Methodologies, Strategies and Tools for Active, Meaningful and Differentiated Learning

Metodologías, estrategias y herramientas para un aprendizaje activo, significativo y diferenciado

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Abstract

For learning to be truly relevant, motivating, and long-lasting, it is necessary to go beyond memorization and repetition. For this, it is required to apply active, significant and differentiated methodologies, strategies, and teaching tools. Therefore, the objective of this paper is to explain four methodological proposals (Backward Design, Fink's Taxonomy, Differentiated Instruction, and Family of Social Models) that will allow to achieve this type of desired learning, and analyze how they can be applied in a real classroom. The following paper analyzes how to apply these methodological proposals in a 7th grade class of Social Sciences and suggests specific tools to be used and explains in depth how to carry them out. This paper allows us to see the importance of a) first stating the objectives and evaluation, to then design the activities to be used (Backward Design), b) the importance of not only reaching knowledge, but also other dimensions like application, integration, human dimension, importance/values, and learning how to learn in our teaching process (Fink's Taxonomy), c) the benefits of adapting the teaching-learning process to the needs, skills, and interests of students (Differentiated Instruction), and d) the importance of learning as a social and cooperative process, not an individual one (Family of Social Models).

Keywords: meaningful learning, differentiated instruction, methodologies, strategies, active learning.

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Resumen

Para que el aprendizaje sea realmente relevante, motivador y duradero, es necesario ir más allá de la memorización y la repetición. Para ello, se requiere aplicar metodologías, estrategias y herramientas didácticas activas, significativas y diferenciadas. Por ello, el objetivo de este trabajo es explicar cuatro propuestas metodológicas (Diseño retrospectivo, Taxonomía de Fink, Instrucción diferenciada y Familia de modelos sociales) que permitirán lograr este tipo de aprendizaje deseado, y analizar cómo se pueden aplicar en un aula real. El siguiente trabajo analiza cómo aplicar estas propuestas metodológicas en una clase de Ciencias Sociales de 7º grado y sugiere herramientas específicas a utilizar y explica en profundidad cómo llevarlas a cabo. Este trabajo nos permite ver la importancia de a) plantear primero los objetivos y la evaluación, para luego diseñar las actividades a utilizar (Backward Design), b) la importancia de no sólo llegar al conocimiento, sino también a otras dimensiones como la aplicación, la integración, la dimensión humana, la importancia/valores, y aprender a aprender en nuestro proceso de enseñanza (Taxonomía de Fink), c) los beneficios de adaptar el proceso de enseñanza-aprendizaje a las necesidades, habilidades e intereses de los alumnos (Instrucción Diferenciada), y d) la importancia del aprendizaje como un proceso social y cooperativo, no individual (Familia de Modelos Sociales).

Palabras clave: aprendizaje significativo, instrucción diferenciada, metodologías, estrategias, aprendizaje activo.

1. Introduction

Given the importance of education within a society, it is necessary that the educational process be of excellent quality. For this reason, this work is aimed at providing teaching guidance on the subject of teaching methodologies with the aim of achieving active, meaningful and differentiated learning. However, in order to ensure that the educational methodologies used are active, significant and differentiated, some methodological proposals that focus on long-lasting learning that transcends the classroom will be analyzed first.

The following paper is based on four main methodological proposals:

1. Backward Design

2. Fink's Taxonomy

3. Differentiated Instruction

4. Family of Social Models

Each of these is described below along with the reasons as to why they are the most appropriate to achieve active, meaningful and differentiated learning.

1.1 Backward Design

This methodological proposal explains the necessary steps for curricular planning. The most interesting thing about this proposal is that the planning design is inverse. It begins by establishing the objectives or results where you want to get to. Acceptable evidence is identified next to determine whether students have achieved the desired outcomes. Finally, the activities that allow us to reach the goals and objectives are planned.

This proposal allows the teacher to have a clear goal he wants to reach. In addition, the evaluation is planned before the activities, since it allows teachers to be advisors to their students, who not only cover content, but also care about the learning process of their students, taking into account the planned goals (Wiggins & Mctighe, 2011).

1.2 Fink's Taxonomy

A taxonomy is a categorization or classification of the cognitive process. Fink's taxonomy is made up of six cognitive categories: knowledge, application, integration, human dimension, importance/values, and learning how to learn (Fink, 2013). Fink explains each of the six categories as follows:

Knowledge. A student's ability to understand and remember information and ideas.

