and 1 the lowest.

A. PERCEPTION ON TIME SPENT ON HOMEWORK	CLARITY	SUITABILITY
1. I am given enough time to accomplish each online homework.		
2. It usually takes be less than an hour to accomplish my online homework.		
3. Answering online homework disrupts my time for my family.		
4. I do not get enough sleep because of these online homework.		
5. These online homework are designed to maximize my chance of accomplishing them.		
6. I missed a family event because I have to accomplish my online homework.		
7. I usually reserve my weekends to answer online homework.		
B. PERCEPTION ON PURPOSE		
8. I understand concepts taught when I answer online homework.		
9. Answering online homework gives me a chance to review learned concepts in Calculus.		
10. I like answering online homework better than answering homework given traditionally.		
11. Since I am online most of the time, I am constantly reminded to check for my online homework.		
12. I feel like my Calculus teacher is demanding because he assigns online homework.		
13. I am able to know my scores right after submitting my online homework.		
14. Some of these online homework are used to introduce a lesson.		
15. The contents of these online homework are application of the concepts taught to us by our teacher.		
16. I enjoy answering online homework.		
17. Online homework make it easier to copy my		

classmates work.		
18.I do not stop answering online homework unless I have completely finished it.		
19.These online homework give me the assurance that I will not lose my homework.		
20.These online homework give me the sense of progress.		
C. PERCEPTION ON PARENTS' INVOLVEMENT AND HOMEWORK ENVIRONMENT		
21.My parents/guardian were informed about the existence of these online homework.		
22.There was an instance where I needed my parents to teach me how to answer my online homework.		
23.I feel like I am at a disadvantage because of online homework.		
24.Online homework requires my parents' supervision.		
25.I can't submit online homework on time because I do not have money to go to computer shops.		
26.Answering online homework brings me discomfort.		
27.It is hard to accomplish online homework because our home do not have access to internet.		
28.Online homework lessen interaction to my classmates.		
29.I get worried every time an online homework is assigned.		
30.Online homework causes my family financial strain.		

Appendix D Evaluator's Instrument after Face Validation

Experts' Evaluation on the Survey Questionnaire

Name: _____

School: _____

Number of years in teaching: _____

Educational Background:

College (Course/School): _____

Graduate Studies: _____

Please read each item carefully. Below are characteristics of a good questionnaire. Please place a check on the corresponding column to indicate your rating, 5 being the highest and 1, the lowest.

Criterion	5	4	3	2	1
A. Clarity					
1. The statements in the questionnaire are worded simply and clearly.					
2. The statements are uncluttered and easy to complete.					
B. Readability/Format					
1. The questionnaire is designed for easy tabulation.					
2. The statements are logically ordered.					
C. Comprehensiveness					
1. The questionnaire is complete, covering almost every aspect of identifying the perception on online homework.					
2. The questionnaire adheres to the objectives of the study.					
D. Suitability					
1. Each statement is placed in the appropriate category.					

Other comments and suggestions:

Appendix E

Survey Instrument for Student

Perception Survey (For the students)

This is a questionnaire designed to determine students' perception on their online homework in their Calculus class. Please answer every question and feel free to answer truthfully, frankly, and accurately. The information you will give will be treated with strict confidentiality.

Thank you very much!

Part I – Information about yourself. Please supply the needed data,

Name: _____

Section: _____

Gender: _____

Part II – Please read each item carefully. Below are some statements about perception that students may have on homework given online in their Calculus class. There is no right or wrong responses so do not leave any item unanswered. Opposite each item are boxes where you are to place a check (✓) that will indicate how you feel about the statement. Use the information below as your guide:

- SA - You strongly agree with the statement.
- A - You agree with the statement,
- U - You cannot decide whether you agree or disagree with the statement.
- D - You disagree with the statement.
- SD - You strongly disagree with the statement.

A. ON TIME SPENT ON HOMEWORK	SA	A	U	D	SD
1. I am given enough time to accomplish each online homework.					
2. It takes me less than an hour to accomplish my online homework.					
3. Answering online homework disrupts my time for my family.					
4. I do not get enough sleep because of these online homeworks.					
5. These online homeworks are designed to maximize my time in accomplishing them.					
6. I missed a family event because I have to accomplish my online homework.					
7. I reserve my weekends to answer online homework.					

