
An Innovative Teaching Technique: The 3T Pedagogical Model

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Abstract

Computer based teaching can help educators to teach diverse groups of students more effectively and efficiently than the traditional teaching methods. This study introduces a new technology enhanced pedagogical model that emphasizes learning process management. It also provides data about students' perception of using 3T pedagogical model and its learning outcomes. Over two hundred students participated in the study. It is found that the learning capabilities of students are improved by 3T model in one of the computer science courses in a public university.

Keywords: Process Management, pedagogical techniques, Interactive learning, Computer based teaching, Problem-based learning, Flipped Learning.

1. INTRODUCTION

Usage of computers in classrooms has become increasingly popular during the last three decades. Indeed, many educational institutions around the world are offering computer based learning to their students in order to provide greater exposure to knowledge available on the internet. However, just providing access to knowledge may not necessarily improve student learning. As the internet has grown into a gigantic pool of information on any subject, students wish to navigate through different sources of information available over internet, but are confronted with too much information and often question the reliability of the information.

According to National Educational Technology Standards for Students (2007), students may be capable of using many technologies, but in order

to be able to effectively contribute to the digital age society, they must be able to use the technologies to "analyze, learn and explore" (p. 2). This shows the importance of the new pedagogy that ensures the student learning is effective. Students can use technology to independently organize information and increase the effectiveness of their learning processes (Moeller & Reitzes, 2011, p. 6).

3T pedagogical model is a process based and technology enhanced teaching technique that manages the learning process of students effectively and efficiently, using a computer with internet connection, compared to traditional teaching methods. The course material under the 3T model is presented in three modules, namely "Text", "Task", and "Test." In the Text module, a summary of information on the current course topic is presented to students so that they can gain a quick idea of the topic, and

then they navigate through the actual internet sources using the links provided at the end of the Text portion. After the Text module, the students move to the Task module where they perform activities based on the knowledge gained from the Text portion in order to further reinforce their learning. Finally, the students will take a computer based test that actually tests the learning outcomes from the Text and Task modules. Immediate results and feedback are generated by the system so that students can see their misconceptions and take remedial action. This process-based active learning model not only allows students to gain knowledge on course topics, but also allows them to acquire hands-on experience navigating through reliable internet sources for required information.

2. LITERATURE REVIEW

According to Beichner (1999), students performed better under technology-rich and activity based instructions than with traditional teaching techniques. Students perceive technology as a useful tool for learning (Krentler & Willis Flurry, 2005). Besides this, instructors believe that students expect some sort of technology supplements in their courses (Krentler & Willis Flurry, 2005). In their research, Krentler and Willis Flurry (2005) found that students benefited through improved learning and better course performance by using the technology that is offered in the course.

Technology enables students to organize cognitive tools that help them to solve real world problems (Herrington & Kervin, 2007). Many studies show that students' educational achievements are strongly linked with how well the courses used technology and carried over computer based instructions (Schacter, 1999; Kathleen, 2005; Herrington & Kervin, 2007; Kulick, 1999; Koehler & Misra, 2008; Hake, 2007).

According to a research report from the Center for Digital Education (2013), the K-12 market is expected to spend about \$9.7 billion on Information technology products and services while higher education is expected to spend about \$ 10.3 billion in the 2013 academic year. Although tech-enhanced pedagogies involve increased faculty costs and are more time consuming, the improved student learning outweighs these monetary and time expenses (Herrington & Kervin, 2007).

The internet brings an information revolution and provides information within a fraction of seconds. Information is a chief source of learning. Students use the internet to search for information, with internet search engines giving them millions of results to choose from. According Al-Harrasi & Al-Badi (2014), "Receiving too much information may lead to what is called Information Overload." Lim (2005) mentioned that information literacy is crucial for learners, without which they would be confused, not only by information but also by being challenged with the amount of untrustworthy information published over the internet.

Many students are no longer interested in reading long texts or going through a lot of information. They seek short summaries and key points (Jackson, 2011). They desire short, sharp and simple information/texts that enable them to quickly understand concepts. They also like to see visual images that may help them to understand, affect their interest levels and retain information (Jackson 2011). Besides this, students seek immediate feedback on their learning, which can help them to identify and become aware of errors, and take corrective action in their learning process (Jackson, 2011; Mason & Bruning, 2001).

