An ESL/EFL Computer Assistec Language Instruction (CALIS Micro-Teaching Lesson or Coherence Through Sentence: When Writing Compositions in th Foreign Language Classroon

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Research on first language (L$_1$) writing processes has provide a worthy teaching contribution to the writing process of a targe language. The findings have helped to analyze and detect student: needs and difficulties through their writing production. According t Connor and Farmer (1990), native speakers of English as well a foreign language speakers of English face difficulties when revisin their written texts. For this purpose, the use of computers for th revision of mechanics (grammar, spelling, vocabulary, etc.) has bee a very useful tool for editing. Nevertheless, revision of the semanti relations that make an entire composition coherent has had som constraints, specifically when the cohesion of ideas in every student' particular composition needs to be checked. The teaching of coherenc through computerized lessons is an area of writing that has alread led to the production of software.

This article proposes a computerized writing lesson by applyin the Topical Structure Revision Technique.[1] Through the analysis an

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1.   U. Connor, "Research Frontier in Writing Analysis," *TESOL Quarterly*, 4 (1987) 677-691.

modifications of four systematic exercises on coherence, based on an essay provided, the students will be able to identify incoherent ideas, organize them, and relate them. The use of this technique in traditional lessons has yielded positive results. Another positive aspect is that it lets students correct and improve problems of incoherent writing, and enables students to carry out a topical structural analysis when they are writing their own compositions. The kind of analysis is developed here through the use of Computer Assisted Language Instruction (CALIS). "The Computer Assisted Language Instruction System was developed at Duke University by language teachers. It was designed to give language teachers maximum flexibility and power in preparing computer exercises for language instruction without the need of a team of computer programmers."[2] What makes the difference in using computers does not have to do with the assumption that through computers students will learn better, but that students can manipulate, organize, and more easily picture the semantic relations involved in a coherent paragraph. Also, the use of technological devices such as computers gives students more encouragement and motivation to perfect their writing.

This article presents part of the theory for developing a cohesive text using the process of writing. In this case the type of cohesion is analyzed through the Topical Structure Revision Technique. Moreover, there is a step-by-step explanation concerning the lesson; that is, it includes the main objectives, contents, exercise type, methodology used, materials, and evaluation. Finally, a series of conclusions are stated with regard to the perspectives of using computers for teaching writing. Writing in foreign language classrooms has traditionally been taught through the guidance of teachers who commonly develop form, structure, and vocabulary. These last three elements have been well programmed in computerized lessons to respond to the checking of

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2.   Frank L. Borchardt, *Duke University Computer Assisted Language Learning Project* (Durham, N.C.: Duke University, 1989).

mechanics in students' compositions. However, when cohesion is to be taught and evaluated, a teacher must provide a series of unsystematic explanations for the very specific problems that students present. In this respect, the programming of these elements in the teaching of writing through computers has faced a series of constraints that are the consequences of dealing with unity. For example, a computer can check the spelling in students' compositions, but if they want the computer to check the coherence of the whole text, the machine cannot do it. Unity in a text implies the semantic relations between words, a sentence with another sentence, one paragraph with another. This element of writing cannot be checked mechanically. As Hope, Taylor, and Rusack state: "when writing involves free expression, particularly beyond the sentence level, there is very little the computer can do to correct errors."[3] However, their point is not entirely valid since the following provides another option. The teaching and evaluation of cohesion can be accomplished by programming systematic composition lessons (controlled writing) that lead students to analyze problems of cohesion in a specific essay.

The concept of cohesion refers to the unity in meaning among words in sentences and paragraphs. Cohesion exists when the reading or interpretation of elements in a text dependent on each other fit together correctly to make sense. Cohesion is developed through grammar and vocabulary. Grammatical elements express a linguistic reference that is connected through a semantic lexicon. For example, in the sentence, "I bought a house, but it is for my sister," the lexical item "house" has a referential meaning in life, and the pronoun "it" has a linguistic reference that is linked semantically with the lexical item "house". As Halliday points out:

Typically in any text, every sentence except the first exhibits some form of cohesion with a preceding sentence, usually with

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3.   G. R. Hope and J. Rusack, *Using Computers in Teaching Foreign Languages* (Florida: Harcourt Brace Jovanovitch, 1984) 43-46.

the one immediately preceding. In other words, every sentence contains at least one anaphoric tie connecting it with what has gone before. Some sentences may also contain a cataphoric tie, connecting up with what follows, but are rare and are not necessary to the creation of a text.[4]

In this sense, the development of semantic unity resides in cohesion among clue elements. Indeed, not only grammar and vocabulary contribute to make sentences cohesive, but also topics that are developed from one sentence to another.

