Example presentation Problem-based-learning

COURSE DESIGNING

The aim of this document is to provide feedbacks on the « useful tools » from the pedagogical guidelines, after testing with our case.
First, the below chart was used to test the quality of our complex problem:

Checking your complex problem

	How to check?	Assessment
G Good **F** Fair	**TBI** to be improved	
Problem Interest and motivation (PIM)		
New problem	Will the students need to analyse and explore the situation before starting the problem-solving process?	G
Problem relevant to Curriculum-	Will the students consider that the PBL problem is linked to their curriculum and to their training programme ILOs?	G
Context-induced motivation	Will the context be a source of motivation and interest?	G
Contextualisation details	Is the context correctly described? Do enough details emerge?	G
Real-world links	Is the problem related to real professional issues?	G
Learning process (LP)		
Relevant to ILOs	Has the problem been defined to achieve the ILOs?	G
Relevant to pre-existing knowledge	Will students need to use their existing knowledge as input in their method?	G
Teamwork	Does the problem need group work to be solved?	F
Several solutions	Is the complex problem open-ended?	G
Feasibility conditions (FC)		
Difficulty	Is the problem difficult enough for learning? Is the problem too difficult to solve?	G
Scheduling	Is the sessions scheduling suitable to deal with the PBL problem?	G

From that, we can conclude that our problem met the criteria provided in the pedagogical guidelines.
Indeed, after experimenting the problem in class, we noticed that only the brighter students could solve the problem by themselves. Also, the quality of the deliverables were improved after teaming up (final phase).

Assessment of the specific learning outcomes was proposed in two parts. Individual quizz test on essentials ILOs was performed on an online tool right before the final phase. Overall success 90% showed the individual work had been done efficiently. A presentation was made by the group and was assessed based on several criteria. Please refer to the assessment file.

Documents selected and uploaded in sflm

The SFLM machine was fed with the below resources:

PDF article from the British Journal of Ophthalmology (BJO): Monfermé S, Lasseaux E, Duncombe-Poulet C, Hamel C, Defoort-Dhellemmes S, Drumare I, Zanlonghi X, Dollfus H, Perdomo Y, Bonneau D, Korobelnik JF, Plaisant C, Michaud V, Pennamen P, Rooryck-Thambo C, Morice-Picard F, Paya C, Arveiler B. Mild form of oculocutaneous albinism type 1: phenotypic analysis of compound heterozygous patients with the R402Q variant of the *TYR* gene. Br J Ophthalmol. 2019 Sep;103(9):1239-1247. doi: 10.1136/bjophthalmol-2018-312729. Epub 2018 Nov 24. PMID: 30472657.

PDF article from the European Journal of Human Genetics: Farmer, G. D., Gray, H., Chandratillake, G., Raymond, F., & Freeman, A. (2020). Recommendations for designing genetic test reports to be understood by patients and non-specialists. European Journal of Human Genetics. https://doi.org/10.1038/s41431-020-0579-y

PDF article from the official journal of the American College of Medical Genetics: Recchia, G., Chiappi, A., Chandratillake, G., Raymond, L., & Freeman, A. (2020). Creating genetic reports that are understood by nonspecialists: a case study. Genetics in medicine : official journal of the American College of Medical Genetics, 22(2), 353–361. https://doi.org/10.1038/s41436-019-0649-0

SFLM OUTPUTS AND HOW DID YOU USE IT

Analysis were made with a previous version of the SFL machine, with different features. The results of the SFLM then were inconsistent so we couldn't use it.

The below chart is for reference only. It does not need to be filled, however we can make some comments regarding our present case (example presentation).

What choices will you make in function of your context?

Issue	Solution	Remarks
Number of students	☞ Adjust the number of tutors. 1 tutor for 2-6 groups	A novice tutor would only deal with two groups. For the very first time, one group would be even better All tutors should know the ILOs perfectly and coordination meetings should be held before the sequence starts ⍰ For this example presentation, we made 3 groups of 5 students
Online teaching	☞ Use breakout rooms when students work in small groups ☞ For tutors who are used to and feel comfortable with online teaching, an in-class teaching PBL sequence may be transferred online ☞ Online teaching may be avoided by tutors who are novices in both the PBL approach and online teaching	☞ Keep in mind that it is more difficult to effectively allocate time between groups in virtual rooms than between groups in a physical room ⍰ This example presentation was realised in class, not online
Time constraints	☞ When individual work time is too short, students should be given documentation that fits in with the timeframe ☞ When individual work time is too long (i.e., there are several days between the first phase and the final phase), students should be told how much time is needed for it, and, if possible, it should be scheduled on the timetables	⍰ For this example presentation, document was provided and timing was indicated for individual work
Theoretic *vs* know-how intended learning outcomes (ILOs)	☞ No major difference between these two kinds of ILOs regarding the implementation of a PBL sequence ☞ Tutors need to ensure that students have access to the required documentation for the two kinds of ILOs, and to the required material for know-how ILOs	Students won't memorize the concepts; they will do research and use it to acquire "know how" ⍰ For this example presentation, we aimed to achieve both kind of theorical and know-how ILOs. For example, during the individual work phase, students had to watch a

		tutorial and use the Clustal Omega program to analyse a sequence
Debriefing time	☞ Given that the PBL approach is effective because it is based on active learning principles, when used, it is important that the "whole class" debriefing time keeps to the active learning ethos. ☞ Tutors should avoid giving solutions. They should ask students question to help them find the intended solutions by themselves. ☞ In the meantime, tutors should stick to their role as tutors and should not return to a teacher position.	Debriefing time is not included in the 'traditional' PBL sequence. Several tutors find it useful to organise whole class debriefing time. ❓ For this example presentation, debriefing time was included in the 1st phase and 3rd phase
All [above mentioned and other] adaptations	During a PBL sequence adaptation, tutors should keep in mind that the ILOs are the target of the sequence. At each step of the PBL sequence building or adaptation, tutors should ask whether the decision they take is the best way to achieve the ILOs	These two conceptual tools should be considered as the main threads for taking decisions and making choices between putative options, both in the conception and the adaptation of PBL sequences. ❓ See tutor booklet for our comments and adaptions
	Active learning: ☞ Always guide the students to find their own answers by questioning them rather than giving them solutions ☞ Tutors should encourage solutions and answers proposed by students ☞ Tutors should encourage self-organisation by the groups	

This chart can be filled to check the quality of the assessment.

Checking your PBL assessment

G Good	**F** Fair	**TBI** to be improved
Monitoring Student Progress		
Target	Has assessment been defined to evaluate the ILO?	G
Misconception	Is it possible that likely misconceptions may occur?	F
Feedback	Is a feedback possible?	F
Additional help	Is it possible propose additional help to achieve assessment ?	G
Self and peer review		
Resources	Were the resources enough for learning	G
Ability	Is it possible to observe ability, achievement, learning and needs?	G
Type	Is there an effect of the assessment format on the results?	G