Computer based/ technology enhanced teaching techniques have done a good job in teaching a heterogeneous student population (Schiaffino, Gracia, & Amandi, 2008). Such techniques provide students a motivation for self-regulated learning. In contrast, Krentler and Willis Flurry's (2005) study claimed that technology based student learning is moderated by student characteristics

Flipped learning is a technology enhanced pedagogical model that creates a learner centric classroom environment and most teachers willing to use it in their classrooms. (Hamdan, McKnight, McKnight, & Arfstrom, 2013)

3. THE 3T PEDAGOGICAL MODEL

The 3T Pedagogical process based active learning technique requires students to follow a particular order of 3T modules to ensure better learning. It is an operated in an inverted classroom environment. The Text module involves reading text. It is followed by the Task module, which involves watching a video, playing a game, navigating the internet resources, working on a spreadsheet, executing a program on the computer, and learning a

computer application. After the Task module, a Test module is launched to test student understanding using different types of questions, including but not limited to multiple choice, multiple answers, matching, true/false, hot spot, and quiz bowl.

In addition to following a specific order, students need to spend an adequate time on each module and avoid skipping any module.

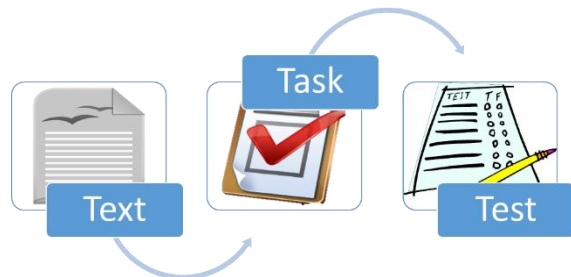


Figure 1: 3T Pedagogical Model

Text Module

In the world of internet, students can search for almost any kind of information within a fraction of seconds, but choosing the right source from the millions of search results is difficult. The internet also provides an enormous amount of information that students may not be required to know. For instance, search engine results show the same information irrespective of whether a student is at the undergraduate or graduate level, or of a science or psychology background. Due to information overload, most students are not able to judge which result suits their search. The Internet has also become more glamorous with the advent of Facebook, YouTube etc., which can easily divert the focus of students.

Keeping all these in view, the 3T pedagogical model introduces a Text portion in its learning module which is a well-developed collection and summary of information pertaining to targeted students by the instructors. In general, a text portion includes a brief summary of the concept, key points, useful illustrations, pictures, graphs, videos, and actual internet links of sources used. Various steps involved in the creation of the text are given below.

- Understand/define the learning objectives
- Find the reliable sources of information
- Read and summarize the information
- Develop short notes, including key points, useful illustrations, pictures, and graphs.

As information is always changing, educators need to update the information with the change. Although the educators are more experienced in the relevant field, it is a great challenge for them to decide how much text they should include. For instance, if an educator provides too much information, it can affect student self-reliance due to information overload, while too little information can lead to inadequacy.

The right text portion under the 3T pedagogical model will give a lot of benefits to students as well as educators. It reduces the students' time in researching internet sources and encourages learning because of its short, smart, and simple nature. Once developed, it can also be reused again and again with required updates, which helps to avoid the duplication of work.

Task Module

Once the students complete the Text portion, they will move to the Task portion. The Task portion reinforces student learning and knowledge that they acquired by going through the text portion. Tasks will keep the students more involved in the learning activity and ensure the application of knowledge. It is also great help for students who cannot learn concepts just by reading, especially when learning domains like mathematics, business, and computers that require practice to have more understanding of concepts and practical exposure.

For an experienced educator, creation of the Task portion is not a difficult task. The instructor needs to find the best practices and tasks that reinforce the concepts. Maintaining a harmony between the Text and Task portions is needed in order to have a smooth transition. Otherwise, students may get discouraged. The typical steps involved in the creation of a Task module are given below:

- Develop various tasks that test/use the knowledge acquired from the Text component
- Provide a clear set of instructions to complete the task

A typical task includes reading, discussion, observation, analyzing, extending and researching, completing task using a computer application, etc.

