



The Best Teaching Method to Improve Students Score in Mathematics

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Abstract: Mathematics the foundation of disciplines involved in the development of technologies that change the way of our living style is not an easy subject for many students. Some students cannot acquire the minimum credits require to pass to the next grade. As a result they are forced to repeat the same class again and consequently will have a negative impact on their curriculum vitae. In order to help students obtain not only the require credits to pass on to the next grade but also to gain mathematics skills, understand the mathematics concepts for their future career. Many teachers have devoted their efforts in the development of different methods of teaching mathematics where some of them have been tested with promising results while other not and the challenge is still going on. In order to help mathematics teachers having difficulties helping students increase their mathematics skills or scores, we propose the Best Teaching Method to Improve Students Score in Mathematics. This method proposes: 1) how an effective syllabus can be done to help both students and teachers to enjoy their mathematics lesson. This will eventually involve teacher to do students hearing to get an idea of their background in mathematics for the pasted academic year. 2) the importance of learning environment preparation which will help students to ask any questions with no fear and eventually will encourage passive students to participate in the class. 3) Introduction of **Sudden Short Text (SST)** to force students to revise their mathematics lesson each time before coming to a class. 4) Introduction of **Group Assessment Test (GAT)** to help each students to assess themselves in the working group and acquire communication skills as well. This method has been proved promising with an increasing students' scores of 10% for SST and 4% for the GAT as shown in the results section.

Keywords: Assessment; Group; Mathematics; Best method; SST, GAT, Teaching Mathematics

I. INTRODUCTION

We are living in a world that every aspect of our life is shaped by technology in a such manner that we cannot control things we used to do few years ago. As an example in the coming years, a human driver will not be needed any more. This is due to the impressive development of technology that pays the way to the automobile industries to move forward on a new stage of developing an autonomous driving car or self-driving vehicles. At home the sudden pop-up of the Artificial Intelligent (AI) speaker, a curtain can be closed from one voice asking the AI speaker to close it. A music can be played without pushing one play button instead from only one word such as play music. At the super market the Automatic Accounting Machine (AAM) is making a difference. In the air Unmanned Aerial Vehicles (UAV) are also speaking out to mention only a few as the list goes on and on.

But what is the cornerstone or the foundation of these technologies? in other word what discipline is supporting these technologies? You can answer by saying that, what is supporting these technologies is the computer programing or computer science. Yes I totally agree with you. But the computer programing itself needs a calculation to make things in order in the programming code. So the real cornerstone of these technologies including other sciences is not a computer programming but Mathematics. That is to say, we cannot come to this point where the technology is now or is about to reach in the coming years without Mathematics. How the Mathematics is defined? [1] Defines Mathematics as the science that deals with the logic of shapes, quantity and arrangement. In [2] the mathematics is the manipulation of the meaningless symbols of a first-order language according to explicit, syntactical rules. While [3] tells us that the mathematics is the study of numbers, shapes and space using

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reasoning and usually a special system of symbols and rules for organizing them to mention only a few. Unlike other disciplines, Mathematics does not have a definition that is accepted by mutual agreement by all. For me I define Mathematics as “ the discipline that proves the existence of things in the universe under the form of quantity by translating these things in a number in order to set a rule for better understanding of the universe and help construct an organizing society”. The following example support this definition. Nothing, is an open empty space that we all know is translated in Mathematics by Zero (0) and all human being in this earth agree with that number. The concept of zero is in fact to compress this huge open space to a narrow space (area in the zero number) so that we can focus on it to develop a real thing for our living style and it is proved.

