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Sistematización teórica del aprendizaje visible y su influencia en el proceso de enseñanza y aprendizaje de los estudiantes de la Maestría en Gestión Educativa de la UEES

Theoretical systematization of visible learning and its influence on the teaching and learning process of the Master of Arts in Educational Management students at the UEES

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RESUMEN

El objetivo de los procesos de enseñanza y aprendizaje es que el alumno alcance la fase de transferencia de conocimientos, en la que pueda trasladar a otros lo aprendido en el aula. Sin embargo, para que el alumno alcance la meta, es necesario empezar por el principio, lo que implica comenzar con el aprendizaje visible. El aprendizaje visible es el enfoque directo para alcanzar nuevos conocimientos y es necesario para pasar a la fase de aprendizaje profundo.

Para este proceso se utilizaron varios métodos científicos, como la sistematización teórica, el análisis y la síntesis, y la revisión bibliográfica, teniendo en cuenta que se trata de una investigación de revisión académica.

Los estudiantes deben poder encontrar un profesor con el que puedan desarrollar una relación estrecha y dinámica, que conozca lo que enseña y cómo lo enseña, y que pueda evaluar el impacto que sus prácticas tienen en el aprendizaje visible y profundo de sus alumnos. Este artículo pretende proporcionar a los profesores los principales fundamentos teóricos y metodológicos y la sistematización de estrategias para medir este impacto y ajustar su evolución para conseguir mejores resultados científicos y académicos.

Palabras clave: aprendizaje visible, sistematización teórica, proceso de enseñanza y aprendizaje, aprendizaje profundo, nueva pedagogía

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Descargar para Mendeley y Zotero

ABSTRACT

The goal of the teaching and learning processes is that the student reaches the knowledge transfer phase, in which they can transfer to others what they learned in the classroom. However, for the student to reach the goal, it is necessary to start from the beginning, which implies starting with visible learning. Visible learning is the direct approach to achieving new knowledge and is necessary to move to the stage of deep learning.

Several scientific methods were used for this process, such as theoretical systematization, analysis and synthesis, and the literature review considering this is an academic review investigation.

Students should be able to find a teacher with whom they can develop a close and dynamic relationship, who knows what they teach and how to teach it, and who can evaluate the impact that their practices have on their students' visible and deep learning. This article aims to provide teachers with the main theoretical and methodological foundations and the systematization of strategies to measure this impact and adjust its evolution to achieve better scientific and academic results.

Key words: visible learning, theoretical systematization, teaching and learning process, deep learning, new pedagogy

Introduction

The term 'visible' relates to making student learning visible to teachers to know if teachers impact their students' learning processes. Subsequently, it also refers to making teaching visible to students to become their own teachers. In that process, they become students who learn for life. The 'learning' part of visible learning is the need to consider teaching primarily in its impact on student learning.

Hattie developed more than 800 meta-analyzes (a method that combines results from different studies to identify patterns) of 50,000 research articles and approximately 240 million students. The most important finding from this research was that almost any intervention could be said to work. Furthermore, almost every intervention had an effect size above zero, which means that any intervention positively affected achievement. However, if every intervention had any effect on achievement, all we need to implement is more than what we are already doing, then all we need is more money, more resources, more teachers, and all our problems will be resolved. However, this is not going to solve the problems in education. Instead, we should implement those interventions that improve student achievement (Andersen, 2018).

Additionally, Hattie cautions the reader to be careful when interpreting the overall effect of effect sizes. He urges readers to read the explanatory dialogues and not just look for the interventions with the most significant effect sizes. For example, the average global effect size between homework and achievement is d = 0.40, but if the discussion is read carefully, it will be seen that the effect of homework is higher among high school students is (d = 0.50), perhaps because they have better study habits than primary school students (d = -0.08). Indeed, instead of not doing homework (because many parents reject them), some schools in New Zealand shifted their focus to homework, introducing a website called "Challenges at home" and evaluating the effects of this new change on motivation and achievement among students. When schools assess the impact of what they can do about their students' learning, this is visual learning (Dajani, 2016).

When learning is visible, the teacher knows whether the students are learning or not. Likewise, when both the teacher and the student work together to achieve that goal, provide feedback and make sure that the student has reached the goal. The evidence shows us that the most remarkable effects on student learning occur, not only when students teach themselves through self-monitoring and self-evaluation but when teachers become learners of their own teaching. In successful classrooms, both teaching and learning are visible (Golding, 2011).