Test Module

Last but not least, the third T in the 3T pedagogical model will perform the most important aspect of learning and knowledge application. Testing helps to evaluate and provide feedback for improvement. In general, teaching needs to be evaluated along with student learning. The Test module will give insights of overall performance in the learning activity with respect to individual student performance. Maintaining a harmony between the Text, Task and Test portions is necessary in order ensure a smooth transition. The Test module should emphasize points learned in the Text and Task portions.

As the 3T model uses computer based teaching, students are encouraged to take tests on computers to get instant results and required feedback. During the test, students have access to text and task portions as well other resources used in the learning process. Typical steps involved in developing a good test under the 3T pedagogical model include the following.

- Understand the key areas of learning that need to be tested
- Develop different questions based on the key concepts that are learned in the Text and Task components.
- Incorporate the questions in a computer based test so that students will receive. points as well as necessary feedback immediately after the test.
- Students may be encouraged to retake the test if they fall behind minimum cutoff points.

The Test portion improves student involvement in learning process. The 3T model recommends instant feedback to students either by using a computer based automatic feedback system or by conventional educator feedback in order to correct student mistakes identified in the learning process, if any.

4. IMPLEMENTATION OF 3T PEDAGOGICAL MODEL

The 3T pedagogical model comes with many benefits to students as well to educators. As it uses computer based systems, it can be easily reused again and again. It reduces the manual grading and also avoids duplication of work. It keep students more focused and encourages student learning.

In spite of some challenges in using the 3T pedagogical model, a good implementation will result in the most efficient and effective teaching. Implementation of the 3T model is carried out in five simple steps.

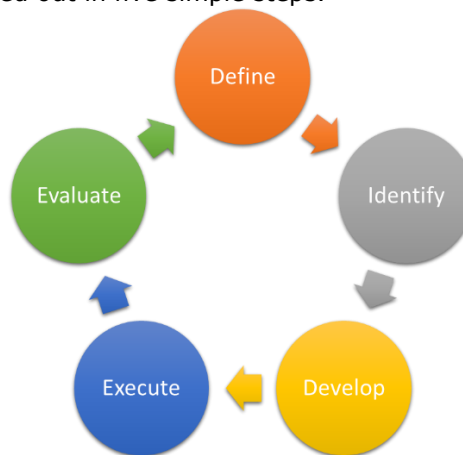


Figure 2: Implementation Phases of 3T Model

1. Define the Course/learning requirements.
2. Identify information sources
3. Develop 3T Learning module
4. Execute 3T teaching technique
5. Evaluate the student performance

The first step in the process is defining the learning objective, which involves understanding the course requirements. This is similar to developing a syllabus plan in a conventional teaching process. In the second step, the educator needs to list and identify the course requirements, including information sources, prerequisites, etc. A typical information sources includes internet sources, textbooks, and other learning aids. This step may not be very difficult for an experienced educator.

The most important step in 3T pedagogical model is developing the 3T modules, where an educator will develop actual learning modules that include Text, Task, and Test components using a school's Blackboard or any other web-based application. After identifying the information sources, educators need to summarize the information and present it in a more simplified form. Instructors are encouraged to use backward integration to develop the 3T learning module, updating the Task portion, based on the test requirements,

and developing the Text portion, based on the Task portion. This establishes a better harmony among the modules and ensures the best transition between them. In a typical course curriculum, an instructor needs about 10 to 15 3T blocks (each block contain a Text, Task and a Test portions) to cover various course learning objectives.

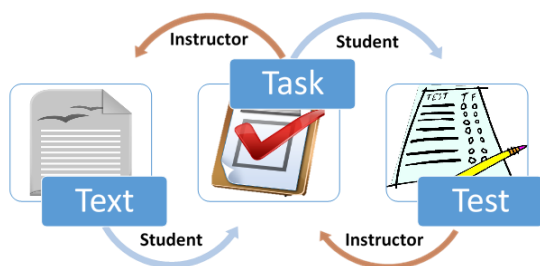


Figure 3: Backward Integration of 3T modules for Instructors

Like any technique, execution is one of the key aspects of the 3T Model. Students are encouraged to follow the sequence of Text, Task and Test for better learning. To avoid skipping, the computer based application sets the limits for all the three portions (Text, Task and Test). It is also best practice to hide the Task and Test portions while students are working on the Text module, and allow them to see other modules after specific time periods, which prevents students from skipping the modules.