B. on Purpose OF Giving the homework					
8. I understand concepts taught when I answer online homework.					
9. Answering an online homework gives me a chance to review learned concepts in Calculus.					
10. I like answering an online homework better than answering homework given traditionally.					
11. It is easy for me to be reminded of my Calculus homework because I am online most of the time.					
12. I feel like my Calculus teacher is demanding because he assigns online homework.					
13. I am able to know my scores right after submitting my online homework.					
14. These online homeworks are used to introduce a lesson.					
15. The contents of these online homeworks are application of the concepts taught to us by our teacher.					
16. I enjoy answering online homework.					
17. Online homeworks make it easy to copy my classmates work.					
18. I do not stop answering online homework unless I have completely finished it.					
19. These online homeworks give me the assurance that I will not lose my homework.					
20. These online homeworks give me the sense of progress.					
21. Online homeworks lessen interaction with my classmates.					
22. I get worried each time an online homework is assigned.					
C. ON PARENTS' INVOLVEMENT AND HOMEWORK ENVIRONMENT					
23. My parents/guardians were informed about the existence of these online homeworks.					
24. There was an instance where I needed my parents to teach me how to answer my online homework.					
25. Online homework requires my parents' supervision.					
26. I can't submit online homeworks on time because I do not have money to go to computer shops.					

27. Answering online homework brings me discomfort because I have to do it in rowdy computer shops.					
28. It is hard to accomplish online homeworks because our home do not have access to internet.					

Other comments and suggestions:

Appendix F

Survey Instrument for Teacher

Perception Survey (For the teacher)

This is a questionnaire designed to determine teacher's perception on the online homework in your Calculus class. Please answer every question and feel free to answer truthfully, frankly, and accurately. The information you will give will be treated with strict confidentiality.

Thank you very much!

Part I – Information about yourself. Please supply the needed data,

Name: _____

Number of years in teaching: _____

Gender: _____

Part II – Please read each item carefully. Below are some statements about perception that students may have on homework given online in their Calculus class. There is no right or wrong responses so do not leave any item unanswered. Opposite each item are boxes where you are to place a check (✓) that will indicate how you feel about the statement. Use the information below as your guide:

- SA - You strongly agree with the statement.
- A - You agree with the statement,
- U - You cannot decide whether you agree or disagree with the statement.
- D - You disagree with the statement.
- SD - You strongly disagree with the statement.

A. ON TIME SPENT ON HOMEWORK	SA	A	U	D	SD
1. I give enough time to my students to accomplish each online homework.					
2. It takes my students less than an hour to accomplish my online homework.					
3. I don't think answering online homework disrupts my students' time for their family.					
4. I make sure that online homework do not interfere with my students' sleeping time.					
5. I designed these online homework to maximize my students' time in accomplishing them.					
6. I make sure that online homework do not cause my students to miss family events.					
7. I give these online homework during the weekend.					

B. On PURPOSE OF THE HOMEWORK					
8. My students understood the lesson better through answering online homework.					
9. Answering online homework gives my students a chance to review learned concepts in our class.					
10. I feel like my students prefer answering online homework more than answering traditionally-given homework.					
11. It is easy for me to remind my students about their homework because they are online most of the time.					
12. I don't give online homework to seem demanding.					
13. I like online homework because it allows my students to know their scores right after submitting their work.					
14. I use these online homeworks to introduce a concept.					
15. The contents of these online homeworks are application of the concepts discussed in our class.					
16. I make sure my students enjoy answering online homework.					
17. Online homework lessen my students' chance in copying their classmates' work.					
18. My students tell me that they do not stop unless they finish answering their online homework.					
19. Because of these online homeworks, my students can't use the reasoning that they lose their homework as an excuse for not submitting.					
20. These online homeworks give my students the sense of progress.					
21. Online homework lessen interaction between my students.					
22. Online homework are worry-free.					
C. ON PARENTS' INVOLVEMENT AND HOMEWORK ENVIRONMENT					
23. My students' parents/guardian were informed about the existence of these online homeworks.					
24. Parents/guardian's help in accomplishing the homework are not needed.					
25. Online homework requires parents' supervision.					

