The effect of differentiated instruction on the development of reading comprehension skills in EFL beginner students

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El efecto de la instrucción diferenciada sobre el desarrollo de las habilidades de comprensión de lectura en estudiantes principiantes de EFL

O efeito da instrução diferenciada no desenvolvimento de habilidades de compreensão de leitura em estudantes iniciantes da EFL

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Abstract
The purpose of this study was to investigate the effect of Differentiated Instruction (DI) on the development of reading skills in English as Foreign Language (EFL) beginner undergraduate students, as well as to evaluate their perceptions of the effectiveness of DI on reading lessons. The sample was made up of 69 Ecuadorian EFL learners, divided in two groups: 36 students who were part of the experimental group, and 33 from the control group. The research instruments were a diagnostic reading test, a Pre-test and a Post-test on reading comprehension skills, and an exit survey about students’ opinions about the use of DI in the EFL classroom. The research results showed that before intervention, in the diagnostic reading test, both groups had a low percentage of reading understanding, while the post-test results were significantly higher. Additionally, the students acknowledged the effectiveness of DI as a tool for teachers to meet the learners’ individual needs and interests, as well as a way to generate opportunities to develop reading abilities at a literal level. Students agreed that DI motivated them to read in English and boosted their self-confidence to do it aloud. Therefore, it can be said that DI is as an effective and motivating methodology that can be implemented in the EFL classroom for the development of reading comprehension skills.

Keywords: Differentiated instruction 1; reading skills 2; reading literacy 3; learning styles 4.

Resumen
El propósito de este estudio fue investigar el efecto de la Instrucción Diferenciada (DI) en el desarrollo de habilidades de lectura en estudiantes universitarios del nivel principiante de Inglés como Lengua Extranjera (EFL), así como evaluar sus percepciones sobre la efectividad de DI en las lecciones de lectura. La muestra estuvo compuesta de 69 estudiantes ecuatorianos de inglés como Lengua Extranjera, divididos en dos grupos: 36 estudiantes que formaban parte del grupo experimental y 33 del grupo de control. Los instrumentos de investigación fueron una prueba diagnóstica de lectura, una pre-prueba y una post-prueba sobre habilidades de comprensión lectora y una encuesta de salida sobre las opiniones de los estudiantes sobre el uso de DI en el aula. Los resultados de la investigación mostraron que antes de la intervención, en la prueba de diagnóstico de lectura, ambos grupos tenían porcentajes bajos de comprensión lectora, mientras que los resultados de la post-prueba fueron significativamente más altos. Adicionalmente, los estudiantes
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confirmaron la efectividad de DI como un instrumento que permite a los profesores alcanzar las necesidades individuales de los alumnos, tanto como generar oportunidades para desarrollar habilidades lectoras a nivel literal. Los estudiantes acordaron que la DI les motivó a leer en Inglés y aumentó su autoconfianza para hacerlo en voz alta. Por lo tanto, puede decirse que la DI es una metodología efectiva y motivadora que puede ser implementada para el desarrollo de habilidades de comprensión lectora.

Palabras Clave: Instrucción diferenciada 1; habilidades de lectura; aptitud lectora 3; estilos de aprendizaje 4.

Resumo

O objetivo deste estudo foi investigar o efeito da Instrução Diferenciada (DI) no desenvolvimento de habilidades de leitura em estudantes universitários do nível iniciante de Inglês como Língua Estrangeira (EFL), bem como avaliar suas percepções sobre a eficácia da DI em estudantes. lições de leitura A amostra foi composta por 69 estudantes equatorianos de inglês como língua estrangeira, divididos em dois grupos: 36 estudantes que fizeram parte do grupo experimental e 33 do grupo controle. Os instrumentos de pesquisa foram um teste diagnóstico de leitura, um pré-teste e um pós-teste sobre habilidades de compreensão de leitura e uma pesquisa de saída sobre as opiniões dos alunos sobre o uso de DI na sala de aula. Os resultados da investigação mostraram que antes da intervenção, no teste de leitura diagnóstica, os dois grupos apresentavam baixos percentuais de compreensão de leitura, enquanto os resultados do pós-teste eram significativamente maiores. Além disso, os alunos confirmaram a eficácia do DI como um instrumento que permite que os professores atendam às necessidades individuais dos alunos, além de gerar oportunidades para desenvolver habilidades de leitura no nível literal. Os alunos concordaram que o ID os motivou a ler em inglês e aumentaram sua autoconfiança para fazê-lo em voz alta. Portanto, pode-se dizer que o DI é uma metodologia eficaz e motivadora que pode ser implementada para o desenvolvimento de habilidades de compreensão de leitura.

