# IGNITING THE LEARNING MINDS OF SECONDARY STUDENTS IN ENGLISH WITH JUST IN TIME TEACHING (JiTT) STRATEGY

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## ABSTRACT

English language is a way and basic requirement for the academic development of a person. Through English education, prosperity can be brought on to an individual, society and nation. Teaching methods are constantly being changed, new ones are developed and old methods have undergone a renaissance. Today's educational process requires teaching strategies that put student interest and curiosity first, acknowledging student voice central to learning experience." This paper describes about an instructional strategy, just in time which satisfies the need of the hour in all aspects. Just-in-Time Teaching (JiTT) is a web-based classroom strategy that combines active learning classroom activities and world wide web resources that are used to enhance the classroom environment. It is an interactive engagement pedagogical strategy. This strategy uses Web based "Warm Up" assignments due before class to stimulate critical thinking and create feedback loop between teachers and students. By examining responses to "Warm Up" exercises before class, teacher can determine students' prior knowledge and misconceptions and directly address these misconceptions while discussing course content in the class. JiTT strategy incorporates active learning approaches by moving the content transfer element of the course to pre-class preparation and helps the students to grasp the concept with greater understanding through a variety of sessions namely Warm ups, Puzzles and Good for. For finding the effectiveness of JiTT strategy, the investigator selected experimental method in a sample of 30 secondary school students in Kottayam District. In this study the investigator selected two variables one is considered as the independent and the other as dependent variable. The independent variable is JiTT strategy and the dependent Variable is Achievement in English respectively. Tools used for the study are JiTT strategy platform and Achievement pretest and post test in English. After the analysis of collected data it proved that JiTT made a positive impact in students achievement in English. From this study it is identified that teachers need to have a deeper understanding and need to apply innovative strategies like JiTT in teaching to tackle the capacities and capabilities of 21st century students.

**Keywords:** Just-in- Time Teaching (JiTT), Interactive engagement pedagogical strategy, Intrinsic and Extrinsic Motivation, World wide web, Achievement in English

**Introduction**

Just-in-Time Teaching (JiTT) is a teaching and learning strategy designed to promote the use of class time for more active learning. Developed by Gregor Novak and his colleagues, JiTT relies on a feedback loop between web-based learning materials and the classroom (Novak et al., 1999). Students prepare for class by reading from the textbook or using other resources posted to the web and by completing assignments (called WarmUps and Puzzles) online. These assignments often have complex answers; students' work outside class serves as preparation for more complete work in class. The students' answers are delivered to the instructor a few hours before class starts, allowing the instructor to adapt the lesson as needed. Importantly, JiTT allows the instructor to create an interactive classroom environment that emphasizes active learning and cooperative problem solving. The goal of the JiTT assignments is for students to come to class prepared, engaged, and motivated.

**WarmUps** are short, web-based assignments that designed for students to complete before receiving instruction on a topic. They prompt students to think about the upcoming lesson and to answer a few simple questions before class related with the topic to prepare them to develop more complex answers in cooperative groups in class. Class time can focus on the points for which students need more help, and it can be structured around and according to specific student responses, allowing an element of personalization.

**Puzzles** are short, web-based assignments that are designed to help structure a wrap-up session on a topic that has already been covered in a class. They provide closure and often integrate concepts related to the specific topic.

**GoodFors** are enrichment essays that help students connect the class to the real world, help keep material fresh, and are starters for classroom discussion, this makes a clear connection between the practiced topic and the new unknown area.