Here, lexical cohesion by topic from one sentence to another is the main concern. To develop lexical cohesion by topic, there is a selection of lexical items that in some way are related to previous ones. Therefore, to comprehend the processes readers and writers go through in their attempts to understand and be understood, it is necessary to work with cohesion. According to Enkvist, the predication-based model considers the text as having different organization techniques (narrative, descriptive, expositive, and argumentative) using the components of syntax and semantics, while cognitive-based text models consider relevant the role of cognition in text processing.[5] From these two approaches, the sentence-based approach is mainly concerned with the analysis of coherence in sentences. Lautamatti argues that:

...successful integration refers to the semantic relationship that exists between sentence topics and discourse topics. Through topical structure analysis, this can be studied by looking at sequences of sentences and examining how the topics in the sentences work through the text to build meaning progressively.[6]

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4.   M. A. K. Halliday, *Cohesion in English* (London: Longman Group, 1976) 293.

5.   L. Lautamatti, "Observation on Development of the Topic in Simplified Discourse," *Text linguistics, Cognitive Learning and Language Teaching*, eds. N. E. Enkvist and V. Kohonen (Helsinki: Akateeminen Kirjakauppa, 1978), editor's introduction.

6.   Lautamatti, 682.

To carry out topical structure analysis, Connor and Farmer have identified three steps: "(1) identification of sentence topics, (2) determining sentence progression and (3) charting the progress of sentence topics."[7] Using this analysis, Lautamatti sees progression in coherent discourse; that is, parallel progression, sequential progression, and extended parallel progression. In parallel progression, the topics of sentences are identical in meaning. When sentence topics come from an idea related from the previous sentence, it is said to be sequential progression. Finally, when a topic mentioned earlier in the text is taken up again, it is said to be extended parallel progression, and it can be separated by a sequential progression.[8]

The analysis of sentence topics develops in students the ability to identify the arrangement of information within a sentence based on its topics and referent ideas. *Topic* means the main topic of a sentence, in most cases the subject of the sentence. For example, most nouns (lexical item) or noun phrases refer to the topic of each sentence. In addition, in order to determine sentence progression, students need to "know" or "see" how the topic can build meaning through either parallel progression, sequential, or extended parallel progression whose topics are semantically synonymous and serve to reinforce the idea in the reader's mind. These are the three main approaches for this lesson.

As a point of departure in the analysis of sentence topics, students have to identify the topics for each sentence so that they can outline the progress of each sentence. In the following ESL/EFL CALIS micro-teaching lesson on coherence through sentences, the exercises are oriented towards analysis of cohesion in a text. Students will have to identify incoherent sentences from an essay. This identification and correction of mistakes is useful training for students because it leads them toward the organization of ideas in more

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7.   U. Connor and M. Farmer, "The Teaching of Topical Structure Analysis as a Revision Strategy for ESL Writers," *Second Language Writing,* ed. B. Kroll (Cambridge: Cambridge University Press, 1990) 128.

8.   Lautamatti, 78-83.

accurate ways and helps them apply this technique when they have to engage in free expression. As Hull and Smith point out, "[a] program which teaches students to make corrections is better than a program which makes correction for students."[9] In this way, students will have a different method for revising a text based on a more analytical semantic level. When students have chosen the appropriate coherent sentence for each item in the exercise, they will form a coherent text. Not all of the sentences are incoherent. There are some transitional sentences at the beginning so that the students have a place to begin.

Description of the course
    This is an advanced writing course for students concerned in developing the essential writing techniques and mechanics for composing an essay for academic purposes.

Description of the lesson
    This writing lesson focuses on the teaching of coherence through computerized exercises, so that students can identify, analyze, and rewrite the incoherent semantic relations found in a text provided. It also pays particular attention to parallel progression from one topic sentence to another in a text. For this purpose, the instructor will make use of the topical revision technique that helps learners to form a parallelism from one topic sentence to another. The duration of this lesson is fifty minutes.

Specific objectives of the lesson
1.   Understand the concept of coherence.
2.   Identify incoherent semantic relations from one sentence to another in a paragraph.
3.   Organize the incoherent sentences according to the context and exercises provided.

