Conference Proceedings

"Perspectives in English Language Teaching, Literature, and Translation"

UNNES in collaboration with AWEJ, RELO, and The University of Auckland

Faculty of Languages & Arts
State University of Semarang
THE EFFECT OF USING COMPUTER-BASED TIMELINE MEDIA ON LEARNERS’ MASTERY OF ENGLISH TENSES: A PRELIMINARY STUDY

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Abstract

The difference between Indonesian and English in the aspect of verb forms is one of the factors causing problems to Indonesian learners in mastering English Tenses. In the previous research, Teopilus and Winarlim (2008) found that one of the problems faced is the learners’ inability to understand the time concept of the English Tenses. To overcome the learners’ problems in learning English Tenses, Teopilus et al. (2014), in the first year of the current research, have developed computer-based timeline media to teach the first six English Tenses and analyze their effectiveness. The findings prove that the subjects’ knowledge of these six tenses improves after receiving the treatment using the computer-based timeline media.

With these findings, Teopilus et al., in the second year of the current research, continue developing the computer-based timeline media for the next six English Tenses, covering the perfect tenses. The effectiveness of these timeline media, together with the revised previous ones, are analyzed to get a more comprehensive result of using computer-based timeline media to teach English Tenses. The subjects involved in the present study do a pretest prior to receiving instruction using the developed computer-based media. After receiving the instruction, they did a posttest and completed a questionnaire. The collected pretest and posttest scores were analyzed using the paired t-test to find out the significance of the gain scores obtained. The T test calculation results show that there is a significant increase from the mean of the subject’s pre test scores to their post test scores. It implies that there is a significant difference in the obtained gain scores (the difference between the pre test and the post test scores) of the subjects. The analysis of the completed questionnaires indicates that the research subjects generally give favorable responses to the timeline media developed.

The findings show that developed timeline media can simplify the abstract explanation about the past time, present time and future time; furthermore, the timeline media, along with the voice, pictures, and animation, help the subjects to clearly visualize the activities or happenings illustrated in the three time zones. Using these media, English teachers will
be facilitated in explaining the English Tenses to their students. With these media, Indonesian learners will, therefore, be helped to master the English Tenses more easily.

**Keywords:** timeline media, English Tense, computer-based

**Introduction**

English verbs have several forms: infinitive/base form, present participle or ing form, preterite or past form, and past participle. The tense and mode used to express an activity in English determine which verb form is used. Indonesian, on the other hand, does not apply changes in its verb forms. The difference between Indonesian and English in the aspect of verb forms is one of the factors causing problems to Indonesian learners in mastering English Tenses.

In one of the previous studies, Teopilus and Winarlim (2008) found out that the students of the English Education Study Program still made mistakes in using English Tenses. The findings show that one of the causes of these problems is the inability of the students to understand the time concept of the English Tenses.

To overcome Indonesian learners’ problems in learning English Tenses, Teopilus et al. (2014), in the first year of the current research entitled “Developing Computer-based Timeline Media to Teach English Tenses”, have developed computer-based timeline media to teach the first six English Tenses (Simple Present Tense, Present Progressive Tense, Simple Past Tense, Past Progressive Tense, Future Simple Tense, and Future Progressive Tense) and analyze their effectiveness. The findings prove that the subjects’ knowledge of these six tenses improves after receiving the treatment using the computer-based timeline media. The pictures and animation in these media help visualize the actions/activities expressed in the verb forms used in the sentences, and the three parts of the time zone (Past, Present, and Future) clearly display the time location of the actions expressed. The subjects were helped to comprehend these six tenses better.

With these findings, in the second year of the current research, Teopilus et al., continue developing the computer-based timeline media for the next six English Tenses, covering the perfect tenses: Present Perfect Simple Tense, Present Perfect Progressive Tense, Past Perfect Simple Tense, Past Perfect Progressive Tense, Future Perfect Simple Tense, and Future Perfect Progressive Tense.
Perfect Progressive Tense. The effectiveness of these timeline media together with the revised previous media is analyzed. This paper, entitled "The Effect of Using Computer-Based Timeline Media on Learners' Mastery of English Tenses: A Preliminary Study," is the research report conducted to find out whether the computerized timeline media developed can improve learners' mastery of English Tenses. This research analyzes and describes the effectiveness of the developed timeline media to teach the twelve English Tenses to get a more comprehensive result.