The history of mathematics is nearly as old as humanity itself. Since antiquity, mathematics has been fundamental to advances in science, engineering, and philosophy. It has evolved from simple counting, measurement and calculation, and the systematic study of the shapes and motions of physical objects, through the application of abstraction, imagination and logic, to the broad, complex and often abstract discipline we know today [4]. In order to pass on the next young generation what our ancestor have invented that makes our society now a technology society, we have to find the way to help students understand Mathematic and improve their score as well. But how to help students improve their score in mathematics? The answer to this question varies from school to school, college to college or university to university based on their teaching policy and strategies as well as from teacher to teacher. For example:

- **The Blue Ribbon Schools** used coherent, focused, and demanding mathematics curriculum that reflect the logical and sequential nature of mathematics. Students move from mastering basic computational skills and number concepts to more complex ideas and mathematical reasoning, including problem solving. Schools expect students to know math concepts and be able to apply them in a variety of settings. All teaching is aligned with district and state standards in mathematics [5].
- **The Holy Name of Jesus School** proposed the involvement of a high quality teacher who will ascertain that students master a concept before

moving on, work with struggling students, and provide a strong foundation in basic facts [5].

- Gas for the **Lone Dell Elementary School**, Mathematics instruction is provided through an individualized approach to instruction utilizing performance tasks that are monitored through various assessments, including the district's quarterly assessments. They focus on the results of the standardized testing as well as their own quarterly assessments to redirect and focus on strengths and weaknesses to their instruction. Each year may require modifications to their instructional practices depending on the needs of the incoming students.

Arkady I. Marona [6] focuses on the calculation of numerical values of priorities on the following strategic objective in teaching Mathematics such as: The formation of mathematics competences for the solution of professional task, the formation of logical thinking, the education of Mathematics culture in teaching Mathematics. According to the author of this article, the above mentioned goals are the very goals which determine the mission of teaching mathematics in high school. By taking into consideration the above mentioned all approaches, and in order to improve students score in mathematics, this article proposes 1) the best strategy of teaching Mathematics and 2) the best way to assess students by conducting an effective Group Assessment Text (GAT) besides the regular test or exam on the course being taught fix by the school curriculum so that student score can be improved.

II. LITERATURE REVIEW

Before looking at different teaching methods proposed by Academic Institutions, Mathematics researchers or teachers in the open literature, let look at the following definition of physics and biology. First, the English Oxford Dictionary defines physics as the branch of science concerned with the nature and properties of matter and energy. And biology as the study of living organism, divided into many specialized fields that cover their morphology, psychology and origin and distribution.

In Collins English Dictionary, physics is defined as the scientific study of forces such as heat, pressure, electricity and the way they affect objects. While biology, is defined as the study of living organism,

including their structure, functioning, evolution, distribution and interrelationships. Wikipedia says physics is the knowledge of nature and biology is the living organisms. When we carefully compare these definitions they all are almost the same and is generally accepted although the expressions used to define them are different from one to another. But what is for Mathematics. As mentioned in the introduction, Mathematics is the only discipline that does not have a generally accepted definition because each academic institution or mathematics teachers see it from their own perspective so do for the teaching method too. The following are some examples we selected from different sources to show how diversity the teaching method are:

In the article “Engaging Students, Developing Confidence, Promoting Independence” by Charlie Gilderdale and Alison Kiddle, published on June 2009 and February 2011. The NRIC from the University of Cambridge in UK that consists of qualified teachers who are also practitioners in rich Mathematics thinking, have organized a series of three teaching inspiration days. During the first day teachers were asked to list issues that most concern them as a mathematics teachers. The workshops on the next day focused on these issues. The following are the questions the workshop organizers asked the Mathematics teachers and their respective answers:

- **Question1:** How do we develop positive attitudes towards mathematics and learning mathematics?

Answers:

- Use a wide range of tasks and resources
 - Plenty of opportunities for students to experience success
 - Use real life examples and explore links with other subjects
 - Offer positive role models of mathematicians
 - Create Mathematics Clubs that older students mentoring younger students
- **Question2:** How do we develop confident learners who are able to work independently and willing to take risks?

Answers:

- Use positive language
- Encourage independent and small group research

- Value different approaches to solving problems
 - Acknowledge all contributions positively
 - Encourage learning from mistakes
 - Welcome wrong answers as the springboard to new understanding
- **Question 3:** How do we develop good communicators - good at listening, speaking and working purposefully in groups?

