**GUIDE TO WORKING FROM THE PROJECT-BASED LEARNING MODEL (PBL)**

**SUBJECT:** EARLY STIMULATION

**DEGREE:** OCCUPATIONAL THERAPY

**LEVEL:** THIRD

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# 1. WHAT IS PBL?

Project-based learning (PBL) is an educational method based on constructivist learning1. The first author, who proposed it, was John Dewey in the late 1890s2. Dewey's philosophy focused on learning from real-life contexts. His ideas were developed by Kilpatrick in the early 1900s in his book: “The Method Project”3. Thereafter, PBL has been elaborated in detail and applied to different subjects and learning situations4.

PBL can be defined as student-centred teaching, which occurs over an extended time period during which undergraduates select, plan, research, and produce a product, presentation, or development. This learning process answers a research question or problem5.

In addition, PBL can be defined as a systematic teaching method that assist students engage their knowledge and skills through carefully designed tasks and questions6.

PBL focuses on the teaching-learning process, on the interaction between lecturer and students, on the construction of deep learning from the design of research-based tasks oriented from the practice of knowledge of the discipline and directed through reflection questions. All this from the realisation of a continuous formative feedback of educational processes and products in a collaborative learning framework7.

# 2. HOW IS THE RESOLUTION PROCESS STRUCTURED IN PBL?

Starting from Orientation strategies, which involve adjusting the objectives of the task or problem (project) and relating them to the previous knowledge that the learning activity requires. Planning, which includes the selection and sequencing of problem-solving strategies and the allocation of resources and action plans before or during execution8. Monitoring and evaluation contemplates control during execution and implies the identification of execution tasks, correction of actions (if it is necessary) 8, 9, 10 and is directly related to progress in depth in learning. Finally, Reflection, involves the analysis of goals11 and is related to learning responses and processes9 and contains the ultimate success in learning responses. A list of them can be seen in Table 1.

|  |  |  |
| --- | --- | --- |
| **Metacognitive Strategies** | **Sub-strategies** | **Activities (steps)** |
| **Orientation** | Activate prior knowledge | - Review the concepts needed to solve the task. |
| Guiding the task | - Read the statement and study the difficulties.  - Make graphical and/or mental representations to analyse the possible resolution steps. |
| Define the objectives | - Determine the objectives of the task and make them concrete in order to have an excellent result. |
| Predict results. | - Make a forecast of the final result, analysing how the task should and should not be done. |
| **Planning** | Define sub-goals. | - Elaborate detailed sub-objectives from the previous analysis. |
| Make action plans. | - Set the steps for the resolution of the task |
| Take notes. | - Take notes to be able to consult and analyse possible doubts in the resolution process. |
| Control the time. | - Make a schedule with the tasks, subtasks and execution times to complete the main task. |
| **Monitoring (supervision)** | Detect errors. | - Perform a systematic review in order to detect possible errors throughout the resolution process. |
| Check the answers. | - Check the results (relation with the objectives). |
| Monitor the action plan. | - Monitor the proposed action plan. |
| Self-correction. | - Critical analysis of the proposed solutions analysing pros and cons of the same.  - Prepare arguments to defend them before third parties. |
| **Reflection** | Summarize | - Make a summary of the development of the task. |
| Relate the solution to the task. | - Carry out a written analysis between the proposed task and the result obtained. |
| Draw conclusions. | - Draw conclusions to apply the resolution process to other activities. |
| Reflect on how you have learned. | - Reflect on how you have learned in order to be able to apply it to other similar resolution processes. |

**Table 1. Relationship between metacognitive strategies, sub-strategies and activities to develop them**

In addition, a rubric is provided in Table 2 to assist the group of students in the process of self-evaluation in the resolution of the project.