English Tenses

According to Camie (2011) tense is described as "the time of an event relative to the time at which the sentence is either spoken or written". It indicates that there is a relationship between the time of an event and that of an utterance or writing. Since tense relates to time, it influences the change of the forms of the verbs used in order to indicate at which time the event, situation or activity occurs. Thus, time and tense are closely related in that tense deals with how and where an event, situation or activity is placed along the time line segments, either in the past, the present, or the future. Considering this, grammarians divide the tense into three: past tense, present tense and future tense as each of the tenses is in the past time line segment, the present time line segment, and the future time line segment respectively.

The past tense describes that the event, situation, or activity happened before the present time line segment, the present tense describes an event, situation or activity that happens at the same time as in the time of the present time line segment, and the future tense describes an event, situation or activity that takes place in the future time line segment as in the following figure:

![Figure: Time Line]

When an event, situation or activity takes place, it may be completed or in progress (Radford et al., 2009). Thus, the duration of the event, situation or activity is concerned about whether
the event, situation or activity is completed, in progress, or uncompleted (which the writers refer to the future event, situation or activity).

In the past time line, the event, situation or activity occurred in the past time, was in progress in the past time, or took place before another past time event, situation or activity, for example:

(1) James had his breakfast at 6 a.m.
(2) James was sleeping when I came.
(3) James had done his homework before he went out with his friend.

In (1) the act of eating breakfast was done and completed as it happened at 6 in the morning that day, while in (2) the act of sleeping was going on at the time of the act of visiting James. Example (3) indicates that the act of doing homework occurred first before the act of going out with a friend.

Concerning duration of time, an event, situation or activity possibly occurred in the past time and goes up to the present time as being completed with disregard of the past time or as a repeated action. Or, the event, situation or activity started in the past time and goes up to the present time and may continue in the future time, for example:

(4) James has done his homework.
(5) James has rung his friend three times.
(6) James has lived in Surabaya for 20 years.

In (4) the act of doing took place in the past time and it was completed; however, the exact time when it was completed in the past time is not known. In (5) the act of ringing seen from the perspective of the time of speech or writing at the moment has been done three times so far, and in (6) the act of living began twenty years ago, and it is still valid now, tomorrow, next week and so on.

An event, situation or activity may take place in time of speech or writing. It happened sometime in the past time but it is still in progress. It is being done now. For example,

(7) James is writing a letter to his parents now.

Unlike (4) which indicates a completed action, example (7) shows that the act of writing is still going on. It is not completed yet.
The future time line does not only include the future tense, but also the present tense. An event, situation or activity is often described in the present tense, especially referring to immediate planned future, for example:

(8) James officially opens his new office the day after tomorrow.

Example (8) uses the simple present tense to refer to an official event which will happen in the near future. Or else, the future time line describes an event, situation or activity which will happen in the future or which describes present intentions, promise, impromptu decision, etc., for example:

(9) James will go to Bandung next week.

(10) (Hearing knocks on the door) James says to his friends: “I’ll get it”

In example (9) above, it is obvious that the act of going has not taken place, but it will happen seven days from now. In (10) James makes a decision right after he heard knocks on the door.

The description above tells that time and tense have a close relationship. Nonetheless, the duration of time reflected in the event, situation or activity may reflect a combination of time that it creates a combination of such tenses as the present perfect progressive tense, the past perfect progressive tense, the simple future progressive tense, etc.

The concept of time or tense in English is used to refer to past, present, or future. In each of the tense category, there are subcategories called aspects, which refer to the duration of an event. In English, there are four aspects, namely Simple, Progressive, Perfect, and Perfect Progressive. The Simple aspect does not show the beginning or the ending of an event, but it only shows whether an event happens or not. The Perfect aspect shows that the ending of the event is known and is used to emphasize that the event is over. The Progressive aspect indicates that an event is in progress. The Perfect Progressive aspect shows that an event has/had been and is/was in progress at a certain time.