26. Some of my students ask for extension because they do not have money to go to computer shops.					
27. I hear my students complain that they are uncomfortable in answering online homework because they have to do it in rowdy computer shops.					
28. My students find it difficult to answer online homework because they do not have internet access.					

Other comments and suggestions:

Appendix G
Table for Evaluators Rate for the Survey Instrument

Evaluato r	Clarit y	Readability/Form at	Comprehensiven ess	Suitabilit y	Total	Ave
1	3.5	3	3	4	13.5	3.37 5
2	4	5	4	3	16	4
3	4	4	4	4	16	4
4	4	4	4	4	16	4
5	4.5	4	3	4	15.5	3.87 5
				Grand Total		19.2 5
				General average		3.85

Appendix H
Table for Students' Perception

	STATEMENTS													
STUDENT	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	5	3	4	3	5	5	2	4	4	3	2	5	5	3
2	4	4	5	5	4	4	1	4	5	4	4	4	5	2
3	5	4	4	4	3	5	4	4	4	4	4	5	5	3
4	5	5	4	5	5	5	2	5	5	5	5	5	5	1
5	4	4	4	4	4	4	2	4	5	3	2	4	5	2
6	5	3	4	5	5	5	2	4	4	4	2	5	5	3
7	5	4	4	4	4	5	2	4	4	4	5	5	4	3
8	5	4	3	2	5	3	4	4	5	4	5	5	5	1
9	4	4	4	4	4	4	2	4	4	4	4	4	4	4
10	4	4	4	4	4	4	4	4	4	4	4	4	4	4
11	4	4	4	4	4	5	2	4	4	3	2	4	5	2
12	5	5	5	4	4	3	1	5	5	3	4	5	5	5
13	5	4	5	3	5	5	4	4	4	3	4	4	5	4
14	5	5	5	4	5	5	2	4	2	3	1	4	5	4
15	4	4	4	4	4	4	3	3	4	3	3	4	4	3
16	5	4	4	3	4	4	3	5	5	4	4	3	5	2
17	4	4	5	4	3	5	2	4	2	2	2	4	5	4
18	4	4	3	4	3	4	2	3	4	3	4	4	5	4
19	5	4	4	3	3	3	2	5	5	5	4	3	5	3
20	5	5	5	3	4	3	3	3	5	3	5	5	5	2
21	4	4	1	1	2	2	2	4	4	2	2	4	4	4
22	5	3	4	3	3	4	2	3	4	5	3	3	5	3
23	5	4	4	4	4	4	2	4	4	5	5	5	4	4
24	5	4	5	4	5	4	2	4	4	5	4	5	4	4
25	5	4	4	4	4	5	2	4	4	4	4	4	5	2
26	5	5	3	2	4	5	1	5	5	4	5	4	5	4
27	4	5	4	4	3	5	4	4	5	2	1	5	5	4
28	4	4	3	3	4	4	3	4	4	4	4	3	4	4
29	5	5	4	4	3	4	4	5	5	5	5	4	5	1
30	5	5	5	5	5	5	5	5	5	5	5	5	5	1
31	5	5	3	5	5	5	1	5	5	5	5	5	5	5
32	4	4	4	4	4	4	2	4	4	5	4	5	5	3
33	5	5	4	4	5	4	3	4	5	5	5	5	5	1
34	5	5	5	5	5	5	5	5	5	5	5	5	5	5
35	5	4	3	4	5	5	2	4	5	4	5	5	5	2
36	5	5	3	3	5	4	3	3	5	4	4	5	5	1
37	5	4	5	5	5	5	2	5	5	5	5	5	5	1

