

## Embedded multiple case study in the two schools. Participants demographics and qualitative data analysis

Table 1: Teacher demographics in the two schools

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Table 1: Teachers' demographics in the two schools

		School 1 (N=21)		School 2 (N=12)		Both schools (N=33)	
		N	Percentage	N	Percentage	N	Percentage
Gender	<i>Female</i>	12	57	7	58	19	58
	<i>Male</i>	9	43	5	42	14	42
Age	<i>20-34</i>	5	25	4	33	9	27
	<i>35-44</i>	9	45	4	33	13	39
	<i>45-54</i>	6	30	4	33	10	30
	<i>55+</i>	1	5	0	0	1	3
Teaching experience	<i>5 or fewer</i>	3	14	3	33	6	18
	<i>6-10</i>	5	24	4	44	9	27
	<i>11-15</i>	4	19	1	11	5	15
	<i>16-20</i>	5	24	1	11	6	18
	<i>21 or more</i>	4	19	3	33	7	21
Teaching subjects	<i>Arts/Music</i>	1	5	0	0	1	3
	<i>Language</i>	2	9	0	0	2	6
	<i>Foreign Language</i>	1	5	1	11	2	6
	<i>Social sciences</i>	3	14	1	11	4	12
	<i>Maths</i>	2	9	0	0	2	6
	<i>Science</i>	3	14	5	41	8	24
	<i>Other</i>	9	42	5	41	14	42

Table 2: Sample of classroom implementations and teacher inquiry cycles in the two schools

	School 1			School 2		
	T S1.a	T S1.b	T S1.c	T S2.a	TS2.b	TS2.c
Subject	Economics and Business	Philosophy	Biology and Earth Sciences	Biology and Chemistry	Earth Sciences	Maths and technology
Teaching experience	24 years	25 years	20 years	5 years	14 years	7 years
Problem/ Questions	Collaborative conclusions from a questionnaire	Brainstorming to define a concept	Brainstorming to define a concept	Identify theories from text in groups	Student distraction in group work	Equity of participation increasing motivation
Intervention/ Evaluation	CL activity about conclusions in collected data from students	CL about initial definitions and final conclusions	CL about initial definitions	CL text comprehension activity with quotes about theory	CL activity-solving a case	CL activity-solving a case
Collected student data	Engagement, Content, Observations notes	Engagement, Content	Engagement, Content, Observation notes	Engagement, Content, Student feedback	Student feedback, peer-assessment	Student feedback
Reflections for learning (re)design	Off-task discussions, Student	Achieved brainstorming, Management	Off-task discussions, Control of the	Time management, Off-task	Time management, Dispersion in	Time management, increased

	understanding instructions, Emerged open student attitude, Improving instructions before-during task	of students' groups, Teacher's presentation of the task	tool, Participatory approach, Collecting students' ideas	discussion, Revising feedback questions, Dynamic-enriching activity, Improved student capacity	groups, Preparing students for complex task with smaller activities,	participation, better role distribution
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\*TS1= Teacher in School 1, TS2=Teacher in School 2

Table 3: Main topics of teacher group reflections and excerpts of their comments in School 1

Topic	Excerpts
Level of participation	"14 of the students who participated did not provide any answer." "The activity has been performed irregularly by the students."
Limited understanding of the activity	"It seems they didn't clearly understand the purpose of the activity." "Some answers did not respond to the goals of the activity. Instead of a conclusion they made an assessment."
Ease to collect student data	"It is practical to quickly and globally collect the opinion of the students."
Proposed improvements	"It would be better to have a presentation before the activity and clarify the objectives." "It might be good to do a test before directly entering this dynamic to make a final assessment."
Assumptions	"[...]These two factors suggest that some of the students did not know how to use the tool or did not have enough time to complete it."
Positive realization	"I see it was a good experiment with this group." "It seems to me a very interesting activity."