Timeline Media to Teach English Tenses

Timelines are diagrams that illustrate the reference to time made by a given piece of language. They are used to show how a particular language item (often a verb in a particular tense and aspect) places particular events or situations in time and in relation to other events (Rees). Referring to the teaching of English Tenses, a timeline is a diagram which describes the time
reference showing how an event or happening is placed in the timeline in relation to another event or happening. Teopilus et al. (2014) state that timeline media give the following benefits in helping Indonesian learners to comprehend the English Tenses:

- Timeline media simplify the abstract explanation about the past time, present time and future tense.
- Timeline media clearly visualize the three time zones: past, present, and future; Indonesian learners will, therefore, immediately see which time zone is referred to in the action expressed in the sentence and what English Tense is correctly used to do so.

Using consistent symbols to express an event or happening in the timeline is necessary to help clarify the nature of the event. Teopilus et al. (2014), in developing the computer-based timeline media, adopts the following symbols:

- A single event or action
- A repeated action or habit
- A permanent state or situation
- A period in time/duration of time

The key to the successful teaching of English grammar, in this case English Tenses is implanting the grammar concept and providing the opportunity for the learners to frequently use it meaningfully in context so that they can use it correctly. For this purpose, a lot of exercises need to be given to them and repeated again and again. To this point, Nunan (2005) argues that research has shown that a grammatical item will be more successfully mastered by one’s practicing 15 minutes over four days than by an hour’s practice on a single day. This proves that repeating or revisiting a grammatical item several times will result in a better mastery.

Use of Multimodal Texts in Teaching English Tenses

People are now living in an era where multimodal texts combine words, sounds, images, and movement. This implies that nowadays learners are used to getting exposed to multimodal texts too. The digital era has brought massive changes to their life styles, and they become less interested in text-based materials having no visuals and sounds. Walker and White (2013) state that learning is multimodal, and one of the special things with computer technology is it
allows learners and teachers to combine modes such as sound, text and image in the classroom instruction.

In English language learning, learners will be more motivated and interested to learn the language when they are given explanations with multimodal texts which combine words, sounds, images, and movement. These texts can accommodate learners with different learning styles: auditory learning style, visual learning style, as well as kinesthetic learning style. Visual style is learning by seeing. Learners with this learning style benefit greatly from teaching that utilizes illustrations, charts, diagrams, videos, etc. Auditory learning style is learning by hearing. Learners with this learning style benefits the lecture or oral explanation delivered in the classroom environment, as they are able to comprehend, process and retain the information provided. Kinesthetic style is learning by doing. Learners with this style benefit from hands-on learning experience.

Conner (1997-2007) argues that Learning styles classify different ways people learn and how they approach information. Nunan (1995) states that learning style refers to any individual's preferred ways of going about learning. Learners usually use a combination of all these three learning channels to receive and process information; one or more of these three styles is, however, more dominantly preferred and used in learning a new task. This dominant learning style is the best way for the respective learners.

Learning English indirectly requires learners to learn the English grammar, one of its many aspects in it being English Tenses. With regard to English Tenses, the use of words together with visuals or images, sounds, and movements can help learners comprehend the abstract time concept of English Tenses. The computerized timeline media designed and developed in this research have the visual, auditory, and kinesthetic features. The visual feature is seen from the writing, pictures and animation used; the auditory feature is obtained from the voice and background music in the media; and the kinesthetic feature is also embedded in the movement or animation used. The computerized timeline media designed here are, therefore, expected to be able to accommodate all these different learning styles to facilitate learners with different learning styles in comprehending the English Tenses.
Research Design

The ADDIE Model of instructional development has been adopted and adapted in developing the computerized timeline media to teach the twelve English Tenses. In the first year of the research project, the computerized timeline media have been developed to teach the first six English Tenses: Simple Present Tense, Present Progressive Tense, Simple Past Tense, Past Progressive Tense, Simple Future Tense, and Future Progressive Tense. In the second year, the researchers continued developing the computerized timeline media to teach the next English Tenses covering Present Perfect Simple Tense, Present Perfect Progressive Tense, Past Perfect Simple Tense, Past Perfect Progressive Tense, Future Perfect Simple Tense, and Future Perfect Progressive Tense.

The previous research of Teopilus et al. (2014) analyzed the effectiveness of the computerized timeline media to teach the first six English Tenses, and the research findings prove that the subjects' knowledge of the six English Tenses improves after they have been taught these tenses using the developed computer-based timeline media.