The purposes of just-in-time teaching are to encourage more student responsibility for learning the content outside of class, maximize the efficiency of class-time to allow for more focused and more meaningful explication of the content, and have more time for interaction and discussion. Instructors who use just-in-time teaching also find that their students are more active and more interested than they would be in a more traditional lecture (Novak, Patterson, Gavrin, and Christian, 1999).
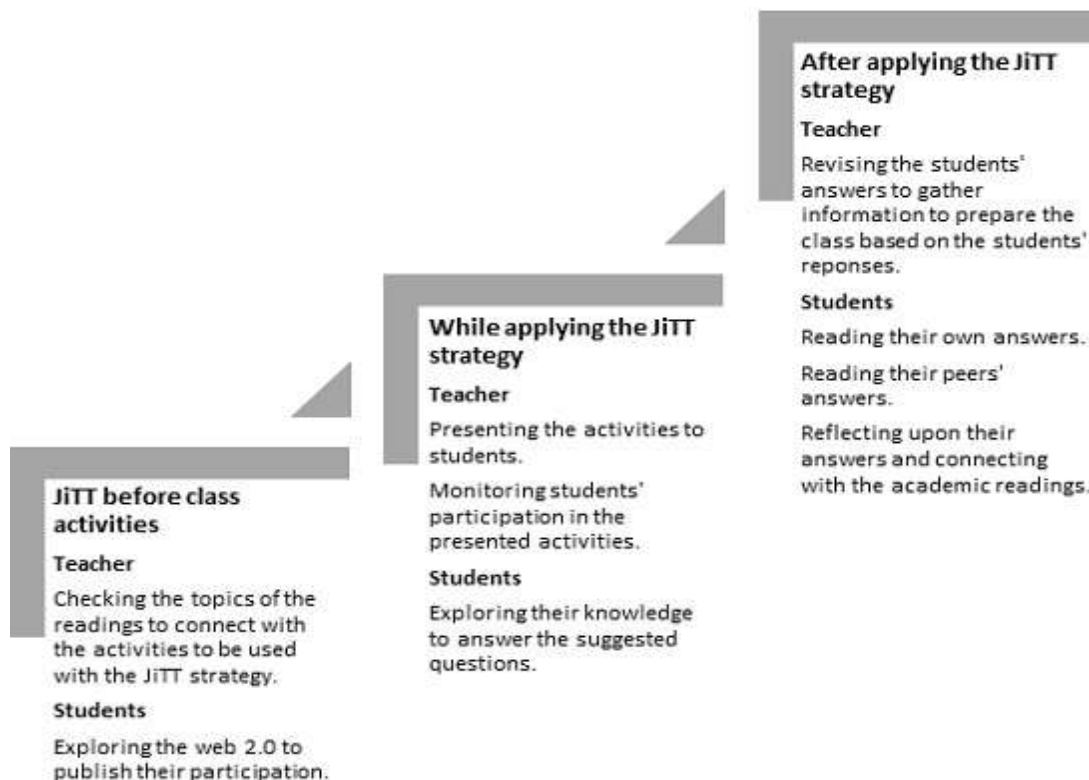
**After applying the JiTT strategy**

**Teacher**

Revising the students' answers to gather information to prepare the class based on the students' reponses.

**Students**

Reading their own answers.

Reading their peers' answers.

Reflecting upon their answers and connecting with the academic readings.

**While applying the JiTT strategy**

**Teacher**

Presenting the activities to students.

Monitoring students' participation in the presented activities.

**Students**

Exploring their knowledge to answer the suggested questions.

**JiTT before class activities**

**Teacher**

Checking the topics of the readings to connect with the activities to be used with the JiTT strategy.

**Students**

Exploring the web 2.0 to publish their participation.

Figure 1. Steps Applied Through the JiTT Strategy

## Theoretical Background of the Study

Kathleen Marrs and Gregor Novak suggest that Just-in-Time Teaching incorporates three major elements that are important for helping students learn (2004).

1) Just-in-Time Teaching incorporates active learning approaches. By moving the "content-transfer" element of the course to pre-class preparation and focusing class time on cooperative problem solving, JiTT encourages the active learning approaches that have been found to promote learning (National Research Council (NRC), 2000; Hake (1998); Paulson 1999, Udovic et al., 2002).

2) Just-in-Time Teaching provides structured opportunities for students to actively construct new knowledge from prior knowledge. As noted in How People Learn, The theory of learning, termed "constructivism," was developed by Piaget and others, and posits that learners build new understandings on existing attitudes, experiences, and knowledge (Kujawa and Huske, 1995). Pre-existing misconceptions can serve as barriers to the development of new, more accurate mental models. Effective learning requires that students uncover and address preexisting knowledge and misconceptions. Just-in-Time Teaching incorporates this element regularly through the use of the WarmUps, which can help reveal misconceptions and prior knowledge and help focus class activities on the elements that need the most thought.

3) Just-in-Time Teaching provides prompt feedback. How People Learn notes that the best learning environments are assessment-centered, and emphasizes that formative assessment is particularly valuable for learners because it provides opportunities for learners to adjust or clarify their thinking prior to a summative assessment (such as a graded exam). This is a key element of JiTT, occurring during essentially every class meeting through instructor responses to the WarmUps that student submit in preparation for the class.

Abreu and Knouse (2014) developed a study with the purpose of integrating the JiTT strategy in an advanced Spanish as a foreign language class taught at a postsecondary institution; during this study, participants used the JiTT strategy with activities such as warm-ups and puzzles. The warm-ups ensured that students had prepared the material they would cover for class, usually reading assignments. Puzzles helped the teacher check that the students had understood the class material. In the findings, it is declared that with the use of the JiTT strategy, students were exposed to terminology previous to lectures; therefore, they were more prepared for discussions when they entered the classroom. Moreover, students' responses allowed the teacher to gather detailed information connected to the level of each learner in regard to comprehension and class preparation.

