Discovery strategies in english listening skills based on the use of technological devices.

Estrategias de descubrimiento en las habilidades auditivas en inglés basadas en el uso de dispositivos tecnológicos.

Abstract

In the field of English language teaching, the aim is to promote the discovery strategy, which seeks to improve listening skills in English, by providing the ability to distinguish the sound and the word in a more autonomous way, in addition, it allows it to be an active process where the listener uses his linguistic and contextual knowledge to achieve the understanding of the message motivated by the use of technological devices. Therefore, the objective of the study was to know the support of the discovery strategy in the listening ability of the English language by the use of technological devices in high school students. With a mixed approach, with a correlational type of research and a quasi-experimental design. For the study population, the students of the Glenn Doman Educational Unit were considered, under a non-probabilistic sampling by convenience, 56 students of the tenth year of basic education of the city of Ambato were selected. Subsequently, two groups were formed, a control group and an experimental group, with the same number of participants (28). As an instrument, the standardized PET test level B1 of English was applied to both groups to identify the level of listening comprehension of the English language in these students. The research consisted of applying the discovery strategy for two days a week for two months, while the control group continued with the traditional method. The research showed that the discovery strategy positively influences the students' listening skills. Finally, the development of aspects such as the recognition of words, phrases, or stories, as well as the comprehension and ability to make inferences when unfamiliar terms are used was evidenced.
Keywords: Learning; Discovery strategy, Listening skills, English language

Resumen

En el campo de la enseñanza del inglés se busca promover la estrategia del descubrimiento, la cual pretende mejorar las habilidades auditivas en inglés, al proporcionar la capacidad de distinguir el sonido y la palabra de manera más autónoma, además, permite que sea un proceso activo donde el oyente usa su conocimiento lingüístico y contextual para lograr la comprensión del mensaje motivados por el uso de dispositivos tecnológicos. Es por ello, el objetivo de estudio fue conocer el apoyo de la estrategia de descubrimiento en la habilidad de escucha del idioma inglés por el uso de los dispositivos tecnológicos en estudiantes de secundaria. Con un enfoque mixto, con un tipo de investigación correlacional y con un diseño cuasi-experimental. Para la población de estudio se consideró a los estudiantes de la Unidad Educativa Glenn Doman, bajo un muestreo no probabilístico por conveniencia se seleccionó a 56 estudiantes del décimo año de educación básica de la ciudad de Ambato. Posteriormente, se conformaron dos grupos uno de control y otro experimental, con el mismo número de participantes (28) como instrumento se aplicó la prueba PET standarizada nivel B1 de inglés a ambos grupos con el fin de identificar el nivel de comprensión auditiva del idioma inglés en estos estudiantes. La investigación consistió en aplicar la estrategia de descubrimiento por dos días a la semana en dos meses, mientras que, el grupo de control continuó con el método tradicional. La investigación demostró que la estrategia de descubrimiento influye positivamente en la capacidad de escucha de los estudiantes. Finalmente, se evidenció el desarrollo de aspectos, como el reconocimiento de palabras, frases o cuentos, así como también, la comprensión y capacidad para hacer inferencias cuando se utilizan términos desconocidos.

Palabras clave: Aprendizaje; Estrategia de descubrimiento, Habilidad de escucha, Idioma inglés.

1. Introduction

In recent years, the importance of English language learning has become evident especially in educational institutions. Currently, it is known that the English language is a significant asset of knowledge (Colcha et al., 2019). English began decades ago a process of expansion adhering to the phenomenon known worldwide as globalization.

In the process of teaching and learning English, the teacher and the student represent two of the most important elements, on which will depend to a great extent the correct or bad development of this process that has as its primary objective the communicative purpose (Beltrán, 2017). These two components play a fundamental role, one depends on the other, and when one of them does not fulfill its function correctly, the teaching-learning process does not achieve the expected results.

The relevance of learning foreign languages, particularly in these times, is indisputable, for the learning of other languages becomes a growing trend, marking the
evident importance of fostering bilingual education (López, 2020). Therefore, its learning constitute a priority from the primary levels of education, reaching the peak of higher education, where their knowledge and qualities in the different aspects of listening, expression, and interpretation should be elevated. (Chávez et al., 2017).

The essential task of English teachers is to provide students with the possibility of developing communicative tasks that promote language proficiency. However, the activities used do not always integrate the four language skills or focus more on the development of writing and reading comprehension than on oral production and listening comprehension.

Learning English is done by different methods and techniques, which allow a communicative teaching to transmit knowledge and teach grammar, vocabulary, oral expression, listening, reading, and writing, to improve communication skills through techniques in which the teacher acts as a facilitator in the classroom while encouraging students to use the English language as much time as possible (Macías, 2017).