Application. Apply knowledge in an action that can be intellectual, physical or social.

Integration. Understand the connections of one learning with another or several.

Human dimension. Knowing something new about themselves or others, as well as being able to apply their knowledge in a social and personal way.

Importance/Values. The value or importance given to learning.

Learn how to learn. Understand the process of learning.

The goal of Fink's taxonomy is for the student to experience lasting changes, something that is important to their learning. Furthermore, in Fink's taxonomy all learning is related and there is no hierarchy. Because of this, an activity can contain more than one type of category.

1.3 Differentiated Instruction

Differentiated instruction consists of taking into account the interests, abilities, skills, prior knowledge, learning styles, and cognitive preferences of students (Tomlinson, 2017). The objective of this is that the teacher has a broad knowledge of his audience (students) when planning the activities, tasks and forms of evaluation -evidence- for his class, so that he offers his students various forms and opportunities according to their interests and needs (Tomilson & McTighe, 2006).

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This theoretical proposal is adapted to the student, and therefore, ensures that each and every one of the students achieve the desired results. Although there is only one objective, there are several paths that allow reaching the desired goal. Now, if these paths are varied according to the needs of the student, he will feel motivated to learn and will achieve better results. One way to differentiate students is through their cognitive preferences, to achieve this goal the theory of Multiple Intelligences can be used (Gardner, 2019). According to Gardner, these can be:

Interpersonal. Ability to understand and communicate with others.

Intrapersonal. Ability to know and accept oneself.

Kinesthetic. Ease of use of the body in the form of expression, creation and transformation of materials.

Logical Mathematical. Ease of reasoning, classifying, hypothesizing.

Musical. Ability to perceive, produce, transform and compose musical forms.

Naturalist. Ability to understand the environment and the living beings that inhabit it as well as their interrelationships.

Verbal/Linguistic. Ease of communicating, expressing oneself and learning verbally or in writing.

Visual/Spatial. Process and perceive information through visual skills.

It is critical to note that differentiated instruction is not individualized (it is impossible to fully understand all the needs of each student and accommodate all of them). To benefit more students, the most feasible thing is to create patterns of instruction that allow to adapt to multiple needs of students (create patterns or categories of skills that students have, but never categories of people themselves).

1.4 Family of Social Models

They are models of teaching and learning that focus on the social nature of human beings and encourage students to work together to achieve learning cooperatively and interactively. There are four models within this family, which are the following: cooperative work, role play, group research, and jurisprudential research (Joyce et. al, 2013), which are explained below:

Group Research. It is a model that combines independent and group study. It consists of defining problems, exploring the topic from various perspectives and proposing solutions or conclusions.

Jurisprudential Research. it is a model of case studies of political and social problems based on the Socratic discussion method.

Role Play. Role plays are representations of problematic situations, whether real or fictitious, through acting. It allows students to understand their own behavior and that of other people.

Cooperative Work. It is a cooperative learning experience in which students exchange information and skills to solve a problem or achieve a goal.

Since the goal is to prepare students for life in society, it is important that they learn cooperative and interactive learning skills. Hence the importance of this theoretical proposal. Of course, it is necessary to emphasize that working in a group is not the same as working in a team, since cooperative work requires that each student has a role and a fundamental individual performance to achieve the objectives.

2. Methodology

The objective of this paper is to analyze how the methodological proposals of backward design, Fink's taxonomy, differentiated instruction, and the family of social models can be used in practice to create methodologies, strategies and tools that achieve active, meaningful and differentiated learning, proposing options for a real class.

The class for which the teaching strategies and tools are proposed is a seventh-grade class of Social Sciences. The class is made up of 29 students (17 men and 12 women). The subject is taught twice a week and each day, the class lasts 1 hour and 30 minutes.

The topic of the unit for which these methodological tools have been developed is "Ecuador: Natural and Cultural Diversity". The objectives of the unit for which the methodological tools are proposed are:

Understand, value and respect the cultural diversity provided by the geographical division of our country.
Identify yourself as an important member of Ecuadorian society, with responsibilities and rights.
Know, analyze and judge the relationships that exist between the different population groups of Ecuador.

In order to propose methodological strategies, it was first necessary to do research and collect information about the class for which the strategies would be proposed. For this, a qualitative method of data collection was used as a case study. The research techniques used were class observation and analysis of educational programs and lesson plans. This allowed to become familiar with the topics studied in that class and with the teaching strategies that were often used, in order to later be able to propose active, meaningful and differentiated strategies based on the methodological proposals of backward design, Fink's taxonomy, differentiated instruction, and the family of social models.