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9.   G. Hull and W. L. Smith, "Error Correction and Computing," *Writing On-Line*, eds. J. Collins and E. Sommers (New Jersey: Bynton Cook Publishers, 1985) 100.

4. Understand the three types of progression that may result in a coherent text: parallel, sequential, and extended parallel.
5. Identify and analyze the topics of each sentence in a paragraph.
6. Modify the topic of a sentence into a parallel topic sentence through computerized exercises.

Contents:

Writing Effective Paragraphs
a. Unity
b. Coherence in a paragraph
c. Coherence through parallel topic sentence

Activities:

1. First, the computer will introduce the lesson by giving an explanation about coherence. The clarification of this concept enables students to focus on this aspect for the development of the exercises ahead. There is an instrumental section to define exactly what the students have to do.
2. After this screen has been read and understood, another screen will appear with an essay in which there are five incoherent sentences. The students must identify these sentences through a specific exercise.
3. When the sentences have been identified, another screen is presented in order for students to select (through a multiple choice exercise) the best rewritten sentences for each incoherent sentence according to the context provided.
4. When the sentences have become coherent, the computer shows a new screen explaining the three different types of progression that may result in a written text. Now the students, based on the explanations provided, will have to identify the topics of each sentence from the text. For this section, there is a computerized exercise that has 10 previously programmed topics.
5. When students have identified the ten topics, they will have to modify them into parallel topic sentences through a computerized

multiple-choice exercise. The students will have to select the topics that show parallel progression.

6.   Finally, when students are finished with the exercises, the computer will provide the resulting product, that is, a coherent text.

These steps are shown in the flow chart on page 149 to illustrate the process in the computer program.
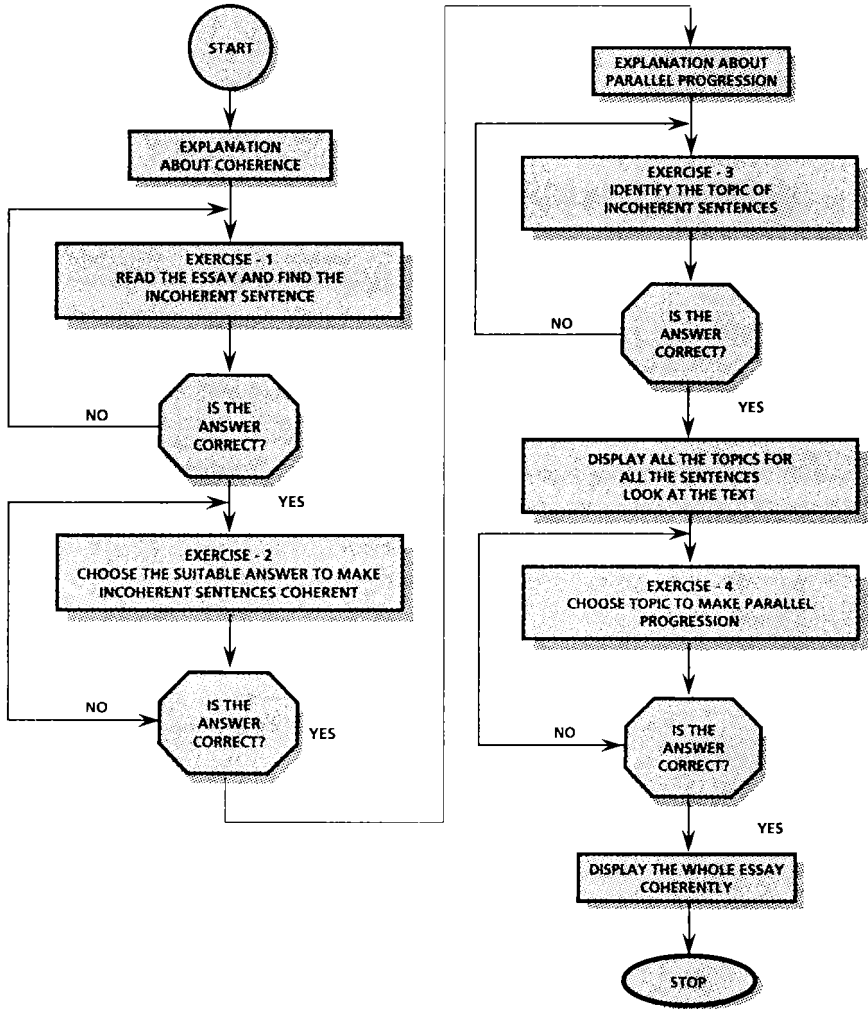
Methodology