Böttcher, Kämper, and Thurner (2015) reported an experience about the use of JiTT during two semesters. The authors analyzed the effectiveness of this teaching method. More precisely, they wanted to analyze whether the results from students' achievement on their final exams correlated to the fact that they had participated in the JiTT-exercises. In addition, the authors evaluated the students' opinions as to satisfaction with this teaching method. The analysis showed that the authors could not prove a significant correlation between participation in JiTT and results on final exams. However, students manifested their interest in working with the JiTT approach in future classes.

Therefore, some studies related to the implementation of the JiTT strategy have pinpointed good results in the settings in which it has been applied; the author of this study decided that the implementation of this strategy could be a good alternative for the context in which the project was applied because students receive only four to five hours of English class per week and probably this method might help learners engage and, as a result, invest time in their reading processes. This study could also be a good opportunity to explore students' perceptions of the use of JiTT. It will be a good way to develop new ideas in learners.

**Need and Significance of the study**

Just-in-Time Teaching (JiTT) is a technique where students are expected to do a pre-class activity, submit responses to this activity, and then the instructor uses these responses to tailor class to the specific needs of the students. Examples of this includes writing short explanations to questions that require students to describe, compare, or synthesize (Marrs & Novak 2004). Other examples include students writing a paragraph or two in response to a reading (see Just in Time Response Papers in the ABL Connect Activities Database), answering multiple choice questions (Crouch & Mazur 2001) or doing mathematical computations online. Other examples include relevant puzzles and enrichment essays that help connect classroom material to the real world ("Just-in-Time Teaching (JiTT) | Center

for Teaching | Vanderbilt University" n.d.).

Students learn new concepts best when their pre-existing knowledge is identified and addressed (Bransford, Brown, & Cocking, 2000). Thus JiTT uses pre-class activities to identify student misconceptions and prior knowledge, synchronize student responses with classroom instruction, and provide classroom time to confront misconceptions (Marrs, Blake, & Gavrin, 2003).

Additionally JiTT has been shown to increase retention, process skills and content knowledge in STEM disciplines (Marrs et al., 2003). JiTT also helps students to be better prepared for class, helps instructors better understand student thinking, and may also help change students' study habits by forcing them to be thinking about course material outside of class on a continuous basis (Novak, Patterson, Gavrin, & W, 1999). JiTT can also help students develop better metacognitive skills, particularly if one of the pre-class questions is "What is still unclear?" (Watkins & Mazur, 2010).

Therefore student responses to pre-class activities are used in class has impact on the effectiveness of JiTT. Student perception of instructors use of pre-class responses impacts completion rate (and thus effectiveness) (Scharff, Rolf, Novotny, & Lee, 2011). Peer Instruction (see ABL Connect Activity Database for examples) can be an especially effective partner with JiTT as JiTT helps students first express their initial ideas and then through targeted questioning via Peer Instruction students can develop a more sophisticated understanding (Watkins & Mazur, 2010). In particular the combination of JiTT, tutorials, and Peer Instruction has been shown to produce particularly high normalized gains on concept tests (Crouch & Mazur, 2001).

## Objectives of the study

The major objective of the study is,

❖ To find out the effectiveness of Just-in-Time Strategy (JiTT) on the achievement in English among secondary school students.

## Hypothesis of the studying

The major objective of the study is

❖ There exist a significant relationship between the existing method and Just-in-Time Strategy on the achievement of English among secondary school students

## Methodology

The method adopted in this study is experimental method. A pretest was conducted in a group of thirty students studying in standard VIII under Kerala state syllabus designed by SCERT then the class was taught through JiTT strategy after the sessions a post-test was conducted. Both the data was examined and analyzed by the investigator through certain statistical techniques to test the hypothesis.

## Population and Sample for the Study

The population for the present study was the students studying at secondary level in Kerala and the study was conducted in a sample of 30 secondary level students studying in SVGVP HS, Kiliroor, Kottayam, an aided school in Kottayam district.

## Tools used for the Study

The necessary data for the study was collected using the tools,

1. Achievement pre-test in English
2. Lesson Transcript based on JiTT Strategy
3. Achievement post-test in English

**Statistical Techniques**

Statistical techniques are the mathematical procedure to analyze or for the interpretation of the numerical data secured from a group of individuals. In this study the investigator selects the descriptive statistical techniques such as Mean, Median, Mode and Standard Deviation, and inferential statistical Technique like T- Test is used for this study.

**Analysis and Interpretation**

**I- Analysis and interpretation of the objective -**To find out the effectiveness of Just-in-Time Strategy (JiTT) on the achievement in English among secondary school students.