The present research analyzes and describes the effectiveness of the developed timeline media to teach the twelve English Tenses to get a more comprehensive result. It is a one group pretest-posttest design, in which the research subjects do a pretest prior to the treatment, and do a posttest after the treatment.

Research Subjects

The subjects of this study are the first-semester students at the English education study program of a university. They were given 8 (eight) sessions of treatments for the research. When the treatments were given and the research data were collected, they were in their first week of their study at the university. With these characteristics, they were just similar to grade XII students of senior high school level. There were 20 students who joined all the sessions of the eight treatments for the study, and they were taken as the research subjects. Those who did not join all the eight meetings were disqualified for being the research subjects.
Research Instruments

There are 2 instruments used in this research: a test on the twelve English Tenses (which serves as the pretest and posttest) and a Questionnaire. The pretest/posttest is used to measure the subjects' knowledge of the twelve English Tenses. There are 3 (three) parts with 30 items each: Completion (sentence level), Multiple Choice, and Completion (discourse level). The questionnaire is used to find out subjects' opinions about the computerized timeline media and to receive further feedback on the media developed.

The research instrument in the form of the test on English Tenses has been calculated for its reliability coefficient and discrimination index.

Table 1

<table>
<thead>
<tr>
<th>Calculation of KR20</th>
</tr>
</thead>
<tbody>
<tr>
<td>$K \sum \chi^2 \quad \sum X \quad n \quad \sigma^2 \quad \sum_{pq}$</td>
</tr>
<tr>
<td>90 31119 733 20 212.73 16</td>
</tr>
</tbody>
</table>

KR20 = 0.94

The calculation result of KR20 indicates that the test is very reliable. The test shows a consistent result when tested again to the group.

Table 2

| Frequency and Percentage of Discrimination Index Value for Each Part of the Test |
|-----------------------------|---|---|---|---|
| No. | Value | Part I | % | Part II | % | Part III | % |
| 1 | High | 4 | 13.3 | 3 | 10.0 | 0 | 0.0 |
| 2 | Medium | 14 | 46.7 | 16 | 53.3 | 17 | 56.7 |
| 3 | Low | 12 | 40.0 | 11 | 36.7 | 13 | 43.3 |
| TOTAL | | 30 | 100.0 | 30 | 100.0 | 30 | 100.0 |

The percentage of the discrimination index values indicates that 36% up to 43% of the test problems did not differentiate the two groups of the students (low value). It did not differentiate those who were capable of using tenses and those who were not. That there is no high value shown in part 3 of the test problems indicates that the subjects still lack the understanding of how to use the tenses in a paragraph.
Data Collection

The research subjects were given 8 (eight) sessions of treatments, and the schedule is as follows:

<table>
<thead>
<tr>
<th>Session</th>
<th>Day and Date</th>
<th>Time</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Friday, 21 Aug 2015</td>
<td>10:40 - 12:20</td>
<td>Pre-test</td>
</tr>
<tr>
<td>2</td>
<td>Monday, 24 Aug 2015</td>
<td>10:40 - 12:20</td>
<td>Simple Present Tense</td>
</tr>
<tr>
<td>3</td>
<td>Tuesday, 24 Aug 2015</td>
<td>10:40 - 12:20</td>
<td>Present Progressive Tense</td>
</tr>
<tr>
<td>4</td>
<td>Wednesday, 26 Aug 2015</td>
<td>13:00 - 14:40</td>
<td>Simple Future Tense</td>
</tr>
<tr>
<td>5</td>
<td>Friday, 28 Aug 2015</td>
<td>10:40 - 12:20</td>
<td>Future Progressive Tense</td>
</tr>
<tr>
<td>6</td>
<td>Monday, 31 Aug 2015</td>
<td>10:40 - 12:20</td>
<td>Present Perfect Tense</td>
</tr>
<tr>
<td>7</td>
<td>Tuesday, 1 Sept 2015</td>
<td>10:40 - 12:20</td>
<td>Past Perfect Progressive Tense</td>
</tr>
<tr>
<td>8</td>
<td>Wednesday, 2 Sept 2015</td>
<td>13:00 - 14:40</td>
<td>Overall Review of English Tenses</td>
</tr>
</tbody>
</table>