Students will essentially work individually with the computer. All the basic explanations and instructions are provided through the computer. Nevertheless, the instructor will play the role of facilitator of information specifically for students' particular problems or questions. If teachers have a preference for a particular teaching approach, they will have to make some adjustments since the use of this technology alters some traditional methodological principles. This process is more systematic. The steps to follow to carry out the exercises are based on identification-analysis. The computer will indicate any mistake the student makes when doing the exercises and will provide other chances to find the correct answers. (As seen in the flow chart: NO> return to previous exercise. Is the answer correct? YES> continue with exercise.)

Evaluation

No separate test is applied, but the computer will simultaneously evaluate the students' answers. The teacher will indicate how well or poorly the students are performing their task. If their answers are wrong, the computer will provide specific feedback.

FLOW CHART EXPLAINING CALIS WRITING MICRO-TEACHING SESSIONS ON COHERENCE

START

EXPLANATION ABOUT COHERENCE

EXERCISE - 1
READ THE ESSAY AND FIND THE INCOHERENT SENTENCE

IS THE ANSWER CORRECT?
NO
YES

EXERCISE - 2
CHOOSE THE SUITABLE ANSWER TO MAKE INCOHERENT SENTENCES COHERENT

IS THE ANSWER CORRECT?
NO
YES

EXPLANATION ABOUT PARALLEL PROGRESSION

EXERCISE - 3
IDENTIFY THE TOPIC OF INCOHERENT SENTENCES

IS THE ANSWER CORRECT?
NO
YES

DISPLAY ALL THE TOPICS FOR ALL THE SENTENCES LOOK AT THE TEXT

EXERCISE - 4
CHOOSE TOPIC TO MAKE PARALLEL PROGRESSION

IS THE ANSWER CORRECT?
NO
YES

DISPLAY THE WHOLE ESSAY COHERENTLY

STOP

COMPUTER ASSISTED LANGUAGE INSTRUCTION (CALIS) MINI-LESSON ESL/EFL MICRO-TEACHING LESSON ON COHERENCE THROUGH SENTENCES WHEN WRITING COMPOSITIONS

SCREEN #1

Coherence: A paragraph consists of a group of sentences that form a sequence of thoughts. When the relationship among your ideas is clear, the paragraph is said to be coherent. Within any paragraph body, certain signals help readers to follow the sequence of your ideas. When you write and when you revise, look for areas that seem choppy or unconnected—that lack coherence.

EXERCISE 1

Instructions: Read the following text carefully. Among its sentences there are some that are incoherent. You have noticed that each sentence has a number. Identify the incoherent sentences.

SCREEN #2

Essay (The following essay is taken from Lautamatti (1978:78) but has been altered by the author for the purpose of the CALIS exercise designed):

(1)   When a human infant is born into any community in any part of the world, it has two things in common with any other infant, provided neither of them has been damaged in any way either before or during birth.

(2)   Firstly, and most obviously, the human beings are completely helpless.

(3)   Apart from a powerful capacity to draw attention to their behavior, a child can ensure his own survival.

(4)   Without care from some other human being or beings, be it mother, grandmother, sister, nurse, or human group, everyone is very unlikely to survive.

(5) This behavior of cubs is in marked contrast with the capacity of many newborn animals to get to their feet within minutes of birth and run with the herd within a few hours.

(6) Although young animals are certainly at risk, sometimes for weeks or months after birth, compared with the human infant, they very quickly develop the capacity to fend for themselves.

(7) It would seem that this independence is the price that the human species has to pay for the very long period that fits man for survival as species.

(8) It is during this independence that makes a child dependent on others; that is the ability to learn a language.

(9) For this reason, biologists now suggest that speech is species specific to the human race, that is to say, they consider the human infant to be genetically programmed in such a way that it can acquire language.

(10) This suggestion implies that just as newborn boys are designed to see three-dimensionally and in color, and just as they are designed to stand upright rather than to move on all fours, so they are designed to learn and use language as part of their normal development as well-formed human beings.