Palavras Chave: Instrução diferenciada 1; habilidades de leitura; capacidade de leitura 3; estilos de aprendizagem 4.
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Introduction

One of the reasons why people live in poor conditions or are unemployed is the lack of formal education (Strauss, 2016). That is why literacy is essential for them to be competitive in the new globalized world, where many workers need to be trained adequately to hold a position in their companies. For years, developed countries have invested in Education and Health to respond to the new global skills. Speaking English and being proficient readers are examples of skills that could help people reach higher educative standards. For instance in Thailand, learning English has become an important issue (Doungphummes, N., & Chandransu, N., 2016). The Thai government has invested a lot in formal education; however, they have not obtained successful results from that (Hayes, 2014).

Another example of the importance of achieving good reading skills was found in The USA in 2017, when schools did not have the best performance in a reading skills evaluation among other countries. This fact worried the US Secretary of Education Betsy De Vos who declared that American students could not move ahead in school or in life if they were falling behind in reading. Amazingly, this developed country, which has the best technology and high economic development and advanced technological infrastructure, ranked in the last positions (Staff, 2017). Similarly, the Statistic Institute of UNESCO in 2017, after learning that most young learners and children in Latin America and the Caribbean do not have the basic reading skills to understand small paragraphs and get the main ideas from them, stated that not being able to read is another form of being illiterate these days.

Ecuador is another country that has had problems with reading literacy for a long time. During the last decades, most Ecuadorian high school students have demonstrated low reading abilities, not only in their mother tongue, but also in foreign languages. In 2012, the INEC (National institute of statistics and census) carried out a survey in reading habits in Ecuador, finding that 16 year old students and older have lack of interest in reading, and years later it was found that these results were similar to those of other Latin American countries that also participated in an International Evaluation on reading. Most students achieved the first reading level out of six, they were able to get the main idea, understand the text and make inferences in a basic level only (Herrera, 2018).
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At the Language Center of Universidad Técnica de Ambato, A1 level English teachers have detected an insufficient reading ability in their students. It seems that EFL learners hesitate when reading in English, and they are usually translating the text rather than reading it. Consequently, when they are asked to read aloud, they feel nervous and they make many pronunciation mistakes, as well.

Based on the results obtained in the midterm and final exams taken by the observed students, it could be argued that the reading skill has had the lowest scores. Therefore, students need to be instructed according to their specific language needs, pace, interest and learning profiles. The traditional approach one-size fits all does not seem to be adequate for students to be successful learners.

Since EFL beginner students may not have previously had plenty of reading practice, the reading abilities, such as comprehension, need to be supported and assisted by the teacher. Selecting the appropriate methodology is a key element in the teaching-learning process because it does not only shape the instructional mechanism, but it also creates the right classroom environment for students’ participation and interaction. It has to be kept in mind that foreign language teachers have been continuously adapting to new methods or approaches. One of the approaches with good results in teaching English as a foreign language (TEFL) is Differentiated Instruction, which is defined as the process where content, learning activities, assessment modes are adapted and accommodated according to the learner’s needs and interests (Thousand, Villa & Nevin, 2007).

Due to the characteristics of DI, this study intended to investigate its effect on the Development of Reading skills in EFL Beginner undergraduate students and evaluate their perceptions of the DI implementation on their reading lessons. In order to do that, an overview of the importance of DI and reading literacy will be provided, along with the methodology that led us to the findings and conclusions.
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**Theoretical Framework**

**Reading Skills**

La Reading skills involve understanding meaning from the written texts by decoding (transmitting print into speech); reading fluency (read with speed, accuracy and proper expression); vocabulary (understanding the meaning of a word) and comprehension skills (Whalon, K.I., Al Otaiba, S., & Delano, M.E. 2009).

Anderson (2009) says that fluency involves both: reading a text with speed, as well as to understand it. Folse (2010) points out those teachers may be the principal source of input for vocabulary acquisition through explicit instruction to develop students’ knowledge and automaticity to recognize words in the text; whereas, Solé (1998) states that comprehension at a literal level is usually practiced at lower levels. Learners take factual information directly from the text to understand its content. She highlights the importance of developing reading comprehension at a literal level in order to build the foundation for more advanced levels of comprehension in the near future.

**Reading Techniques**

Goodman (1970), as mentioned by Ching (2015), divided Second Language (SL) and Foreign Language (FL) reading strategies into two types of processing: bottom-up and top-down. In the EFL context, most teacher use the top – down reading technique. Other authors who talked about proven instructional techniques to improve reading comprehension are Duke and Pearson (2002) who proposed six SL/FL reading strategies: making predictions or activating prior knowledge, using think-aloud strategies to monitor comprehension, using text structures, using visual models including graphic organizers and imagery, summarizing, and questioning and answering questions while reading.