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3. Results and Discussion

This next section presents each of the strategies that have been suggested for this class.

3.1 Methodological Tool # 1: Projects

A project, as an educational methodology, involves following a set of steps to create a final product, which includes planning, performing, and evaluating. The goal of the project is for students to apply their acquired knowledge. This methodology is student-centered, enabling students to enhance their own skills and expand their knowledge. Most projects are completed in teams, allowing students to share knowledge and skills and work towards a shared objective. This approach also encourages the development of social skills (Cascales-Martínez & Carrillo-García, 2018).

Below you can see the model of a project to apply. The theoretical proposals previously analyzed can be observed in the following instrument.

Methodological Tool: Project (*including a role-play)		
Objective: Understand, value and respect the cultural diversity that provides the geographical division of our country.		
Essential Question: What makes Ecuador a unique, different, and special country?		
Topic: The Provinces.		
Suggested Time: 5 sessions		
Application		
Phase A	Phase B	Phase C
Activities: *KWL: Determine the previous knowledge of the students and their research interests. * Formation of work teams and choice of provinces in which they wish to work. *Brainstorming about the characteristics of the province that they are going to present.	Activities: *Research in groups: Search for information about the province that is going to be presented in sources such as books, the internet, articles, etc. *Choice Board: Choose and elaborate activities with which the project is going to be presented and demonstrate your knowledge about the province. *Project Presentation: The project will consist of a tourist fair where each group will promote their province in the clearest and most attractive way. This will be done as a role play.	Activities: *Self-assessment: Each student will evaluate their performance in the presentation, which includes a reflection paragraph about their experiences and the knowledge and skills learned during the project. * Sum-it-up: Students will summarize the important points from their classmates' presentations and include a reflection on the usefulness of the new knowledge for their lives.
Suggested time: 1 session	Suggested time: 3 sessions	Suggested time: 1 session

3.2 Methodological Tool # 2: Problem-based learning

It is a teaching methodology that allows students to work in groups, so that everyone shares a learning experience that allows them to practice and develop skills together. In this methodology, students are expected to apply the knowledge acquired in class to solve a specific problem (Moursund, 2015).

Below you can see a model of a problem-based learning tool to apply. The theoretical proposals previously analyzed can be observed in the following instrument.

Methodological Tool: Problem-Based Learning		
Objective: Identify yourself as an important member of the Ecuadorian society, with responsibilities and rights.		
Essential Question: What can I do to help my country?		
Topic: Cultural Alienation		
Suggested Time: 3 sessions		
Application		
Phase A	Phase B	Phase C
Activities: *Interviews: Real cases (testimonials) that present the problem to be dealt with. Students will have to interview people who have faced the problem of cultural alienation. *Brainstorming: Identify all the problems that cultural alienation entails.	Activities: *Case study based on the interview conducted. *Troubleshooting: List of possible solutions. *Argumentation: Look for ideas that support the proposed solutions. *Class discussion about the proposed solutions and how feasible they are.	Activities: *Graphic organizer to propose solving strategies and to consolidate the steps to solve a problem in a more useful way. *Musical composition: Create a song that encourages people to preserve and value their cultural roots.
Suggested time: 1 session	Suggested time: 1 session	Suggested time: 1 session

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3.3 Methodological tool # 3: Debate

It is a teaching methodology in which two different positions are academically contrasted to reach a conclusion. This type of methodology favors critical and logical thinking, and develops students' argumentation skills (Alasmari & Ahmed, 2013).

Below you can see a model of a debate to apply. The theoretical proposals previously analyzed can be observed in the following instrument.

Methodological Tool: Debate		
Objective: Know, analyze and judge the relationships that exist between different population groups of Ecuador.		
Essential Question: What can I do to help my country?		
Topic: Distribution of Wealth of Ecuador.		
Suggested time: 3 sessions		
Application		
Phase A	Phase B	Phase C
Activities: *Picture this: Present images to the students where a social and economic contrast is evident. For example the neighborhood the county. Then the teacher can tell a story so that the students can imagine the situation and identify with it. *Jot-Pair-Share: Share feelings and personal emotions of how they felt when imagining the situation described above. * Establish the topic to be discussed and the different positions.	Activities: *Form groups that defend each of the positions. For example: capitalism, communism, among other positions. *Individual research: Search for logical and valid arguments to support the position that is going to be debated. *Group debate: -Debate positions and argue them without offending the rest of the class. -Take turns speaking, giving everyone a chance to participate. -Respect the opinions and comments of all students. *Stop and process: Students reflect on different points of view. They may change their mind or maintain their original point of view.	Activities: *Venn Diagram: Analyze the contrasted positions and analyze what their similarities and differences are. *Create a collage or personal drawing that summarizes the opposing positions.
Suggested time: 1 session	Suggested time: 1 session	Suggested time: 1 session