Answers: Exercise 1

The incoherent sentences are: 3, 5, 7, 8, 10. If after repeated attempts, students cannot find the right answers, an indicated computer command will display them.

SCREEN #3
EXERCISE 2
Instructions: Modify the following incoherent sentences. Choose the best answer to make that sentence coherent according to the text.

(3) Apart from a powerful capacity to draw attention to their behavior, a child can ensure his own survival.

A.   Apart from that, a newborn child may die.
B.   Apart from a powerful capacity to draw attention to their helplessness by using sound, there is nothing the newborn child can do to ensure his own survival.
C.   Apart from that, a newborn child can be independent.

(5) This behavior of cubs is in marked contrast with the capacity of many newborn animals to get to their feet within minutes of birth and run with the herd within a few hours.

A.   This helplessness of cubs overcome in any way with the capacity of surviving with regard to many new born animals to get to their feet within minutes of birth and run with the herd within a few hours.
B.   This helplessness of new born animals is overcome by infants who can run within minutes of birth and run with the herd within a few hours.
C.   This helplessness of human infants is in marked contrast with the capacity of many new born animals to get to their feet within minutes of birth and run with the herd within a few hours.

(7) It would seem that this independence is the price that the human species has to pay for the very long period that fits man for survival as a species.

A.   It seems that freedom is the price that the human species has to pay for the very long period which helps man to live.
B.   It seems that loneliness is the price that the human species has to pay for the very long period which helps men to live.
C.   It would seem that this long period of vulnerability is the price that the human species has to pay for the very long period that fits man for survival as a species.

(8) It is during this independence that make a child dependent on others; that is the ability to learn a language.

A.   It is during this very long period in which the human infant is totally dependent on others that it reveals the second feature which it shares with all other undamaged human infants, a capacity to learn language.
B.   It is during this period of sadness that makes a child independent by learning a language.
C.   It is during this period of freedom that makes a child different from others, that is the ability to learn a language.

(10) This suggestion implies that just as newborn boys are designed to see three-dimensionally and in color, and just as they are designed to stand upright rather than to move on all fours, so they are designed to learn and use language as part of their normal development as well-formed human beings.

A.   This suggestion implies that just as human beings are designed to see three dimensionally and in color, and just as they are designed to stand upright rather than to move on all fours, so they are designed to learn and use language as part of their normal development as well-formed human beings.
B.   This suggestion implies that human beings are designed to stand upright rather than to move on four.
C.   This suggestion implies that human beings are designed to learn a language.

Answers: Exercise 2
     The coherent sentences are: B, C, C, A, A. If after repeated attempts, students cannot find the right answers, a computer command will display them.

SCREEN #4
EXERCISE 3

Instructions: A. Now you are going to analyze the same text (with all its incoherent sentences) according to its parallel progression with regard to the topics of each sentence. In parallel progression, the sentence topics are semantically identical. On the other hand, in sequential progression, the sentence topics are always different; the comment of the previous sentence becomes the topic of the next sentence and so on. So, the first kind of progression, such as repetition of a topic, is meant to reinforce the idea in the reader's mind. In the second kind, the sentence topics that are always different are typically derived from the comment of the previous sentence. Too much development of a sentence topic (if not the main idea of the essay) may distract the reader from the main idea.

B. From the following text, identify the topic of each sentence.

ESSAY:

(1)   When a human infant is born into any community in any part of the world, it has two things in common with any other infant, provided neither of them has been damaged in any way either before or during birth.

(2)   Firstly, and most obviously, the human beings are completely helpless.

(3)   Apart from a powerful capacity to draw attention to their behavior, a child can ensure his own survival.

(4)   Without care from some other human being or beings, be it mother, grandmother, sister, nurse, or human group, everyone is very unlikely to survive.

(5)   This behavior of cubs is in marked contrast with the capacity of many new born animals to get to their feet within minutes of birth and run with the herd within a few hours.

(6)   Although young animals are certainly at risk, sometimes for weeks or months after birth, compared with the human infant, they very quickly develop the capacity to fend for themselves.

(7)   It would seem that this independence is the price that the human species has to pay for the very long period that fits man for survival as a species.

(8)   It is during this independence that makes a child dependent on others; that is the ability to learn a language.

(9)   For this reason, biologists now suggest that speech is species specific to the human race, that is to say, they consider the human infant to be genetically programmed in such a way that it can acquire language.