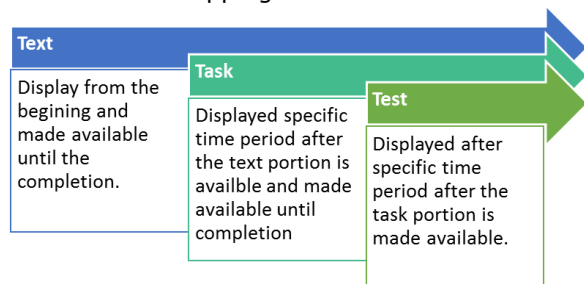


Figure 4: Execution of 3T Model

Finally, in the evaluation step, student performance is analyzed so that changes to the learning modules may be made for future learning. The implementation of the 3T Model is a cyclic process which improves the system as a whole. The amount of time that students spend on each module/activity can be recorded for further evaluation and improvement of the 3T learning modules.

5. METHODOLOGY

Research Questions

1. Evaluate the student perception on 3T pedagogical model.
2. Examine various effects of 3T and its attributes.

Data collection and samples

The sample population includes 249 undergraduate students enrolled in various programs, including computer science, business administration, engineering, finance, marketing, psychology, biomedical sciences, journalism and sports management. These students have completed a basic computer technology course using the 3T pedagogical model in two semesters (Fall 2013 and Spring 2014) at a public university. Throughout the course, instructions for all lab activities (which carried more than 60% of the course work) are offered using the 3T Pedagogical Model by three different instructors.

At the end of both semesters, students are asked to complete a simple survey to understand their satisfaction levels and evaluate the efficiency of the 3T pedagogical model. The survey is conducted using a computer and ensures anonymity and data validation.

The survey instrument, as shown in Appendix A, consisted of content questions measured with a 5-point Likert-type scale with responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The survey also includes open-ended question to get the comments/suggestions/feedback from students to get more insights from individual students. SPSS and MS Excel are used to analyze the data collected.

Results

The survey result shows that about 53% agree that 3T pedagogical model has enhanced their learning. About 66% of students agreed that the course materials are well organized in 3T model. About 68% of students agreed that text module of 3T made them more focused in reading. About 57% of students agree that task portion of 3T kept them engaged during the class/lab. About 67% of the students agreed that retaking the tests after required feedback improved their learning.

Table 1: Student responses to survey questions

Question	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
• The 3T Model used in this course have enhanced my learning?	2%	15%	30%	44%	9%
• The Course under 3T Model is well organized?	4%	8%	22%	51%	15%
• 3T Model helped my learning at my own pace?	4%	12%	22%	47%	15%
• Short and Smart text keep me more focused in reading?	2%	10%	20%	50%	18%
• The tasks keeps me more engaged in the Lab?	4%	14%	25%	45%	12%
• The tests accurately assess what I have learned in this course?	12%	17%	28%	35%	8%
• Taking the tests for second time has enhanced my learning?	3%	8%	22%	40%	27%

This result clearly shows that majority of students perceived 3T pedagogical model as effective teaching technique and helps in active learning.

The 3T pedagogical model is a process based pedagogical model that ensures active learning. Around 60 % of the students regularly followed the order and completed all 3T modules. Also About 75 % students who regularly follow the order and completed each module in full rated 3T pedagogical model as 4 and above on 5 point scale

Table 2: Student responses to questions

Question	Always	Often	Sometimes	Rarely	Never
How often you read the text portion before doing Tasks?	19%	37%	29%	11%	4%
How often you perform the tasks before you take Test.?	22%	37%	29%	8%	3%

The results are further analyzed to observe the average ratings for each module of 3T pedagogical model over various demographic groups. All demographic groups shown almost similar overall learning experience using the 3T pedagogical model. The Task portion received slightly less rating than the Text and Test

portions showing room for improvement and need for more activities. The overall learning experience score for the 3T model is about 3.6 on a 5-point scale as rated by 249 students participated in survey.