Answers:

- Plan lessons which focus on group work
 - Set a rule that groups are not 'allowed' to move on until all the students understand
 - Allow time for presentation of findings
 - Teachers question the answers, rather than answer the questions
 - Teachers take a step back and ask students to explain to the class their methods and reasoning
- **Question 4:** How do we develop lessons that maintain the complexity whilst making the mathematics accessible?

Answers:

- Gradually increase the complexity of tasks
- Give plenty of time to engage in and 'solve' problems - the process is more important than the answer
- Be positive about any steps students take towards solving the problem, however small
- Present tasks in different formats
- Encourage a supportive environment in which students work together, discuss ideas and turn to each other for help

When taking a close look at all the answers given by Mathematics teachers we just notice that teachers were interested in a way to promote independence and challenge. But none of them have proposed how students can be assessed for what they have been taught. Menders Unal and Reagans in their article entitled: “Preference of Teaching Methods and Technique in Mathematics [8] ” expressed that, teaching mathematics is related to more than one variable as well as to other disciplines. The primary goal of efficient math teaching is to transfer mathematics knowledge in a way that allows students to adapt new situations and knowledge. He goes on and proposed the following principles for

effective classroom practices in supporting mathematics teaching.

- Teachers are recommended to build on natural interest in mathematics, and on their intuitive and informal mathematics knowledge. They should encourage inquiry and exploration to foster problem-solving and mathematical [9].
- Teachers are expected to use both formal academic lessons and everyday activities as natural vehicles for developing student's mathematical knowledge. Providing a mathematics with rich environment and incorporating the language of mathematics throughout the school day could be effective.
- Teachers are advised to use literature to introduce mathematics concepts, and reinforce them with hands-on activities.
- The last recommendation to teachers is that, they should establish a partnerships with parents and other caregivers in order to support students mathematics development [10-11]

In the Toronto District School Board Report No.16/17-08 of November 2016 entitled: Teaching and Learning Mathematics Research Series1: "Effective Instructional Strategies" provided very useful guideline for mathematics teaching. Under the section: ***create a Supportive and Engaging classroom Environment***: the report proposed that a supportive and engaging environment is important to help students' mathematical understanding and confidence [12]. The classroom needs to be a place of investigation, where students do meaningful mathematics in a safe and positive space. The classroom needs to be made a place of investigation by supporting unusual ideas and responses by students [13-14]. One way to encourage classroom dialogue in Mathematics is through "Mathematics Talk". Mathematics talk is a way to have structured Mathematical discussion that construct knowledge and meaning [15]. Students become the co-constructors of knowledge through asking questions, justifying their work and communicating their ideas to each other [16].

III. EFFECTIVE WAY OF TEACHING MATH.

I have been teaching Mathematics and other Engineering disciplines for more than 12 years. I interacted everyday with students having different social status, learning background, culture and

communication skills. During these 12 years of experiences, I consider teaching as one of the most exciting aspects of the academic career, and the opportunity to teach plays an important role in my decision to pursue my academic path.

The University or College Campus, as a forum for Inter-Cultural Dialog (ICD), where knowledge and critical thinking are shared by teachers with their students, and enthusiasm, fresh ideas or different social culture are shared as well by students with their teachers, has fascinated me. Unlike other disciplines, teaching Mathematics is not that an easy task. Why? because Mathematics is one of the subjects students hate the most and to bring someone to like thing he/she already hated in mind require not only a teaching skills but also a communication skills and good learning environment preparation. The first thing a mathematics teacher have to do to improve students score, is that the teacher should be aware of their background on the topic the teaching is going to be on. Most Mathematics subjects are the extension of the previous curriculum students have learned. By knowing that teachers can prepare the course accordingly. Let's suppose that you are assigned to teach a third year college students.