The data collected are in the form of pretest and posttest scores. The pretest was given to the subjects in the first session before they were given any treatments, and the posttest was given to them after they were given all the treatments. The following table summarizes the subjects' pretest and posttest scores:

<table>
<thead>
<tr>
<th>Subject</th>
<th>PRETEST</th>
<th>POSTTEST</th>
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<tbody>
<tr>
<td>Totals</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>I</td>
<td>II</td>
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<tr>
<td>19</td>
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<td>18</td>
</tr>
<tr>
<td>20</td>
<td>4</td>
<td>22</td>
</tr>
</tbody>
</table>

Note:

I : refers to the first part of the test, completion at the sentence level. The numbers in this column refer to the subjects' correct answers out of the total 30 items in this part.

II : refers to the second part of the test, multiple choice items. The numbers in this column refer to the subjects' correct answers out of the total 30 items in this part.

III : refers to the third part of the test, completion at the discourse or text level. The numbers in this column refer to the subjects' correct answers out of the total 30 items in this part.

Score: refers to the subjects' total scores of the pretest or posttest, which are calculated using the 0 – 100 scale.

The other data were collected through the questionnaires which were given to the subjects after they did their posttest.

Data Analysis and Findings

The data analysis is conducted in two ways:

Analysis of the Subjects' Pretest and Posttest Scores

To evaluate the effectiveness of the computer-based timeline media developed in the present study, the paired t-test calculation of the subjects' pretest scores and post test scores is conducted.

The paired T-Test is conducted to find out whether the following Ho or Ha is accepted:

Ho: There is no difference between the pre test scores and the post test scores.

Ha: There is a difference between the pre test scores and the post test scores.

The formula of the Paired t test is as follows:
Level of Significance (P) = 0.05

di = difference between the pre test score and the post test score

N = number of subjects

To get a more comprehensive result, the T test is conducted for each part of the pretest and post test and the subjects' total scores of the pretest and posttest; therefore, there are 4 (four) t-test calculations. The t-test calculation is described as follows:

(1) The T-test Calculation of the Subjects' Total Pretest and Posttest Scores

(2) The T-test Calculation of the Subjects' Points on Part I of Pretest and Posttest

(3) The T-test Calculation of the Subjects' Points on Part II of Pretest and Posttest

(4) The T-test Calculation of the Subjects' Points on Part III of Pretest and Posttest

The T-test Calculation of the Subjects' Total Pretest and Posttest Scores

The mean of the subjects' pretest scores of the English Tenses is 30.61. The mean of their posttest scores is 40.94 and it shows improvement. There is an increase of 10.33 points from the pretest mean score to the posttest score mean score.

Mean of pre test scores = 30.61

Standard of deviation of pre test = 11.74493379

Mean of post test scores = 40.94

Standard of deviation of post test = 16.3866338

Calculation Result:

t calculated = 7.526375546; t table = 2.093

It can be concluded that $t_{cal} > t_{table}$; $H_0$ is rejected, meaning that there is a difference between the pre test score and the post test score at the significance level of 0.05.

The T-test Calculation of the Subjects' Points on Part I of Pretest and Posttest

The mean of the subjects' pretest points of Part I is 5.25. The mean of their posttest points is 9.1 and it shows improvement. There is an increase of 3.85 points from the pretest points to the posttest points.

Mean of pre test points of Part I = 5.25

Standard of deviation of pre test = 4.2161968
Mean of post test points = 9.1
Standard of deviation of post test = 5.73906282

Calculation Result:
t calculated = 6.285920977; t table = 2.093
It can be concluded that t cal > t table; Ho is rejected, meaning that there is a difference between the pre test score and the post test score at the significance level of 0.05.

The T-test Calculation of the Subjects' Points on Part II of Pretest and Posttest
The mean of the subjects' pretest points of Part II is 14.55. The mean of their posttest points is 17.45 and it shows improvement. There is an increase of 2.90 points from the pretest points to the posttest points.