With this group, the typology of teaching-learning strategies used and directed to the development of motivation must be aimed at helping the students so that they can overcome different obstacles in the learning process. It is essential to reinforce them to maintain their attention, mainly by giving meaning to the act of learning from experience and its projection in everyday life. Therefore, the objective of the study was to know the support of the discovery strategy in the listening skill of the English language using technological devices in high school students.

Education is the means that make possible the development of individuals, improves their morale, intellectual, and physical faculties. Education does not create faculties in the learner but favors their development. In the educational field, different methods are considered to favor different types of learning, depending on the theory that is considered as a foundation, the differentiation of the types of learning, considers different processes: repetitive or rote learning, and meaningful learning, either by reception or by discovery. (Rodas & Rodas, 2021).

According to the cognitive theories of learning, the task of the educator is to promote meaningful learning among students, associated with higher levels of understanding of information and to be more resistant to forgetting. In this aspect, the role of the teacher is to help transform the thinking schemes, allowing the citizen to acquire a set of basic competencies, such as the ability to give an opinion, participate, cooperate, criticize, create and produce intellectually. (Arias & Oblitas, 2014).

Guided discovery teaching procedures involve providing students with opportunities to actively manipulate objects and transform them by direct action, as well as activities to search, explore and analyze. These opportunities not only increase students’ knowledge of the topic but also stimulate their curiosity and help them develop strategies for learning, discovering knowledge in other situations. (Molina, 2020). Considering that there is no real understanding until the student applies that knowledge in other situations, learning involves describing and interpreting the situation, establishing relationships between relevant factors, selecting, applying rules, methods, and constructing their conclusions.

Discovery learning activities being open-ended and self-directed are inherently learner-centered, promote autonomy, and have substantial transfer potential, as learners
practice and develop routines for analyzing corpus data that will undoubtedly also be useful in their profession (Bernardini, 2016). While autonomy and learner-centeredness are widely recognized as valuable in Second language learning, they are especially important for learners. Many years of language teaching may have instilled in these learners the (usually misleading) assumption that they do not need more language skills; at the same time, they make it difficult for teachers to identify common areas that all learners in a class should work on (Sayukti, 2018).

In such a sense, discovery learning is an inductive process aimed at favoring the perception of patterns, i.e., correlations between form and meaning in language performance, or preferred ways of expressing things (Eskandari, 2016). The discovery strategy is important because it helps to improve auditory skills by providing the ability to distinguish sound and word that is more autonomous by having students decrease cognitive procedures by increasing meanings.

Methods such as discovery strategies that are becoming increasingly relevant for the teaching of foreign languages are those supported by alternative didactic strategies and ICT. In this sense, those that advocate globalized learning and language learning in a community can be referred to (Ricoy & Alvarez, 2016). In these, the inclusion of external stimuli, which incorporate playful components linked to everyday life, as well as the combination of innovative didactic resources, contribute to improving interest in the language to be acquired.

Listening comprehension is the most important skill to develop in English as a foreign language classroom. Its development precedes speaking, reading comprehension, and writing, (García & Bravo, 2018). It refers to the process of understanding spoken language, moreover, listening comprehension involves more than simply perceiving sounds and becomes a process that requires paying attention to aspects of discourse and understanding a message. (Yilorm et al., 2019). Each individual listens differently and, therefore, several sub-skills depend on the reason or purpose for listening. These sub-skills include listening for gist, listening for specific information, listening for details, intensive listening, and extensive listening. (Martínez et al., 2020).

In recent years, a new approach to teaching listening comprehension has been introduced, a method for improving listening skills by having students discover and then prioritize their listening difficulties. This approach is known as Discovery Listening. The task in discovery listening has three phases: listening, reconstructing, and discovering. The listening phase has 3 stages: first, learners just listen to a short text spoken at normal speed; then, they self-assess their level of comprehension after listening; and finally, they listen twice more and take notes (Marzban & Isazadeh, 2012).

In the reconstruction phase, listeners should form small groups use their notes, and try to reconstruct the original text together. The discovery phase has 3 stages: first, learners compare their reconstructed text with the original and try to classify the reasons for their errors; then, they evaluate the relative importance of their errors; and finally, they listen again without reading the text, and evaluate their performance. This phase takes students a step further than traditional microlensing when they compare their recreated listening text with the original and try to classify their errors in some categories provided...
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The text in discovery listening must be graded because, with ungraded listening text, listeners will be forced to use top-down contextual guessing (Hartiningsari, 2018).