**Reading Stages**

One of the definitions of reading is the process of decoding written symbols, reading from smaller units, such as individual letters to larger units like words, clauses and sentences to understand the meaning of a text.
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Krashen (1987) and his theory of input hypothesis explain language acquisition through meaningful interaction and comprehensible input. According to this hypothesis, the learner improves and progresses along the natural order when they receive second language input that is one step beyond his/her current stage of linguistic competence. However, incomprehensible input cannot help to improve learner’s language (reading) proficiency.

Another important contribution in the topic was made by Brown (2001) who states that for intermediate or advance English classes, it may not be necessary to follow a three-part framework for teaching reading. However, Pre-reading, while reading, and Post reading procedures should be used from the very beginning level of reading.

In the pre-reading stage, students develop the skimming and scanning reading skills and also learn to predict and activate schemata. For learners, it is a very useful stage because it gives them the opportunity to ease the passage. On the second stage, the while-reading activities guide students through reading the passage and they may get engaged and try to understand and decode the message. Finally, the third stage is post-reading, which is considered the most important one because students share in this stage what they have learned and understood about the passage. Some of the activities suggested for this point are vocabulary study, identifying the author’s purpose, examining grammar structure, doing a writing or a speaking exercise (Brown, 2001).

**Differentiated instruction (DI)**

Tomlinson et al. (2003) define this new teaching approach as the type of instruction that matches students’ levels of interest, readiness, learning profile, and leaners’ needs. Since, DI is considered a learner-centered method, the teacher usually modifies their teaching to reach all the students and their learning differences in terms of teaching materials, instruction time, pace and interaction models, Roy et al.(2013). These authors highlighted important aspects related to DI. For instance, the importance of monitoring students’ work and instructional adaptations to obtain significant academic progress and that the DI approach must be proactive.

Another study about DI was carried out by Stavroula and Lefkios (2018), who observed teacher efficacy as a way to explain willingness to differentiate instruction. They concluded that thanks to the implementation of DI in the program, they obtained good results because that methodology
enabled teachers to meet students’ learning needs in an inclusionary classroom, which along professional development, is important to teachers.

Methodology
The type of investigation was quasi-experimental and intended to measure the effect of DI on the development of reading skills, as well as EFL beginner students’ perceptions of the effectiveness of this teaching approach.

There were two groups: one control group that had 33 students, and one experimental group with 36 students. Differentiated Instruction, which was the Independent variable, was manipulated and the reading skills development was the measured variable. A numerical scale was used, and the student’s t-test was applied to verify whether DI influences reading skills development of A1 level students in the Languages Center in Universidad Técnica de Ambato or not.

The research instruments applied in this study were a diagnostic reading test, a pre-test and a post-test on Reading skills performance and an exit survey on students’ perceptions of the effectiveness of the DI implementation on the reading skills development.

Data Analysis
Diagnostic test –Control Group
The diagnostic test consisted on two reading texts, which were divided into three parts. Part I evaluated skimming skills (5 items), asking about main and general ideas of the text. Part II evaluated scanning skills (10 items) with why-questions asking for details and facts. Part III evaluated the skill of making inferences (5 items), having students evaluate and give their opinion about the text. In total, there were a total of 20 reading comprehension items.

The results obtained from the first questionnaire are shown in the following graph:
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Figure 1. Results from control group in the reading diagnostic test

Source: Made by the authors, based on the results obtained in the Diagnostic test Semester October 2017-February 2018.

Analysis and Interpretation of results from the control group

The results showed that students from the control group obtained 30% in the questions for skimming, 20% in the questions for scanning and 14% of the readers were able to make inferences, which means that in general terms, most EFL beginners in this study were not able to read in English at a good reading level.

Diagnostic test – Experimental Group

The results obtained from the experimental group in the diagnostic test are shown in the following graph:
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**Figure 2.** Results from experimental group in the reading diagnostic test

![Graph showing results from experimental group in the reading diagnostic test](image)

Source: Made by the authors, based on the results obtained in the Diagnostic test Semester: October 2017 - February 2018.

**Analysis and Interpretation of results from the experimental group**

The results showed that students from the experimental group obtained 19% in skimming, 25% was registered in the scanning reading skill questions and 12% of the students observed were able to make inferences. This means that these students’ reading results showed to be poor.

**Data collection and calculation of statistics – Pre and Post Tests**

The results of the pre-test and post-test from both: the experimental and control groups were compared and analyzed.