3.1 Prior to syllabus preparation

Before starting your syllabus, review all the courses your prospective class have learned in the previous year by asking directly some students on what they have learned in their second grade and what was difficult or what they have difficulty to understand. Different students will give different answers. Once you have completed the hearing with students, start your syllabus with two weeks revision if your course is taught once a week. This two weeks will give you opportunity to assess their understanding and how to adjust your course. Your revision should only focus on the very important part such as theorems, important formulas that related to the course you are going to teach and how these formulas can be used. Explanations about these formulas or theorems should be brief instead give more time in practice and involve more students. The very import aspect here is to let students write their answers on the blackboard. When student finishes writing his/her answer on the blackboard and ask you for example: Is that the answer?, reply with "**I do not know**" ask your colleagues " and engage students in discussion. You may give answers or not based on the outcome

of the discussion and the class situation.

3.2 Learning Environment with no barrier

Prepare your students learning environment with no barrier between you and them. That is to say an environment that everyone can ask any questions without fear. This environment will encourage students to ask you any questions and it will motivate passive students to make an effort and even do investigation as well. This is the method I am using in all of my mathematics classes and it gives a huge promising results and even students who used to hate mathematics are getting interest in mathematics.

I prepare my lesson plans always considering the interconnection between the student's own knowledge, culture and learning abilities, skills. This include the Direct Theorem-Exercise (DTE). The DTE is the exercise that applies directly to the theorem they just learned without doing any effort. Once everybody understand the how to manipulate or use the theorems being taught, I choose content and activities that are both significant and challenging for the students so that they are stimulated to think beyond their comfort zone and feel involved in their own learning process. I then give students a series of practical examples that demonstrate how, why and when important ideas, theories, theorems and technical concepts should be used. During the exercise practice I give students permission to move around the class ask his/her friends seating far from his/her desk and work together with usually within a limited time before the class goes on. To verify whether the course is being understood, I give similar examples from courses at different levels. I give students time to think about each example. I then engage students in discussion to clarify any misunderstandings or misconceptions. This is done by creating a good discussion environment in which everyone contribute but no one dominate in order to maintain the spirit of both debate and civility. I monitor the discussion and intervene only to arrange ideas, correct someone's remark or clarify points they still have difficulty understanding. This is because I want them to go through the active process of making discoveries by comparing perspectives and disagreeing with each other rather than taking notes and listening passively to what I am conveying to them. This approach helps me locate passive students, know what their difficulties are and encourage them. When I locate a passive student, I go towards his/her and ask that

student very quietly about the difficulties he is facing in solving the problem. Once I know his/her difficulties I give an explanation about what to do and write down on a piece of paper. Please be advised that this is a private issue between you and that student. By doing so student will not hesitate to give you call during the mathematics workshop on class and ask for your help instead of giving up. My experience shows that if you treat a passive students with a passive approach, hoping that they will recover on their own, most of the time those students will end up either falling behind or dropping out of the course. Collaborative learning is also central to my teaching philosophy in order to promote reflective thinking and improve the students' communicative and Trans-Cultural Skills (TCS). I believe that clear, open communication with students is a key element in helping them learn Mathematics. This method has helped most students to like mathematics and as an example, one of the female students of fourth grade who used to hate mathematics has admitted that she likes mathematics now. Her mathematics score though the semester was A⁺ and above.

IV. THE BEST WAY TO ASSESS STUIDENTS

Test is also scheduled in my teaching philosophy. But before moving on for a test; at the end of each chapter when time allows I give a few minutes for revision in order to give students opportunity to ask questions or to discuss ideas, theories, theorems and scientific concepts they still do not understand or simply they do not know exactly how and when to use these theorems. I monitor the discussion and allow it to progress as long as it is constructive. I intervene to clarify some points or correct someone's remark. When this task is over, students are ready to move on fort test. There are two types of tests I am doing to assess my students. Sudden Short Test (SST) and Group Assessment Test (GAT) in order to identify area that need work.