**Table 1.**

**Frequency distribution of pre-test and post-test scores of the Class group in the Achievement in English**

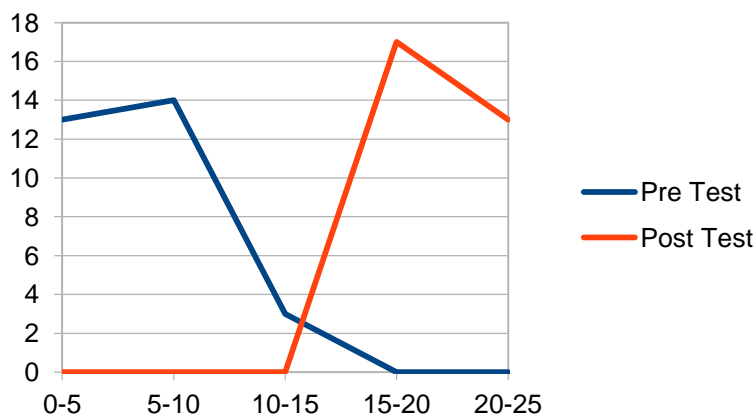| Class Interval | Pre-Test | Post-Test |
|---|---|---|
| 0-5 | 13 | 0 |
| 5-10 | 14 | 0 |
| 10-15 | 3 | 0 |
| 15-20 | 0 | 17 |
| 20-25 | 0 | 13 |



Figure 2.

Graphical representation of the pre-test and post-test scores of the students of the Class group

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**Table 2**

**Statistics for Pre-test and Post-test Scores of the Class group in the Achievement in English**

| Statistical constants | Pre-Test | Post-Test |
|---|---|---|
| Mean | 6.43 | 20.1 |
| Median | 6 | 19 |
| Mode | 5 | 18 |
| Standard Deviation | 2.13 | 2.5 |
| Kewness | 0.54 | 0.65 |
| Kurtosis | -0.74 | -0.94 |

From the table it is clear and evident that the post test scores excels than the pre test scores, so the strategy is quite effective then the existing methods. Thus the statistical study proved that the JiTT will be more effective than the existing method

**Table 1.3**

**Data and Results of Test of Significance of Post Test Scores in Achievement in the Experimental and Control Groups**

| Class Group | N | Mean | SD | df | t- value | Level of significance |
|---|---|---|---|---|---|---|
| Pre-test | 30 | 6.43 | 2.13 | 198 | 18.21 | Significant at 0.01 level |
| Post-test | 30 | 20.1 | 2.5 | | | |

At 0.5% level of significant the table of 't' is 0.135

The above table 3 shows the mean, standard deviation & 't-value' of test of significant difference between pre-test and post-test in the achievement in English of secondary school students. From the table the obtained 't' value is 18.21 which is grater than the table value 1.96. Hence the hypothesis for the objective has been accepted.

**Educational Implications**

➢ Based on the study, the investigator came to a conclusion that describes engagement as students' interest, enjoyment, and enthusiasm towards proposed activities. Thus, engagement could facilitate the learning process.

➢ In this study, learners manifested engagement through some specific actions as:
  ➢ (a) investing time to extend knowledge and
  ➢ (b) activating participation by reducing the affective filter.

➢ Institutions of teacher preparation need to better design their programs so that learners have deeper understanding of motivation, anxiety, attitudes, and values. If these goals are important, then schools may need to consider ways to provide in-service sessions for their teachers to facilitate deeper understanding

➢ Participants pointed out that with the use of the JiTT strategy, they had the possibility of investing time to look for information related to their interests and share it with their classmates.

➢ Students indicated that through the JiTT strategy, they could organize their ideas before class and as a result they felt more confident to participate actively in the lessons.

➢ For enriching the effectiveness of teaching English from the elementary level, we have to find out more innovative and creative methods according to the technological change, than instead of the prevailing mode of teaching learning process and those methods must be practiced from the lower level..

➢ English is considered as the second language in our country it only gets very less importance at the secondary level especially for the state syllabus schools. This strategy helps to develop the interest in an average student and to get more knowledge in English through online enabled activities.

**Conclusion**

The aim of this study was to analyze learners' perceptions of the use of the JiTT strategy activities in a web 2.0. The results of this research indicate that through the JiTT strategy, students were engaged in the designed activities. Encouraging students' engagement can be a challenge; teachers focus on different types of strategies in the classroom in order to activate learners' interest towards the activities. However, in certain moments, teachers could feel that learners do not get involved easily. There can be several reasons for the lack of engagement in students, but it is not the concern that this author wants to refer to in these lines. The researcher would like to mention some significant characteristics related to engagement based on the findings of the study.

According to the results, students' engagement was revealed when they invested time in the designed activities through the use of the JiTT strategy; with the use of this technique learners were able to invest time to increase their cultural capital based on topics that were appealing to them. Moreover, they could reduce their affective filter because they felt that the information they found before class gave them elements to participate with more confidence during the class sessions. Therefore, engagement was engendered before the lesson. Probably, if we as teachers apply strategies before the lessons, we can generate more options to foster students' engagement and, as a result, the learning process might be facilitated.

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