The results obtained with statistical software are the following:
Student’s T-test results

Table N°1. Paired sample statistics – Experimental group.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Standard deviation</th>
<th>Standard error of mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Par 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test Total</td>
<td>7,286</td>
<td>36</td>
<td>1,0404</td>
<td>0,1734</td>
</tr>
<tr>
<td>Post-test Total</td>
<td>8,022</td>
<td>36</td>
<td>0,7997</td>
<td>0,1333</td>
</tr>
<tr>
<td>Differences</td>
<td>-0,7361</td>
<td>36</td>
<td>1,0472</td>
<td>0,17454</td>
</tr>
</tbody>
</table>

Source: made by the researchers based on the T-test results.

Then:

\[ t = \frac{\bar{x}_d}{S_d \sqrt{n}} \]

\[ t = \frac{-0,7361}{1,0472 \sqrt{36}} \]

\[ t = -4,218 \]

These results were also corroborated by statistical software, as it can be seen in the following table:

Table N° 2. Student’s t test to paired sample statistics.

<table>
<thead>
<tr>
<th></th>
<th>Paired differences</th>
<th>95% of difference interval of confidence</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard deviation</td>
<td>Standard error of the mean</td>
<td>Lower</td>
</tr>
<tr>
<td>Par 1 Pre-test Total - Post-test Total</td>
<td>-0,7361</td>
<td>1,0472</td>
<td>-1,0904</td>
</tr>
</tbody>
</table>

Source: made by the researchers based on the T-test results.
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The results obtained in the statistical analysis allowed the researchers to come to a conclusion with 35 degrees of freedom and with 0.05 of level of significance (α), p-value = 0.000166 which was lower than α = 0.05. Similarly, the calculated Student’s t was -4.218 which was lower than -2.0301 from the Student’s t-test distribution table. Therefore, it was in the rejection region, which means the null hypothesis is rejected and the alternative one was accepted, hence: Differentiated Instruction had an effect on Reading skills development of A1 level students in the Languages Center in Universidad Técnica de Ambato”.

Analysis and Interpretation – Students’ Exit Survey

Thirty 36 students from the Experimental group were asked to complete an exit survey to find out their perceptions about the effectiveness of Differentiated Instruction Intervention. They answered questions on an agreement or disagreement Likert scale, as follows:

<table>
<thead>
<tr>
<th>1 Strongly agree</th>
<th>2 Agree</th>
<th>3 Disagree</th>
<th>4 strongly disagree</th>
</tr>
</thead>
</table>


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Analysis of results from the exit survey used with the experimental group.

Example 1

Figure 3. A sample 6-point Likert scale for items requiring agreement or disagreement.

Source: made by the researchers from the exit survey used with the experimental group
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Example 2

Figure 4. A sample 6-point Likert scale for items requiring agreement or disagreement.

Analysis and Interpretation – Students’ Exit Survey

After the analysis of the results obtained in the exit survey used with the experimental group, it was found that the majority of learners found DI helpful in the development of English reading skills. A noticeable number of students agreed that they were motivated to read in English when they used a website provided as part of the DI strategies, and only one of the students did not like this type of material beneficial.

Another question was about reading in groups according to students’ learning styles, and the results here showed that the learners thought of this strategy as something that eases their understanding and fosters their learning. In fact, a large number of students found very positive to read in groups according to their reading ability.

In addition, many students enjoyed working under different modalities: peer reading, group reading, discussion groups, art groups and fluency groups that facilitated the development of reading comprehension. Indeed, a prominent number of students finally commented that they have improved their reading comprehension skills after the implementation of DI, none of them...
expressed that DI was not beneficial on the teaching-learning process, which was a very important finding in the study.

**Conclusions**

Podría For this study, DI was implemented into the reading lessons in A1 EFL level at the Language Center - Universidad Técnica de Ambato. This new teaching approach improved students’ reading comprehension skills by working in graded reading levels, fluency groups and pair-reading groups. After planning them, a variety of reading tasks were taught and used; for example: recalling facts, identifying the main idea of the text, supporting details, categorizing, outlining and summarizing information and predicting. Then, the group moved forward to reading aloud with appropriate intonation, and finally learners were able to have a pair discussion task where they asked about facts they learned or they liked, while they were being evaluated by their peers verbally or in a written form.

Furthermore, it was easy to see that reading graded texts according to their reading abilities was helpful for students, particularly to develop reading comprehension skills, increase their motivation and incorporate new vocabulary. Along, informal evaluation was incorporated in the study to continuously develop and reinforce reading skills. After reading the texts, students were able to demonstrate their understanding by interacting in pair discussion, drawing pictures or writing a summary of main events, facts or ideas they enjoyed or learned.

Finally, this study also relied on students’ perceptions on the effectiveness of DI on the development of Reading Comprehension skills to prove that this approach is student-centered, encourages group interaction and learning, and increases student’s motivation.

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