Table 3: Average Student ratings on 3T

Demographic Data					
	Number of Students	Text Portion	Task Portion	Test Portion	Overall Learning Experience
Total	249	3.6	3.5	3.6	3.5

The rating is further split over different gender groups: around 64% of students are male and 32% female. About 4% of students not prefer to disclose their gender. Male students' rated overall learning experience as 3.5 whereas female students rated at 3.6. Although slight variations were observed, the rating is not affected by gender.

Table 4: Average Student ratings based on Gender

Gender	Number of Students	Text Portion	Task Portion	Test Portion	Overall Learning Experience
Female	79	3.7	3.5	3.7	3.6
Male	158	3.6	3.5	3.5	3.5
Rather not say	12	3.1	3.1	3.2	3.2

Almost all GPA groups rated overall learning experience similarly. More than 50 % of the students has GPA 3.1 or greater. The 2.1 to 2.5 and 3.6 to 4.0 GPA groups rated at 3.7 while 2.6 to 3.5 rated as 3.5. This shows that the 3T pedagogical can equally works for students irrespective of their prior performances in other courses.

Table 5: Average Student ratings based on Overall GPA

GPA Group	No. of Students	Text Portion	Task Portion	Test Portion	Overall Learning Experience
Unanswered	4	2.7	2.5	3.2	2.8
Less than 2.0	4	3.3	3.7	3.6	3.5
2.1 to 2.5	26	3.7	3.7	3.8	3.7
2.6 to 3.0	78	3.6	3.5	3.5	3.5
3.1 to 3.5	92	3.6	3.4	3.5	3.5
3.6 to 4.0	45	3.8	3.5	3.8	3.7

In contrast to the actual overall GPA, expected GPA shows student motivation in the course work. Around 65 % students expecting a GPA of 3.1 and higher in the class has rated 3T model

at 3.6. This shows 3T model improved the confidence level among the students.

Table 6: Average Student ratings based on expected GPA in class

GPA Group	Number of Students	Text Portion	Task Portion	Test Portion	Overall Learning Experience
<Unanswered>	4	2.7	2.5	3.2	2.8
Less than 2.0	9	3.3	3.2	3.4	3.3
2.1 to 2.5	19	3.5	3.6	3.6	3.6
2.6 to 3.0	57	3.5	3.4	3.4	3.4
3.1 to 3.5	99	3.7	3.5	3.6	3.6
3.6 to 4.0	61	3.7	3.5	3.7	3.6

No significant change in rating across various majors is observed except with two extremes. Almost all students with different majors and backgrounds has rated 3T model between 3.4 to 3.7, whereas students with Medical and Health majors who comprise 11% of population rated at 3.9 and other majors who comprise of 7% rated at 3.1. Although slight variations among Majors, the 3T model can better fit students from all majors.

Table 7: Average Student ratings based on Student Majors

Majors	Number of Students	Text Portion	Task Portion	Test Portion	Overall Learning Experience
Broadcasting / Journalism	25	3.5	3.4	3.5	3.4
Business	47	3.5	3.5	3.5	3.5
Computers & IT	30	3.7	3.5	3.6	3.6
Criminal Justice / Law	4	3.7	3.5	3.0	3.4
Education	11	3.7	3.5	3.7	3.6
Engineering	18	3.8	3.6	3.7	3.7
Medical & Health	28	3.9	3.8	4.0	3.9
Music & Sports	9	3.5	3.8	3.5	3.6
Other	17	3.2	3.1	3.0	3.1
Science	26	3.7	3.2	3.4	3.4
Undecided	34	3.6	3.5	3.6	3.6

Almost all students including those who are new to computer-based learning and those who experience some kind of computer based learning rated the 3T almost same. About 44 % of students are new to computer based learning/teaching rated 3T at 3.6 over 5 point scale. This

shows that the 3T pedagogical model does not require any prior experience in such learning. It is easy to adopt.

Table 8: Average Student ratings based on prior computer knowledge

New to Computer based Learning	Number of Students	Text Portion	Task Portion	Test Portion	Overall Learning Experience
No	139	3.6	3.4	3.5	3.5
Yes	110	3.6	3.5	3.7	3.6

It is observed that there is no significant difference in student ratings by the students who have been taught by different instructors. This shows that 3T pedagogical model is instructor independent. However the effectiveness of the 3T model depends on the instructor who develop 3T (Text, Task and Test) modules.