38	5	4	5	4	4	5	2	5	5	5	3	5	5	4
39	5	5	5	3	1	5	2	4	4	5	5	5	5	4
40	5	5	4	4	4	4	3	4	5	5	5	5	5	4
41	4	3	4	4	4	4	4	4	4	3	2	4	5	4
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47	4	4	5	5	4	4	4	4	4	4	5	5	5	4
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49	4	3	5	5	5	5	4	5	5	1	4	5	5	5
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51	5	5	5	5	5	5	5	5	4	5	5	5	5	5
52	5	4	3	3	5	4	1	3	4	3	3	5	5	5
53	4	4	3	4	2	5	3	3	4	3	3	4	5	3
54	4	4	4	4	4	4	3	4	4	4	4	5	4	4
55	5	5	4	4	5	5	1	4	5	3	1	5	5	5
56	5	5	4	4	5	4	3	4	5	4	2	4	5	4
57	5	5	5	4	4	5	1	4	5	3	4	4	5	2
58	5	5	3	4	5	5	2	5	5	5	5	4	5	2
59	4	4	4	4	5	5	1	4	4	2	2	4	5	2
60	5	5	4	5	5	5	2	4	5	3	4	5	5	1
61	5	5	3	4	4	3	2	4	5	5	3	5	5	2
62	5	5	4	5	3	4	2	4	5	3	3	3	5	5
63	5	5	4	5	4	5	5	5	5	3	4	5	5	2
64	5	5	5	5	5	5	3	5	5	4	3	2	4	1
65	4	5	3	4	4	5	4	4	3	5	2	2	5	5
66	5	5	3	4	3	5	2	3	4	3	4	3	5	4
67	5	5	3	4	5	5	4	4	4	5	4	4	4	3
68	4	5	4	4	3	5	2	4	5	4	4	4	5	5
69	3	2	4	4	5	3	4	3	4	2	3	4	5	4
70	5	5	5	5	5	5	2	4	4	4	5	5	5	5
71	5	5	3	4	4	5	2	4	5	3	3	5	5	5
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76	5	5	2	4	4	2	2	4	5	3	1	4	5	4
77	4	5	2	5	5	5	1	4	5	3	2	4	4	5
78	5	5	5	5	4	5	4	4	4	3	4	4	4	4

79	4	5	4	5	4	5	5	4	4	4	4	4	4	5
80	5	4	4	4	4	5	2	4	5	3	2	5	4	4
81	5	4	3	3	4	3	4	4	5	4	4	5	5	4
82	4	5	5	5	5	5	2	4	5	4	4	5	5	4
83	4	5	4	4	5	5	4	5	5	3	5	5	5	4
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91	5	4	4	4	4	5	3	4	4	3	4	4	5	3
92	5	5	5	5	1	5	4	5	5	5	5	5	5	3
94	4	4	4	4	3	4	4	4	4	4	4	4	5	5
95	5	5	4	5	4	4	2	4	4	4	5	5	5	3
97	4	4	3	3	3	4	1	4	4	1	1	5	5	2
98	5	5	4	5	4	5	3	5	5	5	5	5	1	5
99	5	5	3	5	3	3	3	5	5	5	5	5	5	5
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101	5	5	4	4	3	4	1	4	5	5	4	5	5	2
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103	4	4	5	5	4	5	2	4	4	3	4	5	5	3
104	5	5	5	5	4	5	3	5	5	4	5	5	5	5
105	5	5	5	5	5	5	3	5	5	5	3	5	5	5
106	5	5	5	5	5	5	5	5	5	5	5	5	5	5
107	5	4	3	2	2	3	3	4	4	3	2	5	5	2
108	5	5	4	5	5	5	2	5	5	4	4	5	5	3
109	5	3	4	4	4	4	2	5	5	3	5	5	5	2
110	4	4	3	4	3	5	4	4	3	4	3	4	5	4
111	5	4	4	4	4	2	2	5	5	3	4	4	5	2
112	5	5	4	5	4	5	2	4	5	5	3	5	5	2
113	5	5	3	5	5	5	3	4	4	4	2	5	5	4
114	5	5	5	4	4	4	3	4	5	5	4	4	5	3
115	5	5	3	3	4	5	1	5	5	3	3	5	3	1
116	5	4	4	4	5	2	3	5	5	5	5	4	5	4
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Total	899	865	783	796	784	836	495	795	857	722	713	847	920	596
Average	4.71	4.53	4.1	4.17	4.1	4.38	2.59	4.16	4.49	3.78	3.73	4.43	4.82	3.12