4.1 Sudden Short Test (SST)

In any school curriculum, they are examinations period fixed by the school education board committee. Usually twice a semester: midterm-semester examination and semester final examination. These periods are known by both parties. Students and teacher. But it is too risky not to check students learning

progress and move onto the mid-semester examination or to the semester final examination. By doing so most students will end up falling behind and consequently will force them to stay back a year again. Hence a regular short examination is very important to check each student learning progress. It will also help teacher assess himself/herself. But this regular examination have to be done in a way that students can get higher score. During the first five year of mathematics teaching, I used to announce to students the date and time the short examination will be done. I taught that this will help students to prepare themselves and be ready for the examination that takes only 30 minutes. But this was not the case. After each short examination students score are not increasing instead most students fail and the average of the score class is around 60%, and sometimes below the average. I tried to figure out what was the problem such as: Is the test level too high, or is my explanation too difficult?, or my explanation is too fast so student did not get it well? Should I slowdown in teaching? I have been trying to answers all these questions. But the outcome remain almost the same. So I decided to change the way of the short examination by not telling students the exact date or the time the short examination is going to take place instead it will be a surprise short examination. I write it in my syllabus, distributed to students and explain to them to be ready all the time.

Surprisingly students score increased from 60% to 71%. This method helps students to revise their mathematics lesson each time before the class and be prepare for the text in order to avoid falling during the examination. At the end of the semester a survey has been done and here are what students have said about this method.

- Due to the sudden short examination I could always revise my mathematics lesson.
- The regular short examination gives me the opportunity to revise my mathematics lesson and so on.

What I figured out when announcing the date and the time of a test or any examination to students, they just wait until the examination date approaches before start to revise their lesson consequently there is enough time to do investigation and extra exercise.

4.2 Group Assessment Test (GAT)

Mathematics teachers use many methods when teaching. Their job when instructing is to develop methods, or ways to teaching, that will benefit students and make them successful. Methods for quality mathematics instruction include using visuals, making connections, using formative assessments, and teaching strategic thinking [17]. Some teachers let students work in group on a specific mathematics projects. This method is known as **Project Based Learning** or **PBL**. PBL is a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge. PBL is a very good method that helps passive students to communicate with others students and be fully involved in the project, gain skills and sometimes give them courage to overcome some difficulties they may have in communicating with others. There is not any common rule for the PBL method. Some PBLs are done within the allocate mathematics teaching hours while other in one week or even one month. All depends on what skills the teacher wants students to gain or to acquire and there is not restriction on students to use their notebooks, mathematics books and other mathematics documents related to the subjects being solved. But the drawback of the PBL is that some students may still do not participate in the project since the teacher does not have a report on who is doing what or monitoring each group project. Unlike the PBL method I use the **Group Assessment Test** or **GAT** method. The GAT is a method I use to: 1) assess students' level of understanding of the mathematics concepts, theorems, formulas and their applications within the allocate mathematics teaching hours and as pre-mid semester examination or pre-final semester examination. 2) to let each student assess their own mathematics level of the course being taught compared to other student they are working with and encourage them to learn more. 3) to let students exchange with each other, some mathematics theorems their have learned by their own. How the GAT is work. My class is consists of 40 students, so I made 8 groups. Each group is composed of 5 students with one group leader. The group leader is the one who will lead the group to have these questions be solved within the allocate time and monitor the

working group, write all the answers of each question into the answer sheet. I put in each group at least one student with skills in mathematics. This is the very important part of the GAT. The student with skills in mathematics will help passive students or other students in the group to have the GAT goes smoothly. No notebooks, mathematics text books or any documents related to mathematics are allowed. The GAT allocated period is 90 minutes. I distributed to each group the test paper sheet I prepared with 8 to 10 questions. The level of the test is nearly the level of the mid-term examination with at least one or two questions of the previous sudden short test (SST) I have done and that most students have failed. This is to check whether they have revised their lessons or not. It is also the way to encourage students revise their lessons as well. Each student has to at least choose one or two questions and solved them. There are free to discuss or ask each other question. They may ask me questions but question directly related to the GAT cannot be answered instead just idea.