3.4 Methodological Tool # 4: Journal

The Journal or Diary as a methodology consists of extracting the most important ideas learned and expressing their reactions or reflections towards them. This allows students to make sense of the information they learn and find its relevance to their lives. That is, it promotes the understanding and retention of information (Lindroth, 2015).

Below you can see the model of a journal to apply. The theoretical proposals previously analyzed can be observed in the following instrument.

Methodological Tool: Journal		
Objective: Identify yourself as an important member of Ecuadorian society, with responsibilities and rights.		
Essential Question: What can I do to help my country?		
Topic: The natural resources of Ecuador.		
Suggested Time: 3 sessions		
Application		
Phase A	Phase B	Phase C
Activities: *Box of Artifacts: Capture the attention of the students on the subject that is going to be treated. The teacher will present a box of artifacts with natural products produced in Ecuador. *Brainstorming: Students will write ideas on how to make better use of Ecuadorian products. For example, how to industrialize high-quality natural products in our own country. As can happen in the case of cocoa to turn it into chocolate or oil into gasoline.	Activities: *Dialectical Journal: Outline your ideas and perceptions about the use of natural resources. *Individual Reflection: Through this, students can express their opinions on the subject of natural resources. They can use texts, graphics, photos, drawings, clippings, writings, etc. *Quick write or non stop: Write all the ideas and feelings regarding the question: Do you think that Ecuador is effective in its industrialization processes to make better use of natural resources? Support your answer with examples.	Activities: *Support Group: Share and analyze with classmates the main ideas and feelings about the topic written in the journal.
Suggested time: 1 session	Suggested time: 1 session	Suggested time: 1 session

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3.5 Methodological Tool # 5: Role play

A role play is a teaching method that combines knowledge, skills and practice on academic content. The role play creates a learning space in which real life situations are imitated, which allows the student to understand the subject studied and contextualize it. This methodology allows students to understand their own behavior and that of other people (empathy) (Berliner & Loye, 2015).

Below you can see the model of a journal to apply. The theoretical proposals previously analyzed can be observed in the following instrument.

Methodological Tool: Role Play		
Objective: Know, analyze and judge the relationships that exist between different population groups of Ecuador.		
Essential Question: What does it mean to respect and care for my country?		
Topic: Regionalism		
Suggested Time: 4 sessions		
Application		
Fase A	Fase B	Fase C
Activities: *Reading newspaper articles chosen by the students about regionalism. *Discussion of situations presented in the articles. *Teamwork to choose a topic (problem or situation) to be acted on.	Activities: *Simulation: - Determine the context in the country in which the problem of regionalism occurs. - Develop a follow-up line (it can be a script) to outline the development of the story. - Determine the roles and characters of each student. - Act - Immediate analysis of feelings and perceptions of the acted situation, against regionalism and its implications.	Activities: *Reflection and exchange of experiences between students from different groups. Students will conclude with the difficulties that regionalism represents and ways to solve this type of conflict in Ecuador.
Suggested time: 1 session	Suggested time: 2 sessions	Suggested time: 1 session

4. Conclusion

The methodology presented in this paper indicates that the educational process requires going beyond memorizing and repeating content to create lasting and relevant learning. Quality learning should be active, meaningful, and differentiated. To achieve their objectives, teachers must be clear about the knowledge, skills, and values they aim to develop in their students. They should then design class activities that enable students to achieve these results. Teachers should also strive to develop students' ability to apply their knowledge in real-life situations and integrate it with prior knowledge. Another crucial element in learning is differentiation. Not all individuals learn similarly, making it crucial to utilize tools that enable us to reach every student and unlock

their unique skills and potential. Furthermore, given the significance of cooperative work in modern-day daily life, it is vital for the teaching and learning process to promote interaction and collaboration.

For this reason, it is important to use tools that allow active, meaningful and differentiated learning to be achieved. In this paper we have presented some tools that can help achieve this objective as well as ways to use them, including specific activities with which they can be combined.

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STATEMENT