Mean of pre test points of Part II = 14.55
Standard of deviation of pre test = 4.285532578
Mean of post test points = 17.45
Standard of deviation of post test = 5.355518551

Calculation Result:
t calculated = 4.5290391, t table = 2.093
It can be concluded that t cal > t table; Ho is rejected, meaning that there is a difference between the pre test score and the post test score at the significance level of 0.05.

The T-test Calculation of the Subjects' Points on Part III of Pretest and Posttest
The mean of the subjects' pretest points of Part III is 7.75. The mean of their posttest points is 10.3 and it shows improvement. There is an increase of 2.55 points from the pretest points to the posttest points.

Mean of pre test points of Part III = 7.75
Standard of deviation of pre test = 3.83714532
Mean of post test points = 10.3
Standard of deviation of post test = 4.496782475

Calculation Result:
t calculated = 4.394523929; t table = 2.093
It can be concluded that t cal > t table; Ho is rejected, meaning that there is a difference between the pre test score and the post test score at the significance level of 0.05.
The results of the four t-test calculations indicate a significant difference between the pretest scores and the posttest scores.

Questionnaire Analysis
Summary of the results of the questionnaire analysis indicate that:

> Related to the design of the software
  - Display of the modules: most subjects’ responses are very good and good. Only one out of 20 subjects says bad for Present Perfect Simple, Present Perfect Progressive, and Past Perfect Simple.
  - Display of pictures, animation, and colors: subjects’ responses are very good and good. Only one out of 20 subjects says bad. Only one out of 20 subjects says bad.
  - Voice cleanness: subjects’ responses are very good and good. Only one out of 20 subjects says bad.
  - Concept understanding given by the modules: subjects’ responses are very good and good. Only one out of 20 subjects says bad.
  - Font size used in the modules: subjects’ responses are very good and good.

> Related to the understanding of the materials
  - Series of the module materials help learners understand the English Tenses taught: subjects’ responses are very good and good.
  - Pictures, animation, and voice help learners understand the time concept of the English tenses: subjects’ responses are very good and good.
  - Role of the software in helping learners understand the English Tenses: subjects’ responses are very good and good.

The result of data analyses yield the following findings:

a. There is a significant increase from the mean of the subject’s pre test scores to their post test scores. It implies that there is a significant difference in the obtained gain scores (the difference between the pre test and the post test scores) of the subjects.

b. The research subjects generally give favorable responses to the timeline media developed.
Discussion

The developed timeline media can simplify the abstract explanation about the past time, present time and future time; furthermore, the timeline media, along with the voice, pictures, and animation, help the subjects to clearly visualize the activities or happenings illustrated in the three time zones. They can, therefore, immediately see which time zone is referred to in the action expressed in the sentence and what English Tense is correctly used to express it.

The results of the T test calculations show there is a significant improvement in the subjects' knowledge of the twelve English Tenses after the treatment even though many of their post test scores are still considered insufficient. This happens because all the twelve tenses were given to them in eight successive meetings, leaving very little time for them to digest each of the twelve tenses through doing more exercises and applying them meaningfully in speaking or writing. Besides, they needed more time to cognitively digest the twelve tenses and to practice more mixed exercises showing a recursive enrichment of how to use these tenses. Their posttest scores would have been much higher if they had been given these opportunities. It is necessary for them to repeat or revisit each of the English Tenses several times to result in a better mastery as what Nunan (2005) argues that a grammatical item will be more successfully mastered by one's practicing 15 minutes over four days than by an hour's practice on a single day.

Conclusion

The computerized timeline media which have been developed are useful as they can enhance the subjects' achievement of the twelve tense as shown in the result of the t-test. These developed media can accommodate learners' needs, interest, and learning styles. In the digital era, the use of computer technology, such as the developed computer-based timeline media, is highly recommended as it can fulfill their needs, interest, and learning styles. The present research findings have proved that the computer-based timeline media developed in this research can help increase the subjects' understanding of the English Tenses.

To yield better results in helping learners comprehend the English Tenses using the developed timeline media, the researchers give the following suggestions:

a) English Tenses should be given or taught to learners one at a time, so that there will be enough time for them to digest it.
b) More mixed-tense exercises have to be given to the students, and the exercises use a recursive model, meaning that previously learned tenses are mixed with the currently learned tense.

c) Students should be given opportunities to use the learned tenses in meaningful contexts, in speaking or writing.

References