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182	5	3	4	5	5	4	2	1	4	4	4	4	4	4
183	5	4	4	5	5	3	5	4	1	5	5	5	4	5
184	5	5	4	5	5	5	2	5	5	2	3	5	5	5
185	4	4	2	5	5	4	4	4	5	4	4	5	5	5
186	5	5	5	5	3	5	3	5	5	5	5	5	5	3
187	5	3	3	3	1	3	5	1	5	5	5	1	1	1
188	4	4	5	5	5	5	3	3	5	1	2	3	3	3
189	5	4	4	4	5	3	5	2	4	5	5	5	5	5
190	5	5	5	5	5	5	4	4	4	3	3	5	5	5
191	4	2	4	4	4	3	2	2	4	4	5	2	2	2
192	4	5	3	5	4	3	3	2	5	3	3	5	5	5
193	4	4	2	5	3	3	4	1	5	3	3	4	4	3
194	5	4	4	4	4	4	3	2	3	4	3	4	4	4
Total	891	786	657	874	876	825	690	615	815	818	815	862	834	816
Average	4.66	4.12	3.44	4.58	4.59	4.32	3.61	3.22	4.27	4.28	4.27	4.51	4.37	4.27

Appendix I
Table for Teacher's Perception

Item	Score
1	5
2	5
3	5
4	5
5	5
6	5
7	2
8	5
9	5
10	4
11	5
12	5
13	5
14	1
15	5
16	5
17	4
18	4
19	5
20	5
21	3
22	5
23	5
24	3
25	3
26	1
27	2
28	2
Total	114
Average	4.07

Appendix J
Item Scores

Item Number	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	5	4	3	2	1
2	5	4	3	2	1
3	1	2	3	4	5
4	1	2	3	4	5
5	5	4	3	2	1
6	1	2	3	4	5
7	1	2	3	4	5
8	5	4	3	2	1
9	5	4	3	2	1
10	5	4	3	2	1
11	5	4	3	2	1
12	1	2	3	4	5
13	5	4	3	2	1
14	1	2	3	4	5
15	5	4	3	2	1
16	5	4	3	2	1
17	1	2	3	4	5
18	5	4	3	2	1
19	5	4	3	2	1
20	5	4	3	2	1
21	1	2	3	4	5
22	1	2	3	4	5
23	5	4	3	2	1
24	1	2	3	4	5
25	1	2	3	4	5
26	1	2	3	4	5
27	1	2	3	4	5
28	1	2	3	4	5

Appendix K
Percentage of Students in each Response

Item Number	Number of Students for Each Response				
	SA	A	U	D	SD
1	137	52	2	0	0
2	116	61	13	1	0
3	1	5	33	87	65
4	2	8	24	79	78
5	68	82	36	3	2
6	1	10	17	51	112
7	34	71	39	33	14
8	58	110	19	4	0
9	107	74	6	4	0
10	63	45	66	12	5
11	64	57	35	25	10
12	0	2	18	66	105
13	163	25	1	0	2
14	21	45	42	56	27
15	130	59	1	1	0
16	71	76	39	5	0
17	11	27	62	49	42
18	120	62	8	1	0
19	128	50	11	1	1
20	89	79	19	3	1
21	5	25	53	64	44
22	12	47	53	45	34
23	105	57	11	11	7
24	2	11	18	60	100
25	0	12	25	54	100
26	2	3	13	27	125
27	3	13	13	44	118
28	4	12	20	47	108

CURRICULUM VITAE

Name: BEATRICE O. LEE PUETTING

Address: 135 Brgy. Alac, San Quintin, Pangasinan

Contact Number: 09159015680/09227750046

Email Address: gypsy_lycan@yahoo.com

Personal Information:

Birthdate: November 27, 1983

Place of Birth: Quezon City

Educational Background:

School	Year	Award
Alac Elementary School	1997	Valedictorian
San Quintin National High School	2001	3 rd Hon. Mention
Philippine Normal University	2005	Cum Laude

Employment History

School	Year
Makati Science High School	2012 – Present
Quezon City Science High School	2011 – 2012
Colegio De Sta Rosa-Makati	2005 – 2011

Eligibility

Licensure Examination for Teacher

Civil Service