Teachers must see themselves as evaluators of its effect on students. A constant goal should be the search for interventions and actions that positively affect their students. Teachers should be vigilant and see what is working and not in their classroom. So, with this evidence, teachers must use every possible resource to move students from where they currently are, to where they think they should be. Teachers must develop a conceptual framework to see that evaluating its effect on learning is their central role (Perkins, 2020).

Prieto-Lopez and Ayala-Pazmino (2021) confirmed the concept that as educators, we often overemphasize the reasons why students cannot learn: it is due to their backgrounds, their lack of motivation, their learning styles, their inattention, and the lack of support from their parents. Variance in learning outcomes can be attributed to students, but the underlying premise of this reflection deficit is that educators cannot change students. However, we must consider ourselves as agents of change. Hattie (2018) argues that the convictions and commitments of teachers are the most significant influence on a student's achievement, and over this, we can have some control.

Rirchhart (2015) states that a vital aspect of the learning process is the feedback from teachers to students and vice-versa. In the first scenario,

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it is essential to distinguish between feedback and praise. Feedback loses its importance when it is not associated with the work that has been done. Feedback is more influential and must be individualized. On the other hand, the teacher's feedback is also precious to improve their practices and performance. The teacher-student relationship also has a significant impact. The development of a warm socio-emotional climate in the classroom promotes the involvement of all students.

Perkins (2020) explains that from a young age, children must be immersed in a culture of visible learning so that when they become young people and adults, they can be attentive and cope with complex situations. In addition, they must develop skills such as organizing their time, establishing good study routines, and linking new knowledge with previous ideas and concepts.

Research conducted by the Project Zero team at Harvard University in 2018 establishes that most people have undeveloped visible thinking and learning skills, attitudes, and alerts. They are passive and indifferent to circumstances that stimulate thought, and they are insensitive to signals that invite reflection; they do not cultivate attitudes of deep thought, such as: questioning the evidence, going beyond the obvious, seeing the hidden side of the situations, thinking differently and take advantage of all opportunities that provoke reflection (Peterson, 2021).

We have made a theoretical systematization and given valuable tips to make learning more visible and profound in a classroom.

Expert teachers (ET) must identify meaningful ways to present their subjects. Research in visible learning shows that knowledge of the subject held by a teacher does not improve student performance. However, expert teachers differ in how they organize and use that knowledge. They know how to introduce the new knowledge to integrate with students' prior knowledge. They can relate new lessons to other subjects and adapt lessons according to student needs. Because of the perspective, they approach teaching, they have a great assortment of strategies to help their students and are better at predicting when students make mistakes and how to respond when they do. ET looks for evidence of who is not learning, not progressing, and how they solve problems by adapting their teaching.

ET creates the optimal learning environment in their classrooms. The best climate for learning is one where there is trust. Students generally do not like to make mistakes for fear of negative feedback from their peers. Expert teachers create classrooms where mistakes are welcome, and learning is meaningful.

ET monitors learning because they know that a typical class never goes as planned. They see their students' progress as feedback about their teaching effects. ET should often collect information to find out who is not understanding.

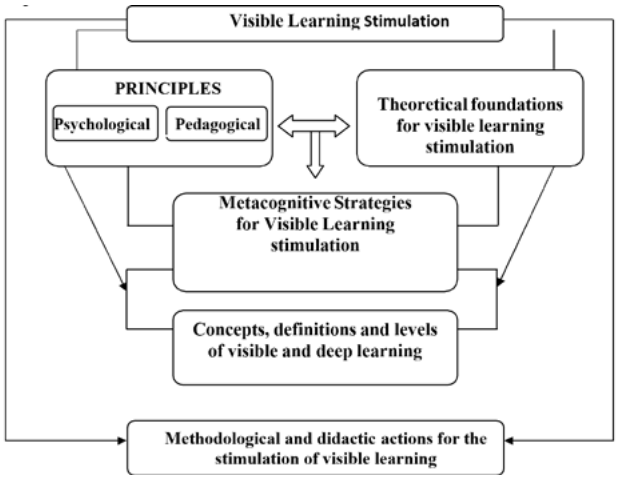
ET believes that all students can meet the criterion of success as they believe that intelligence is modifiable and not fixed. This means that they not only have high respect for their students, but they demonstrate a true passion that all students can succeed. While passion can be challenging to quantify, students undoubtedly know whether their teachers display that passion. In a study conducted among students, more than 3,000 teachers were evaluated, and overwhelmingly students affirmed that the teachers with the most passion were those with the most significant increases in achievement among their students (Ritchhart, 2015).