As for the SST, at the end of the semester a survey has been done and here is what students have said about this method.

- We have enjoyed solving the GAT Problem and would like to have the teacher do the GAT every half semester.

When monitoring the GAT as students said above they really did not only enjoyed the GAT but how seriously they were when solving each question. Passive students or not all of them took each question seriously in or der to contribute to the GAT scores that is count in the admission score. Both outcome of the SST and GAT can be seen in the results below.

V. TEACHING METHOD RESULTS

The following figures represent the results of the above described teaching method and the test style used to increase students' scores in my mathematics classes. What I have noticed each year when teaching mathematics is that, teacher is the main responsible for the success of students in mathematics. More the teacher uses a good teaching method, more students acquire skills, knowledge and understand concepts in

mathematics. More students acquire skills, knowledge, understand concepts and know how to use these concepts they will definitely get a high scores no matter how the test level is. Spending more times in practice and group work gives opportunity to students to be connected to each other and consequently acquire a communication skills.

Figures 1 to Fig.4 show the scores histogram of third year mathematics class before and after the introduction of SST and GAT.

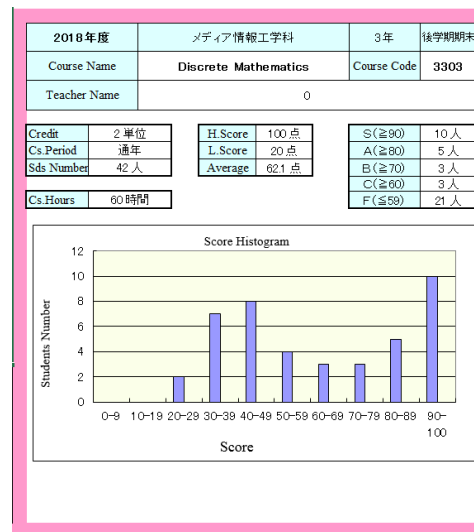


Fig.1 Math students' scores histogram before SST

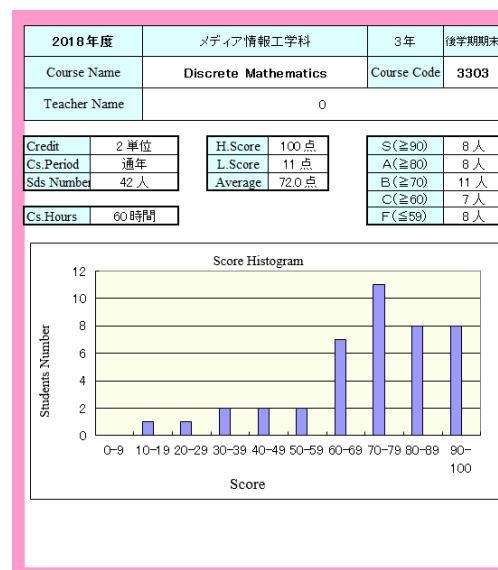


Fig.2 Math students' scores histogram after SST

5.1 Scores Histogram Analysis of 3th Year Class

- Before SST

As can be seen in Fig.1

- 10 students got high than or equal to 90 scores out of 100.
- 5 students got high than or equal to 80 scores out of 100.
- 3 students got high than or equal to 70 scores out of 100.
- 3 students got high than or equal to 60 scores out of 100.
- 21 failed as the minimum score to pass is 60.

Class average score is 62.1

- After SST

For the Fig.2.

- 8 students got high than or equal to 90 scores out of 100.
- 8 students got high than or equal to 80 scores out of 100.
- 11 students got high than or equal to 70 scores out of 100.
- 7 students got high than or equal to 60 scores out of 100.
- 8 failed as the minimum score to pass is 60.