2. Methodology

The present research had a mixed approach. (Hernández-Sampieri & Mendoza, 2018), both qualitative and quantitative approaches were maintained because numerical and statistical processing of the data obtained is maintained, similarly, the qualitative approach was used to interpret the data and describe the proposed research variables. In addition, the study had a correlational type of research, because a pre-test and post-test of the data presented were related, and finally, it worked with a quasi-experimental design, since it is intended to find out if the discovery strategy influences a variable of interest (listening ability).

For the study population, the students of the Glenn Doman Educational Unit were considered, under a non-probabilistic sampling by convenience, 56 students of the tenth year of basic education of the city of Ambato were selected. Subsequently, two groups were formed, a control group and an experimental group, with the same number of participants (28 in each group).

As an instrument, the standardized PET test level B1 of English was applied to both groups to identify the level of listening comprehension of the English language in these students. The PET test evaluates the four skills, oral comprehension, reading comprehension, written expression, and oral expression. After the application of the test, the research consisted of applying the discovery strategy for two days a week for two months to the experimental group, while the control group continued with the traditional method.

After applying the discovery technique for two months, students took a new PET test of similar difficulty, and their scores were recorded in both the control and experimental groups. Finally, the results of the assessment regarding the development of listening skills in both groups were compared to check the level of progress achieved after the implementation of the discovery strategy.

The information from the field study was reviewed, classified, and processed through the SPSS version 25 statistical software, where the initial (pretest) and final (post-test) evaluative data of both groups were entered, establishing descriptive statistics for each student analyzed and for each group, in addition, the Wilcoxon test was applied for a comparison of the pre and post-test, so it was not necessary to apply a multivariate normality test on the data, a p value of 0.01 lower than 0.05 was obtained.

3. Results

To respond to the present study, it was necessary to compare the results obtained between the experimental group and the control group, thus evidencing the effect that the application of the strategy had on the students and their listening skills. Therefore, according to the results of the PET test, the students of the control group had an initial performance considered as regular in 53% of the students, 29% had a good performance and 18% had a
bad performance, understanding that the pretest had a standard deviation of 0.685. In this sense, after the application of the discovery strategy, the reduction of students from poor performance to 14% was noticeable, in addition, a clear increase to 61% of students with a regular performance was evidenced, therefore, the standard deviation of the post-test was 0.713.

In the case of the experimental group, it was identified that 52% in the initial PET test had a regular level in the auditory skill, on the other hand, 35% maintained a good performance level, 10% had a poor level and finally, 3% maintained a very good level, thus obtaining a standard deviation of 0.629 in the pretest. After the application of the discovery strategy, the level improved considerably in all students, since 50% went from a regular level to a good level, in the very good level there was an increase from 3% to 29% and 3% maintained an excellent level, in this sense, the post-test increased to 0.772.

Table 1. Descriptive statistics control and experimental group (Pretest and Post-test)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Media</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRETEST CONTROL GROUP</td>
<td>28</td>
<td>2.11</td>
<td>0.685</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>PRETEST EXPERIMENTAL GROUP</td>
<td>28</td>
<td>2.11</td>
<td>0.629</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>POST CONTROL GROUP</td>
<td>28</td>
<td>2.29</td>
<td>0.713</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>POST EXPERIMENTAL GROUP</td>
<td>28</td>
<td>3.18</td>
<td>0.772</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Own elaboration

In Table 2 and Table 3, the Wilcoxon statistical method was applied to analyze the effects of the use of discovery strategies and listening skills. In the control group, a comparison was made between the pre-and post-test where a bilateral significance of 0.025 was obtained; on the other hand, in the experimental group between the pre-and post-test, a significance of 0.000 was reached.

By performing a non-parametric analysis that statistically compares the average of two dependent samples as was the case of the pre and post-test of the control and experimental groups. Significant differences were evaluated, in that both the control group and the experimental group improved their listening skills, however, in the experimental group there was an improvement with a higher degree of significance.

Table 2. Ranges control and experimental group (Pretest and Post-test)

<table>
<thead>
<tr>
<th>Ranges</th>
<th>N</th>
<th>Average range</th>
<th>Sum of ranks</th>
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<tbody>
<tr>
<td>POST CONTROL GROUP - PRETEST CONTROL GROUP</td>
<td>Negative ranges</td>
<td>0 a</td>
<td>0.00</td>
</tr>
<tr>
<td>Positive ranges</td>
<td>5 b</td>
<td>3.00</td>
<td>15.00</td>
</tr>
<tr>
<td>Ties</td>
<td>23</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>POST EXPERIMENTAL GROUP - PRETEST EXPERIMENTAL GROUP</td>
<td>Negative ranges</td>
<td>0 d</td>
<td>0.00</td>
</tr>
<tr>
<td>Positive ranges</td>
<td>27 e</td>
<td>14.00</td>
<td>378.00</td>
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<tr>
<td>Ties</td>
<td>1 f</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

Source: Own elaboration
4. Discussion

The different approaches and methods of language teaching have evolved throughout history not only in relation to the conception of the language and its learning, but also changes have been produced in the role they have the participants in this process and their needs (Lucas, 2020). The discovery strategy of the present study focused on pedagogy that exposes students to various situations, these questions or tasks that let them discover the intended concepts or materials for themselves. Learning occurred when learners build an understanding of newly discovered information by associating it with prior knowledge in an organized and systematic way. Within this context, the discovery strategy is defined as the exploration based on an authentic problem using processes and tools of this discipline, it has been recommended as a didactic means by the main scientific education organizations (Recino et al., 2014).