(10) This suggestion implies that just as newborn boys are designed to see three-dimensionally and in color, and just as they are designed to stand upright rather than to move on all fours, so they are designed to learn and use language as part of their normal development as well-formed human beings.

When students answer correctly, the following numbered answers will appear on their screens. If not, they will be returned to try again, and if they still cannot, a computer command will display them.

Answers:

1.	a human infant	6.	young animals
2.	human beings	7.	this independence
3.	a child	8.	this independence
4.	everyone	9.	speech
5.	This behavior of cubs	10.	newborn boys

Question: Do these topics form a parallel progression from one topic sentence to another?

Answer: NO, after the topic of the sentence, there is no progression because the topics are either too general or do not correspond to the comment of the previous sentence.

SCREEN #5

(Here, the computer displays the essay again with its incoherent sentence topics.)

EXERCISE 4

Instructions: To form a parallel progression from one sentence to another one, modify the following topics of each sentence. Choose the topic that is the most related to the previous comment. Look at the essay.

1. A. a being
    B. a human infant
    C. man
2. A. newborn children
    B. a boy
    C. a girl
3. A. a little boy
    B. the newborn child
    C. mankind
4. A. a little girl
    B. a being
    C. a child
5. A. this helplessness
    B. independence
    C. freedom
6. A. wild animals
    B. domestic animals
    C. young animals
7. A. this period of freedom
    B. this long period of vulnerability
    C. this period cf anxiety
8. A. men
    B. the women
    C. the human infar.:

9.   A. language
     B. writing
     C. cooking
10. A. men
     B. women
     C. human beings

When students answer correctly, the following lettered answers will appear on their screens. If not, they will be returned to try again, and if they still cannot, a computer command will display them.

Answers: Exercise 4

The parallel progression topics are: B, A, B, C, A, C, B, C, A, C.

SCREEN #6

(The computer displays the coherent essay as a final result.)

(1) When a human infant is born into any community in any part of the world, it has two things in common with any other infant, provided neither of them has been damaged in any way either before or during birth.

(2) Firstly, and most obviously, the human beings are completely helpless.

(3) *Apart from a powerful capacity to draw attention to their helplessness by using sound, there is nothing the new born child can do to ensure his own survival.*

(4) Without care from some other human being or beings, be it mother, grandmother, sister, nurse, or human group, a child is very unlikely to survive.

(5) *This helplessness of human infants is in marked contrast with the capacity of many new born animals to get to their feet within minutes of birth and run with the herd within a few hours.*

(6) Although young animals are certainly at risk, sometimes for weeks or months after birth, compared with the human infant, they very quickly develop the capacity to fend for themselves.

(7) *It would seem that this long period of vulnerability is the price that the human species has to pay for the very long period which fits man for survival as a species.*

(8) *It is during this very long period in which the human infant is totally dependent on others that it reveals the second feature which it shares with all other undamaged human infants, a capacity to learn a language.*

(9) For this reason, biologists now suggest that speech is "species specific" to the human race, that is to say, they consider the human infant to be genetically programmed in such a way that it can acquire language.

(10) *This suggestion implies that just as human beings are designed to see three dimensionally and in color, and just as they are designed to stand upright rather than to move on all fours, so they are designed to learn and use language as part of their normal development as well-formed human beings.*

Conclusion

The Topical Structure Revision Technique has traditionally been taught by a teacher in charge of providing all necessary explanations concerning students' particular problems in writing coherent compositions. This technique has been applied as part of different investigations and there have been positive results provided by Enkvist when he asserts that this technique helps the students improve their writing and focus with a better idea of coherence in the development of subtopics.[10] The difference in the teaching of this technique in the above writing lesson is the use of a Computer Assisted

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10.   Lautamatti, editor's introduction.

Language Instruction System (CALIS). Teaching with this technique not only helps the students clarify the steps involved in the process of developing coherence in an essay, but also trains them to detect and analyze incoherent ideas from a text. Up to now, this kind of lesson has not been put into practice; however, results can be predicted to be positive since the contents and teaching principles involved are based on theoretical bases that have been proved to provide good results in students' writing. Other similar exercises can be designed and programmed to practice this writing component. The only constraint of that this type of program is that it cannot check coherence from any student's particular composition, as a teacher in a traditional class would do, but this CALIS lesson shows an accurate way to deal with the teaching of coherence under a different academic approach and encourages perspective as well as providing a positive learning experience.