Class average score is 72.01

Although the number of students who got high than or equal to 90 scores out of 100 before the introduction of the Sudden Short Test (SST) is higher than those after the SST, the number of students who failed before the SST, the number of students who failed before the SST (21) is less (7) than those after the SST. Fig.2 shows that the SST is a very good test method as a significant results is been obtained by reducing the number of falling students by two third. When it comes to each test average score, the average score in Fig.1 is 62.1% while in Fig.2 is 72%. An increase of 10%. This percentage also proves the efficiency of the SST method.

- Before and After GAT

Figures 3 and Fig.4 show the mathematics score histogram of four year applied mathematics of the end

of the school semester. In Fig.3 and Fig.4, the number of students who got high than or equal to 90 scores out of 100 before the introduction of the GAT is less (7) than those after the GAT (10). But the number of students who failed before and after the introduction of the GAT are the same. However the average score in Fig.3 is 77.6% while in Fig.4 is 81.6%. An increase of 4%. This percentage supports the efficiency of the GAT method.

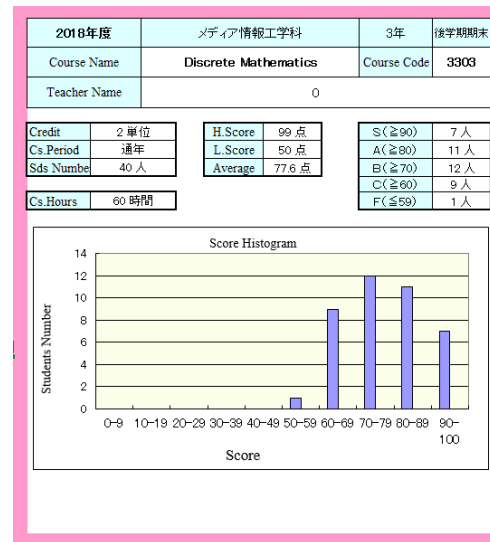


Fig.3 Math students' scores histogram after GAT

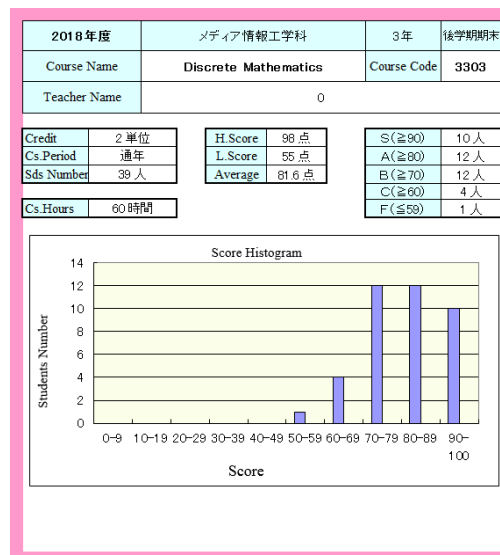


Fig.4 Math students' scores histogram after GAT

5.2 Scores Histogram Analysis of 4th Year Class

Figures 5 and Fig.6 illustrate the end of school semester students' scores in histogram before and after the introduction of the Group Assessment Test

● Before GAT

Figure.5 shows the results of students' scores for the academic year 2017 when the GAT has not been yet introduced. As can be seen,

- 6 students got high than or equal to 90 scores out of 100.
- 13 students got high than or equal to 80 scores out of 100.
- 6 students got high than or equal to 70 scores out of 100.
- 9 students got high than or equal to 60 scores out of 100.
- 4 failed as the minimum score to pass is 60.