ET influences a wide range of their students' results, not just their test results. In general, ET positively influences their students' results, and they are not confined to improving their test results. ET influence their students in a wide range of ways: they encourage their students to stay in school, helping them develop a deep and conceptual understanding, guide them to use multiple learning strategies, motivate them to innovate in their learning, helping them develop respect for themselves and others, and helping them develop as active citizens who participate

in our world.

Figure 1

Visible learning stimulation



Note: Research contributions built by (Prieto-Lopez & Ayala-Pazmino, 2021)

We consider Marzano and Heflebower's (2010) contributions valuable when discussing that one of the arguments in "Visible Learning" is to concentrate on what works and when. Regarding the metacognitive strategies for initial learning until reaching full and deep learning, they would highlight the following:

a) Read a lot because this way, students assimilate or internalize concepts and vocabulary. However, vocabulary instruction can only go so far, and for students to advance to the next level, they must use the words. This means that teachers need to have collaborative conversations to reach visible and deep learning skills.

b) Teach students how to take notes.

For deep level learning, we need other types of didactic metacognitive strategies contributed by Prieto-Lopez and Ayala-Pazmino (2021):

1- Graphic organizers and concept maps are top-rated. However, these do not work well initially because information cannot be organized if the concepts are unclear.

2- Study skills, which could involve, for example, the student putting a post-it on their computer with a note reminding them that there is "a Research Methodology lesson for a certain day, e.g., Friday" so that they study on Monday, Tuesday and Wednesday and do not try to cover the whole subject on Thursday evening.

3- Self-questioning causes the student to ask questions as they study.

Furthermore, for transfer learning, we highlight the importance of the following strategies provided by Prieto-Lopez and Ayala-Pazmino (2021) as authors of this scientific article:

1) Read various documents, organize ideas, understand them, and form opinions.

2) Peer tutoring: a student teaches another student as we have already applied in Research Methodology, and it is systematized and consolidated in the Degree Module.

3) Problem-based learning, research projects, and inquiry-based learning (the latter contributed by Prieto-Lopez and Ayala-Pazmino) (2021).

We must know a lot to apply these transfer learning strategies. In the example of reading multiple documents we mentioned, we must think about all the initial and deep learning that students must get to read three or five documents, decipher what they think about those texts, and the argument of those texts is.

In this research, the contributions of Daniel Wilson (director of Project Zero, Harvard University) are considered of great value when talking about problem-based learning, which is an excellent transfer strategy. However, what is the difference between deep and transfer learning? Because if one has deep knowledge, one should be able to pass it on or transfer it.

It could be possible. If a profound learning event involves an emotional response, it may be something that we will remember for a long time. However, this does not mean that one knows how to use that skill if the context,

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environment, or setting changes.

Regarding transfer learning, how can the teacher help students, after reading several documents, to organize their ideas and create an opinion? An ET begins by teaching and training communicative and investigative competencies in all subjects with an interdisciplinary approach.

We consider in this scientific article that teachers should know what the initial knowledge is and accurately ensure the preconditions required by their students and the most effective ways for them to learn in Research and Degree Methodology classes. The same is true in deep learning, what students should know at that level and the strategies to achieve it.

Ultimately, we propose that we must be more precise in selecting strategies.

Results

For the analysis of the research results (see tables in the appendix 1, prepared on the Likert Scale survey), the opinions of 30 Master's Degree in Educational Management of the UEES students were considered a sample, in the subjects of Research and Degree Methodology Module, of a population of 44 students. The strategies used by teachers in the subjects mentioned above facilitate their educational work to carry out research, essays, work, homework, tutorials, reports, and study to stimulate visible and deep learning. 87% of the surveyed students believe that the teacher always uses the tools and strategies in classes and tutorials to facilitate their work and development of deep learning, while 10% state that almost always and 3% never use them (See table 1).