| **Components**  **metacognitive** | **Activity** | **Excellent** | **Very Good** | **Well** | **Not very acceptable** | **Insufficient** |
| --- | --- | --- | --- | --- | --- | --- |
| **Orientation** | Activate previous knowledge | * I review the previous topics and study in depth the new topics to be applied. * I review in depth the status of the previously delivered practice. | * I review the previous topics and study in depth the new topics to be applied. * I review the status of the previously delivered practice. | * I go over the previous topics and study the new topics to be applied. * I superficially review the status of the previously delivered practice. | * I review over the previous topics and study over the new topics to be applied. * I do not check the status of the previously submitted practice. | * There is no review of previous topics, nor is there any study of new topics to be applied in practice. * I do not review the solution presented in the first practice. |
| Guiding the task | * I read the task statement carefully and analyse the possible difficulties in more depth. * I make some graphical and/or mental representations for the resolution and I detect possible difficulties. | * I read the statement carefully. * I make some graphical and/or mental representations for the resolution and I detect some difficulties. | * I read the statement. * I make some graphical and/or mental representations for resolution. | * I skim read the statement. | * I don't read the statement. |
| Define objectives | * I determine the objectives of the practice in a clear and concrete way after analysis in order to achieve an excellent result. | * I set the objectives of the practice based on the previous analysis I have done with the aim of passing the task with a good grade. | * Before doing the practice, I have isolated the general objectives of the practice. | * I have isolated the objectives in a diffuse way in order to meet the minimums that practice demands. | * The following are not established |
| Predict results | * I make a forecast of the final result, being very clear about how the task should and should not be done. * I propose new possibilities and improvements in the future. | * I make a forecast of the final result. | * I make a forecast of the basic end result. | * I don't spend a lot of time trying to predict the final outcome. | * It does not arise. |
| **Planning** | Define sub-goals | * I establish very detailed sub-objectives from the previous analysis. | * I establish detailed sub-objectives from the previous analysis. | * I set some sub-objectives. | * I establish minimum sub-objectives. | * I do not set sub-objectives. |
| Plan of action | * Previously performed in a formal way the steps for the resolution of the task. | * I formally pre-plan the steps for the resolution of the task. | * I informally pre-plan the steps for the resolution of the task. | * I plan during the execution of the task. | * I don't plan. |
| Taking notes | * I take notes for later reference and analysis, usually including them in the product documentation itself. | * I take notes for later reference and in some cases include them in the product documentation. | * I make notes for future reference. | * I take notes, but in no systematic order, which makes it difficult for me to consult them later. | * I don't take notes. |
| Control the time | * I make a schedule in the planning of subtasks. | * I make a schedule in the planning of subtasks. | * I control the execution times of the activities. | * I perform a spot check on certain occasions. | * I don't control the times. |
| **Self-monitoring and evaluation** | Detect errors | * I carry out a systematic review in order to detect possible errors throughout the resolution process. | * I do a review in order to detect most of the possible errors along the resolution process. | * I do a review in order to detect some of the possible errors along the resolution process. | * I do a review to find basic errors. | * I do not review for basic errors. |
| Check answers/solutions | * I check the correctness of the results against the objectives of the task. | * I check the correctness of the results compared to the most significant objectives of the task. | * I check the correctness of results for tasks of basic complexity. | * I check the correctness of results for tasks with little or no complexity. | * I do not perform checks. |
| Monitor the action plan | * I systematically review executions and take corrective actions in case of deviations from the plan. | * I systematically review the executions and carry out some corrective actions in case of deviations from the plan. | * I regularly review the executions, but I do not perform change actions. | * I check the executions very punctually. | * I don't check. |
| Auto-correction | * It is carried out regularly, being very self-critical of the solution provided. * It is reasoned and discussed, until conclusions and arguments are reached that can be defended before third parties. | * It is carried out regularly, being self-critical of the solution provided. | * It is performed sporadically. | * It is done very punctually. | * It is not done. |
| **Recapitulation and reflection** | Summarize | * I make a very complete summary of the development of the task. | * I make a sufficient summary of the development of the practice. | * I make a brief summary. | * I make a partial summary. | * I do not summarize. |
| Relate solution to the task. | * I relate the given solution to the task definition critically and propose alternatives for the future. | * I relate the solution given to the problem critically. | * I relate the solution given to the problem. | * It relates the solution given to the problem posed very superficially. | * I do not make a relationship. |
| Drawing conclusions | * I draw conclusions to apply in the future in other subjects. | * I draw conclusions to apply in the future. | * I draw conclusions, but without a view to their subsequent application. | * I draw some very specific conclusions. | * I do not draw conclusions. |
| Reflect on how I have learned | * I reflect in detail on how I have learned as it will help me in later processes. | * I reflect sufficiently on how I have learned. | * I reflect on some aspects of my learning process. | * I reflect very superficially on some aspects of my learning process. | * I do not reflect. |