Table 9: Average Student ratings based on Instructor

Instructor	Number of Students	Text Portion	Task Portion	Test Portion	Overall Learning Experience
Instructor 1	99	3.7	3.4	3.6	3.6
Instructor 2	65	3.6	3.6	3.7	3.6
Instructor 3	85	3.5	3.5	3.4	3.5

Besides the quantitative data, the survey contains open ended questions asking students their personal learning experiences using a 3T model.

To the question, "what are the advantages of the 3T Model for your learning in this course? Many students mentioned that 3T model helped them to learn better. One student said: "Since there were three portions I think it helped me learn better." Complete course content is organized into number of different 3T blocks to make it simpler to students. One student mentioned: "It breaks down the big concepts from each chapter into smaller ones that are easier to understand and comprehend for the exams."

Students also mentioned that it kept them more active and engaged in the class. One student said, "They required a lot of user involvement and participation, which also kept me involved in the subject of each Lab exercises. They also

provided me with prior knowledge on current and future topics that were discussed in the lecture portion of Computers and Society. In addition, it gave me the opportunity to learn in a more hands-on way in contrast to the lecture portion of this class."

As the text portion involves not only text but also some graphics such as charts and figures, it ensures the visual learning. One student mentioned: "Kept me interested and allowed me to read at my own pace." Another student mentioned that "The advantages were having the text along with the task to follow along."

Students also indicated that the 3T model is well organized that avoids confusion caused due to too much of information or other learning difficulties. One student said 3T blocks are "Well structured, kept me on track. Prevented potential confusion. Another student mentioned that "It was simple and organized which made it easy to follow."

With strong integration and uniformity between the modules on learning objectives, the students feel more comfortable in learning using 3T model. One student said that it "Laid out in an easy to understand way, helped to keep me focused in lab." Another student said "The exercises are quick, easy, and to the point."

Because the Text portion covers all information which is compiled from various sources and made it available at one place, students are not required to spend much time in searching and finding reliable information over internet. One student mentioned that "All the important information is right there, and you don't have to go searching for it."

Most important attribute of the 3T pedagogical model is that uses the computers, making it a tech enhanced model that makes it more accessible to students and other benefits that comes with tech enhanced learning. Mentioning this one student said that "It was on the computer, made it easier."

For the question that asked students to share any disadvantages they observed using the 3T Model, many students mentioned that there are no much disadvantages expect to make the text portion still short and make tests more easy. One student said that "The disadvantages were how the text was somewhat difficult to

understand making the test questions difficult to comprehend." Another student mentioned that "The text was a little dry, as well as some of the articles. Not to mention, I didn't read all of the articles because the amount that they had at once was far too much for me to read in the time given." Although the Text portion has to give brief summaries and basic ideas of concepts, sometimes it can be lengthy depending on the educators involved in summarizing the text. Educators has to split the lengthy concepts into two or more 3T blocks to retain the effectiveness of 3T model.

Also, it is a great challenge for educators to decide the right volume of information that goes into text portion. Some students indicated there's too much information while others demand more information. One student said "Maybe the text portion, sometimes there just isn't quite enough information" another student mentioned that "There is so much text provided and way too much information to remember and do well on the exams."

Within the text portion, students were asked to go to follow the links after reading text portion to look the actual source of the text content. This is to ensure that student can have exposure to the reliable internet source and locate the text he was reading. Although it is not required to read complete part of sources cited, students are encouraged to follow the links without fail. One student mentioned in comment: "Also when we were told to go to a webpage, like a Wikipedia page and are asked to read the article, when the article has too much text for my comprehension." A clear instructions has to be given to students on how 3T modules can be used in learning process. Better way is to include the instructions within each 3T modules or instruct them in person during the class.

Some students mentioned that the 3T model may not involve much of interaction: "Not a lot of human interaction" and other student said that "No lecture and decreased student-teacher interaction" in 3T model. Although it is partially true, the 3T model do its best to make students more self-sufficient and learning process more instructor independent, it restricts long lectures and lengthy discussions. Instructors can also include more discussion activities in task portions and encourage students to increase the interaction.