The students consider that it is inevitable that teachers use technological, innovative skills that stimulate the development of complete and deep learning to achieve the desired educational quality, in addition to the influence of the teacher in the application of various and motivating activities, as part of the teaching and learning process.

According to the survey applied on the Likert scale to the students who take the Research and Degree Methodology subjects, 94% of the students believe that the teachers always use didactic strategies, different class variants, and comment on written works, while 3% consider that almost always and 3% that rarely (See table 2).

Students consider that the appropriate use of technological resources combined with various didactic and pedagogical strategies in the classroom helps considerably develop and stimulate visible and deep learning through different evaluation forms. According to their answers, 84% indicate that always, 10% almost always, 3% seldom, and 3% sometimes and will positively benefit students' performance and scientific and academic production in Research and Degree Methodology (See table 3).

The students proposed varied activities to stimulate visible learning by ensuring the preconditions, in this sense, 74 % always, 19 % constantly, and 7 % sometimes (See table 4). Regarding using technological resources in virtual classes, 80% stated that the teacher always uses them, 14% almost always, 3% sometimes, and 3% rarely (See Table 5).

One of the essential aspects of stimulating visible and deep learning in students is undoubtedly the permanent and systematic reading of scientific articles. In this sense, 84% stated that the teacher always uses it as a valuable tool, 10% almost always, 3% constantly, and finally 3% seldom (See table 6). Regarding the construction of concept maps, 68% of the students stated that the teacher constantly stimulates their use, and 32% almost always (See table 7). Regarding using different technological tools to stimulate visible learning, one of the most accepted was the Quizizz surveys and graphic organizers (See Table 8).

The application of observation guides for content treatment such as scientific problems, hypotheses, and objectives was highly accepted by the students in Research and Degree Methodology. 94 % considered that the teacher always used them to stimulate visible learning as

a metacognitive strategy, and 6 % almost always (See table 9). The students valued the processes of revision and feedback of written work and oral presentations as very positive. 90% argued that the teacher always does it and 10% almost always, which shows the teacher's priority to constantly give timely feedback to improve scientific and academic production (See table 10).

The constant use of phrases and motivational actions towards research activities that stimulate visible learning in the students was another aspect very well accepted by the students. 87 % stated that the teacher always does this in their classes and lectures, 10 % almost always, and 3 % sometimes. (See table 11). In addition, they frequently inform students about the advance and progress in the Research and Degree Methodology class. 87 % stated that they always do this in their classes and lectures, 10 % almost always, and 3 % sometimes. (See table 12). Regarding the welcome at the beginning of the academic period, the students participating in the virtual Methodology Course stated that 94 % always do it, 3 % almost always, and 3 % never. (See table 13). Furthermore, 90% of students said that the teacher always promotes active listening in students, inviting them to comment on the arguments presented by classmates to stimulate visible and deep learning, while 10% said they almost always do it (See table 14).

Regarding the realization of activities to facilitate mutual knowledge and integration among the course students to allow the development of visible and deep learning, 94 % said that they always do it in their classes and 6 % almost always (See table 15). Regarding the motivation and participation of the students in the class to stimulate visible learning in the Research and Degree Methodology course, 90% said that the teacher always develops it with a motivating approach and 10% almost always (See table 16). In addition, 90 % said that the teacher always socializes the course's activity calendar on time, 6 % said almost always, and 4 % rarely (See table 17).

91 % of the students said that the organization of classes is always done considering the three levels of learning: initial, deep, and transfer, while 3 % said almost always, 3 % sometimes, and 3 % never (See table 18). Applying various strategies to stimulate visible learning considering the different learning levels was an aspect well accepted by the students: 91 % expressed that they always apply them, 3 % almost always, and 6 % sometimes (See table 19). Regarding the establishment and supervision of the different levels of visible learning with the students, the following results were obtained in the survey: 90 % always established by the teacher and 10 % almost always (See Table 20).

Conclusions

The educational system establishes micro-functions in its curriculum. These are identified in children's speech and macro-functions to stimulate visible and deep learning in students, characterized by being universal, constant, and underlying all forms of language. However, the oral expression has been relegated many times in universities because of the prestige that the written language enjoys.