**Table 2. Rubric for the evaluation of the project resolution process.**

# 3. GUIDELINES FOR THE ELABORATION OF THE PBL

1.- The first step will be a practical case based on working in a service (Health Centers, Social Centers, Educational Centers or any other service that cares for children with developmental difficulties from 0 to 6 years old) that the group chooses as a centre of interest.

2. A study of the characteristics of the service will be carried out, considering the following indicators: type of care, personnel assigned, population receiving the service, personal and material resources, coordination with other services, service objectives, etc.

3. An Early Stimulation Program will be developed from the role of the Occupational Therapist. A case of stimulation in the period 0-3 years or 0-6 years will be chosen from among those provided by the teacher or others chosen by the group. The program will have to include:

3.1. Objectives.

3.2. Evaluation Indicators.

3.3. Task.

3.4. Materials.

3.5. Generalization activities.

3.6. Follow-up planning.

4. The length of the written work will be 25 a 30 double-spaced pages, in Times Roman 12-point font.

5. Google Scholar and databases such as SCOPUS, the Web of Science, etc., as well as books (http://www.ubu.es/e-bub-biblioteca-digital/bases-de-datos) or scientific manuals (http://www.ubu.es/e-bub-biblioteca-digital/libros-electronicos) can be used to search for information.

6. The structure of the work will be:

6.1. Introduction.

6.2. Justification.

6.3. Development of the Early Stimulation Programme.

* + 1. Case Description.
    2. Establishment of the intervention baseline.
    3. Program Design.

6.4. Conclusions.

6.5. Future lines of intervention.

6.6. References (for the citation of documentation you can follow the APA or Vancouver format).

# 4. GUIDE TO THE PBL STRUCTURE

**STEP 1. DESCRIPTION OF THE SERVICE**

**1.1. Users**

1.1.1 Population served.

1.1.2 Characteristics of the population (age, sex, socio-economic and cultural characteristics, type of needs...).

1.1.3 Type of pathology or need for stimulation to which the Early Stimulation Programme responds.

**1.2 Professionals who are part of the service**

1.2.1 Structuring the service into roles.

1.2.2 Interactive role structure.

1.2.3 Staff training and its relation to the role to be developed.

**1.3 Location of the service in the community**

1.3.1 Interaction with other units or services

1.3.2 Interaction with other resources of the social system.

**STEP 2. CASE DESCRIPTION**

2.1 Case status in period 0-3 or 3-6 years.

2.2 Specification of the agents on which the Early Stimulation Programme is going to be developed (child, family, others...).

**STEP 3. DESCRIPTION OF THE OBJECTIVES**

**STEP 4. DESCRIPTION OF PHASES, ACTIONS AND TIME PLANNING TO DEVELOP THE OBJECTIVES**

**STEP 5. EVALUATION: MEASUREMENT**

5.1 Evaluation instruments (Indicators).

5.2 Evaluation phases (before the intervention, after one month, after two months..., etc.).

**STEP 6. ANALYSIS OF RESULTS**

**STEP 7. PREPARATION OF THE REPORT OF CONCLUSIONS**

# 5. REFERENCES

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# 6. PBL IN OCCUPATIONAL THERAPY. PROJECTS PUBLISHED IN THE UBU REPOSITORY

You can consult the projects at <https://riubu.ubu.es/handle/10259/4045/discover>