The systematization of exercises and didactic situations implies, therefore, a path of critical interpretation of one or several possibilities of didactic realities that, from their rediscovery and revaluation (Bravo & Vigueras, 2021). Coinciding with the above, this research explains and argues the practice in classroom didactics in particular and training in general, the factors that have participated in this process, how they have interacted with each other, and why it has developed in this way. In this systematization, diverse sensations and perceptions are evidenced that make it possible to discover the development of auditory skills.

The construction of knowledge in the experimental group occurred through the transformation, organization and reorganization of prior knowledge and information. Therefore, the students did not come to class empty-headed, they had ideas about the physical and natural world; they possess concepts of space, time, quantity and causality; they learn best when they make discoveries, reflect on them and discuss them. In this sense, it coincides with the opinion of Ortiz (2015), which describes that at the level of thought, constructivism consists of reviewing, developing and reinforcing cognitive structures in light of their levels of simplicity and complexity, in such a way that accommodation between prior knowledge and new knowledge is achieved. Thus, the student will be exposed to learning by discovery, experimentation and manipulation of concrete realities.

The teaching-learning process of listening comprehension as a skill was favored with the introduction of more significant activities for students (Martínez et al., 2020). Students must be made aware that they are an active part in the process, that learning takes place not

<table>
<thead>
<tr>
<th>Test statistic</th>
<th>POST CONTROL GROUP - PRETEST</th>
<th>POST EXPERIMENTAL GROUP - PRETEST</th>
</tr>
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<tbody>
<tr>
<td>Z</td>
<td>-2.236&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-4.973&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Asymptotic sign (bilateral)</td>
<td>0.25</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<sup>a</sup> Wilcoxon signed-rank test
<sup>b</sup> It is based on negative ranges.

Source: Own elaboration
only when they carry out different didactic activities proposed by the teacher, but also when they themselves interact in the classroom or propose activities that promote communication and the actual use of language (García & Bravo, 2018). As established, both the control group and the experimental group were considered, in the case of the English language, communication skills were addressed as the main parameter in the development of listening skills.

Listening comprehension plays a central and predominant role in the language learning process (Abreus & Carballosa, 2014). In this sense, production precedes the learning of a language and there can be no production unless the linguistic stimulus is given and this, in turn, becomes comprehensible material for the person who listens (López et al., 2021). It was possible to verify the acceptance and appropriation of the change in the experimental group. Teachers and students participated and were subject to improvements so that their impact was significant, capable of adopting, adapting, generating innovations and identifying improvements, setting new goals and using strategies, methods, procedures and actions, which expresses the effectiveness of the proposal in scientific research.

A foreign language learner has a set of stored concepts that she puts into practice when she produces an oral or written text. This set of concepts is not static, but is perfected as more information about the language is received (Arévalo, 2019). Therefore, the most relevant result of this study is undoubtedly reflected in the increase in communicative competence in students' listening comprehension.

5. Conclusions and recommendations

It was determined that the use of the strategy favors the development of the listening skill, and it was also evidenced by the improvement in considerable representations in the students who were part of the research with the use of the discovery strategy, which proved the effect that the strategy has on learning. Therefore, it is affirmed that the application of the discovery strategy does favor the improvement of listening skills. After the application, the improvement in auditory skills was evident, due to the ability to recognize words, phrases, and short texts directly or according to the context that is handled.

Knowing that the ability to listen in English language learning is a constant and active process, in which the listener applies both linguistic and contextual knowledge to understand the message to be transmitted, in this sense, this supports the learning process with the use of attractive and dynamic strategies such as discovery strategies. In this sense, by working with the implementation of discovery strategies, the student improved his listening skills in some cases, and in others, he improved, and as a consequence, the development of other skills such as receptive and productive skills was achieved.

Based on the above, it is recommended that language teachers apply active learning strategies aimed at improving listening skills at different educational levels. It is suggested to carry out future studies in which the discovery strategy is applied to the four skills: listening comprehension, reading comprehension, written expression, and oral expression.

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