

Workshop

Interdisciplinary Teaching Methods Applied to Chemical Education

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Universities of applied sciences, such as HES-SO, are aiming at preparing future engineers, including chemical engineers, to work in technical fields of the private sector mainly. Companies, regardless of their size and activities, are working through projects, which are gathering professionals from different disciplines. Therefore, students in chemistry will have to collaborate with non-chemists as soon as they leave school. To prepare them to this reality, interdisciplinary projects can be run during their school training.

In the context of a wider pedagogical research activity looking at useful tools to run interdisciplinary projects within HES-SO, a collaboration was set between 2 different fields: chemistry (HEIA-FR) and food sciences (HEI-VS). Student groups were formed with 2 or 3 persons from each discipline. They collaborated during a period of 2 months to study for example the impact of acid ascorbic on bread dough.

Such interdisciplinary projects between students have several advantages. Firstly, it is much appreciated by the team members: feedback questionnaires filled out after completion of the project rated such initiatives with grades between 3 and 4 for 95% of the questions asked (18 questions in total, maximum grade being 4). Secondly, this school project allowed them to exchange key knowledge regarding the science behind bread making, how chemical reactions can have a significant impact onto food product characteristics. It therefore enhanced their understanding of such mechanisms. Thirdly, soft skills and competences can also be developed, mainly communication and ways of working [1,2].

Key factors for successful interdisciplinary projects

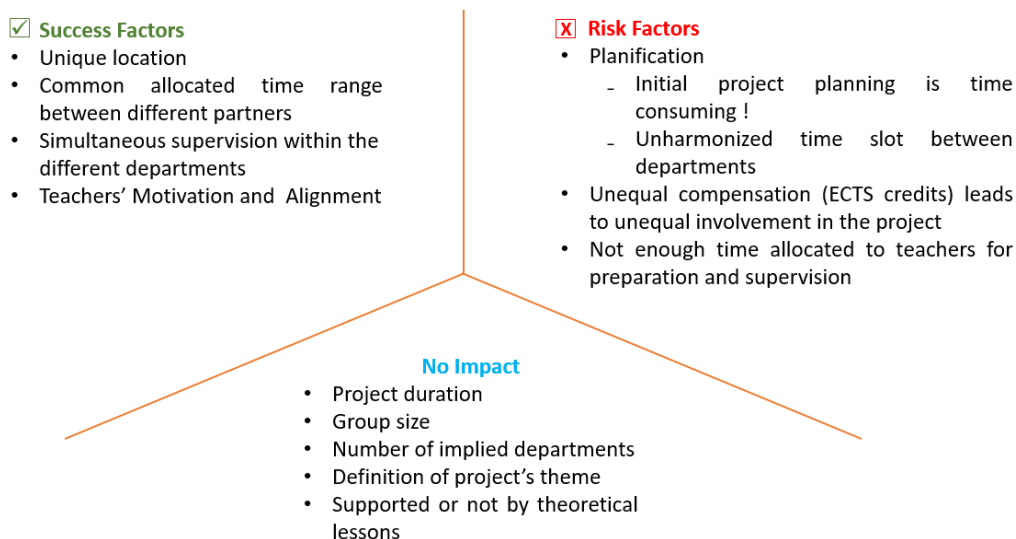


Figure 1: Success and risks elements to be considered for interdisciplinary projects

Nevertheless, for such interdisciplinary projects to be successful, they have to be very well prepared, which is time consuming; hence, teacher's motivation is a key factor. The project also has to be well-organized, even more than standard projects as it implies protagonists from different fields and possibly

different geographic locations, enhancing possible misunderstanding issues. Teacher's alignment prior to the start of the interdisciplinary project is also crucial. A special attention has to be paid to ECTS credits allowed to students: it should be well balanced between the fields for the student implication to be similar within a group [3].



Figure 2: Pictures taken during the final practical run by the interdisciplinary team of students

- [1] Gachoud D., Gallant S., Lucarelli L., Oberhauser N., Allin-Pfister A.C., 2017, Education interprofessionnelle et pratique collaborative Le modèle de Lausanne, Chêne Bourg, Suisse
- [2] Hall P., 2005, Interprofessional teamwork : professional cultures as barriers, Journal of Interprofessional care, 19 (1) 188-196
- [3] Oandasan I., Reeves S., 2005, Key elements for interprofessional education, part 1: the learner, the educator and the learning context, Journal of interprofessional care 19 (1) 21-3

	Priorität	Sek I	Sek II Gym	Sek II BS	FH	PH	HS
Jahr des PSE							
Fokus FH	1	X	X	X	X	X	X
Green Chemistry							
Materialien							
Visualisierungen							