It is convenient to establish oral communicative competence from pragmatic and educational perspectives to stimulate and develop visible learning in students. A reflection is proposed to make teachers in other contexts aware of the need to cement oral investigative and communicative competencies in the classroom.

To stimulate visible and deep learning in students, it is necessary to use oral communication to union three types of elements related to the communication process: visual, vocal, and verbal, to influence the scientific production of the students. Besides, metacognitive strategies are highly recommended for stimulating visible and deep learning in students.

Materials presented in the classroom that are verbal, visual, and multimedia provide richer representations than those presented in a single format. ET must highlight, integrate, and synthesize information to learn better than just reading about a topic. When new concepts

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are introduced to students through stories, they tend to remember facts and abstract principles better. Students need guiding to structure their learning. Spaced study schedules produce better long-term retention than a single long session. Understanding an abstract concept improves with multiple and varied examples. Finally, making mistakes is often a necessity for learning to occur.

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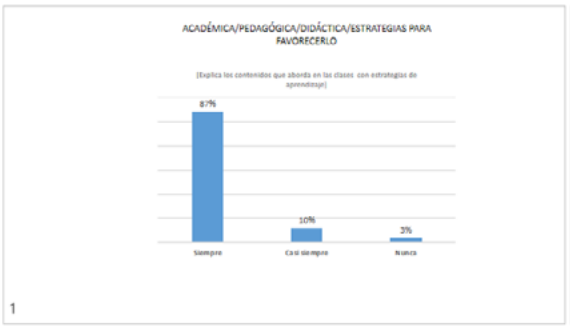
Appendix 1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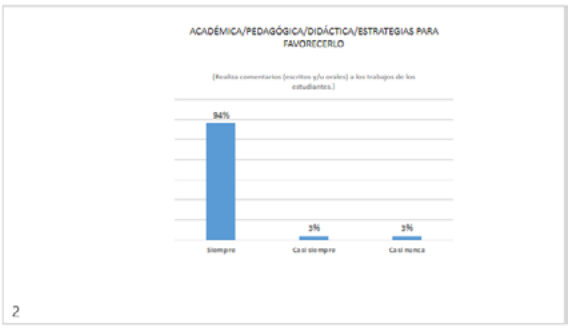
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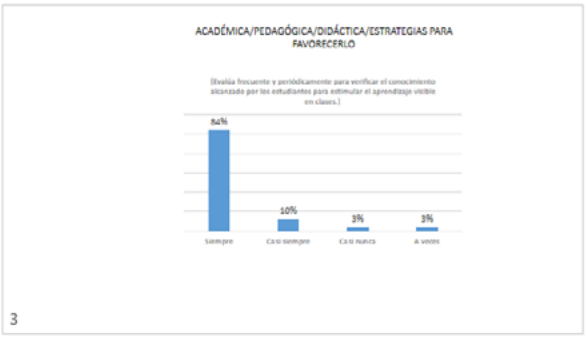
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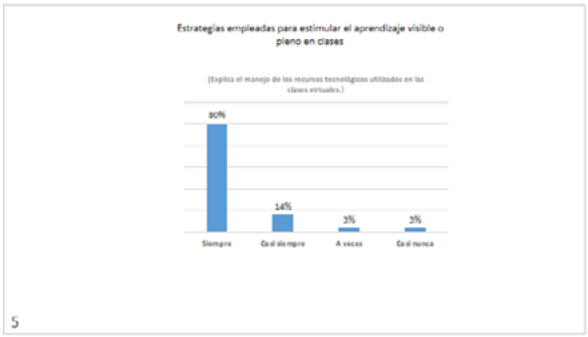
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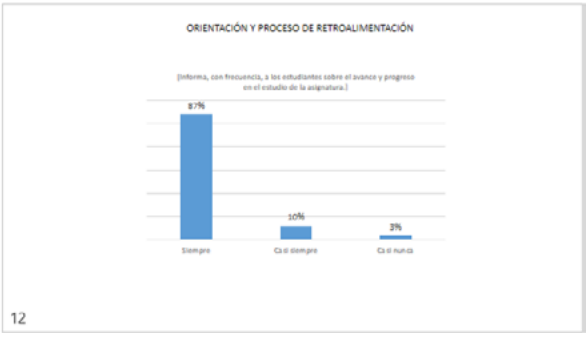

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