Class average score is 75.7

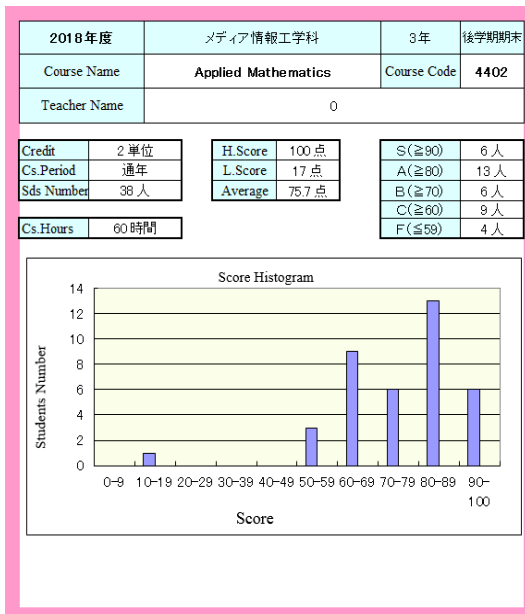


Fig.5 Math students' scores histogram before GAT

● After GAT

Figure.6 shows the results of students' scores for the academic year 2018 when the GAT has been

introduced. As can be seen,

- 12 students got high than or equal to 90 scores out of 100.
- 11 students got high than or equal to 80 scores out of 100.
- 9 students got high than or equal to 70 scores out of 100.
- 5 students got high than or equal to 60 scores out of 100.
- No students has failed.

Class average score is 82.1

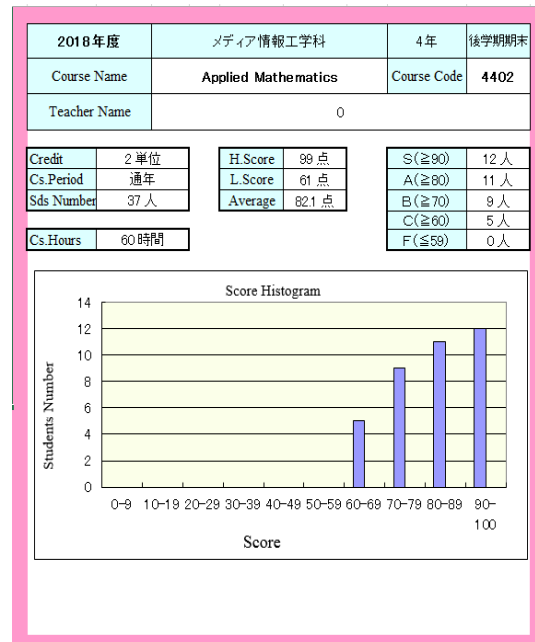


Fig.6 Math students' scores histogram after GAT

When we compare closely the results shown in Fig.5 and Fig.6 we can notice at the first glance that the number of students who have gotten high than or equal to 90 scores out of 100 are only 6 in Fig.5 while 12 in Fig.6 which is the double of those in Fig.5. What about the number of students who failed? in year 2017 when the GAT has not been yet introduced, 4 students failed while in 2018 after the introduction of the GAT no students has failed. This a significant result that shows the efficiency of the GAT method. As for each class

average score, the average score in Fig.5 is 75.7 while in Fig.6 is 82.1%. An increase of 6.4%. This percentage proves that the GAT can be an important factor for increasing not only students' scores in mathematics but also to help passive students participate in mathematics classes.

VI. CONCLUSION

Mathematics is one of the subjects that students hate the most due to its complexity compare to other disciplines or subjects. Because it involves so many formulas or theorems to solve one problem. Hence a basic skills is need and is what most students do not acquire as a consequence there are obliged to give up or to dislike it purely and simply. However it is easy to bring back student who hate mathematics to like it or a passive student during the mathematics class to actively involve it too. And this depends on the teacher responsibility and skills or on how good she or he is in delivering the math courses and most importantly the learning environment. Many research on teaching mathematics have been proposed in the open literature where some are proved effective and other not. The contribution of the research is the proposition of the effective way to improve student score in mathematics through examination that involve Sudden Short Test (SST) or group Assessment Test (GAT) and how to prepare a mathematics learning environment. Analysis of the results obtained show that these two methods are effective in increasing not only student score in mathematics but also how help students gain skills in mathematics.

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