The 3T model is primarily a process based learning technique and uses the computer technology to administer it, the other important reason that 3T uses IT is because most of the required information is available mainly in digital formats. Some student indicated the dependence of model on internet and computer: "If you have limited access or slow access to the internet it could be difficult." Another student mention that "If you are new with computer based learning, the 3T Model might be too advanced." This is not true the current research found that students those with no experience in computer based learning has rated 3T model similar to those who has prior knowledge on computer based learning.

Another important open ended question included in the survey was: "What aspects of 3T Model contributed most to your learning?" Students mentioned that the all modules of 3T helped them in learning. Some students emphasize on particular module that offered more learning to them. One student mentioned that "Probably the text. I learn most by reading. However the task and test was the reinforcement." Another student mentioned that "All of them, the text portion helped me understand what we were going to be doing in class, the task was the 'hands-on' portion, and then the test part made me stay focused and try to grasp the concepts."

Other important attribute of the 3T model is its order (Text, Task and Test) makes it more efficient learning process. Some students mentioned that "Doing the tasks before the tests." And also the text before the task reinforces the student learning in an active learning environment.

In survey, students were asked to include their suggestions for improvement of the 3T model. Many students were mentioned that text and test portion needs some changes. One student said: "I think the test needs the most improvement because even with studying a sufficient amount it was still pretty difficult." This probably happens when text portion language is of higher level or it doesn't include any visual aids to understand the concepts. Educators need to make the text portion more simple as well equip with useful visuals.

Task portion of 3T is designed to keep the student more engaged in the learning process and further improve their knowledge retention. This can achieved by making the task more

interesting as indicated by student: "Make the tasks more interesting."

Besides these, many students indicated that the 3T model enriched their learning by a process oriented technology driven approach. One student mentioned: "I believe that each portion of the 3T Model were equally effective, and don't really need much improvement. As previously stated, I enjoyed the opportunity for involvement in my lab. The 3T Model also appeals to many different learning styles, allowing each individual student to have an equal opportunity to do well."

6. CONCLUSIONS

In conclusion, the 3T pedagogical model is perceived as effective and efficient teaching technique by the majority of the students compared to traditional classroom teaching methods. The 3T model is enriched with technology and process management that promote active learning in any type of classroom environment irrespective of student gender, educational backgrounds, instructor, and past knowledge on computers. More qualitative and quantitative research needs to be done to identify how the potential of 3T pedagogical model can be maximized.

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Appendix – A: Questionnaire

Five Point Likert Scale Questions, Strongly Disagree, Disagree, Undecided Agree, Strongly Agree.

1. The 3T Model stimulated my learning interest on the current subject area (CPS 100)
2. The 3T Model used in this course have enhanced my learning.
3. The Course under 3T Model is well organized
4. 3T Model helped me in learning course materials on my own.
5. This 3T model used in this class has increased my interest in this field of study.
6. 3T Model was a strength of this course/Lab exercise.
7. I would like to take another course that uses 3T Model
8. 3T Model improves my understanding of concepts and principles in this field (Computer Science)?
9. 3T Model helped my learning at my own pace
10. The provision of learning resources in the text Portion is adequate
11. The provision of learning resources in the text Portion is appropriate
12. Reading under Text Portion of 3T contributed to understanding of subject concepts
13. Short and Smart text keep me more focused in reading
14. Short and Smart text keep me encouraged in reading
15. The tasks keeps me more engaged in the Lab.
16. After Completing the tasks ,I understood the concepts presented in the text portion
17. Tasks make me understand the learning objectives of the module better
18. The tests accurately assess what I have learned in this course.
19. Having the multiple attempts for test improved my scores
20. Taking the tests for second time has enhanced my learning.
21. Tests help me focus on learning objectives better
22. How often you read the text portion before doing Tasks?
23. How often you perform the tasks before you take Test.?
24. Are you new to Computer based learning?
25. I like spending more time on computers for learning.
26. Did you have adequate time to complete the lab work?
27. The tests were generally too difficult
28. How could this 3T Model can be changed to better support your learning?
29. What are the advantages of the 3T Model for your learning in this course?
30. What are the disadvantages of the 3T Model for your learning in this course?
31. What aspects of 3T Model contributed most to your learning?
32. Which parts (text, Tasks, Test) of the 3T Model do you think are most in need of improvement?
How?
33. Major
34. Age Group
35. Gender
36. Overall GPA
37. Expected GPA of this class