Table 4: Main topics of teacher group reflections and excerpts of comments in School 2

Topics	Excerpts
Student feedback	"Positive assessment indicates that it is a methodology well received by students." "The collaborative aspect is highlighted in several student comments." "The activity seems suitable for learning. The students showed satisfaction for their learning and the methodology." "In this group their perceptions about the task (objectives, participation, learning) seem very interesting and makes them very aware of what and how they are learning."
Help-seeking behavior	"In the student feedback, your item-question 'I asked for help when I needed it?' received low ratings. We may need to know beforehand if students needed help during the task" "You may need to revise how students can help each other to solve the task since student feedback indicates that they have not requested help. Or maybe it was not necessary (?)."
Time and pace of the activity	"I guess at the beginning the pace is difficult to control." "There is a general feeling of lack of time by the students." "According to feedback, more than 30% of students say they have not had enough

	<i>time to think. Therefore, surely, the timing of the activity should be checked to allow reading and reflection.”</i>
Valuable way to monitor the process of the activity	<i>“ I think...it allows you to follow the process of the students in the chat.” “It makes a comprehension activity dynamic and generates debate among the students. It also offers data that can be reviewed to improve the activity.”</i>
Improving instructions before-during the task	<i>"Arguing guidelines could be set to make more profitable valuations," "Its should be improved and facilitated the presentation of the activity and have mechanisms to facilitate the understanding of what will be done."</i>
Familiarity of students with the tool	<i>"I think it would be useful a demonstration-tutorial or have some video on how to do it to facilitate the use of the tool."</i>

Table 5: Excerpts from teacher interviews in the two Schools

Topic	Excerpt
Teacher inquiry cycle and tool	<p><i>“ If we would be doing it in all the didactic activities, it would be great.” TS1.c, , Philosophy Teacher, School 1</i></p> <p><i>“I think we intuitively ended up doing this process, but we did not have it documented. [...]but I also wonder ... Is it necessary to document it? I do not know ... surely the teachers would have more objective data, but it is also a bureaucratization of a process “ TS1.d, Biology teacher, School 1</i></p> <p><i>“The idea of the cycle is very good, but I can not do it for each class. I have to do it by unit or by quarters” TS1.e, History teacher, School 1</i></p> <p><i>“The fact that it's separated in different steps helps you to be more aware of what you're doing. In the step “Problem and Questions” the formulation of a question was one thing that I liked a lot because then, maybe you evaluate it after a long time, and it allows you to go back at the beginning” TS2.a, Biology and Chemistry teacher, School 2</i></p> <p><i>“A good and interesting change because it shows me where I can fail. Maybe I emphasize on some of the steps and not on the others. The more visible is this, the better I build the didactic sequence. Good, good and necessary.” “I usually do the review in the summer and see what has worked and what has not. But if I collect data throughout the year, the review I do in the summer will be much better because I will be able to consult all this information, which maybe I did not remember.” TS2.d, Philosophy teacher, School 2</i></p> <p><i>“I think the steps have helped me. Even so, it depends on what things are important to share this reflection together with other teachers” TS2.c, Math and technology teacher, School 2</i></p>
Data use for learning design	<p><i>“In the feedback of the students, they indicated that they were stressed and had not enough time to develop a good argument. I realized from their feedback that 20 minutes was not enough... that I had to use all the time” TS2.a, Biology and Chemistry teacher, School 2</i></p> <p><i>“[...]For example, having the discussions of the students allows you to see that, sometimes, they have not understood the concept you wanted</i></p>

	<p><i>to convey. Sometimes they all tell you that they have understood and it is not like that.” TS1.d, Biology teacher, School 1</i></p>
<p>Sharing teachers’ inquiries</p>	<p><i>“It is useful to find joint solutions and have empathy with the same problems that others have.”, TS1.d, History teacher, School 1</i></p> <p><i>“I have the feeling that sometimes more have been given in informal spaces, in the staff room, while we are eating, that we are commenting “I have used this”, “this has helped me for that” ... etc.” We do not have many spaces for shared reflection with other teachers.” “For example, the implementation of X gave me an idea to apply it in another subject.” TS2.a, Biology and Chemistry teacher, School 2.</i></p> <p><i>“It is very useful because you can always find a way to connect with your subject.”  “To know that in mathematics the students are working in groups ... and see, for example that, my students work individually. It is nice to be able to compare your classes with other teachers ... It seems super important to see the strategies of others.” TS2.d, Philosophy teacher, School 2</i></p> <p><i>“It is useful to see how other teachers think in the teacher inquiry cycle.” TS2.c, Math and technology teacher, School 2</i></p>