

# Curriculum Alignment: Establishing Coherence

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*In this paper, we present a step-by-step guide to implement a curricular alignment project, directed at professional development and student support, and developed in a higher education French as a second language department. We outline best practices and preliminary results from our experience and provide ways to adapt our experience to other domains so instructors and students may fully benefit from such a project.*

## Introduction

Webb (1997) defines curricular alignment as “the degree to which expectations [i.e., standards] and assessments are in agreement and serve in conjunction with one another to guide the system toward students learning what they are expected to know and do.” Curricular alignment can be used as a way to see what the pedagogical material asks from the students, if it fits the requirements, and also to see to what extent what has been taught in class is assessed in the evaluations (Martone & Sireci, 2009). The fact that professional or academic freedom is often offered to teachers and lecturers in higher

education does not take away from the need to follow these guiding pedagogical principles and to offer optimal learning opportunities to students through the evaluations for equity purposes (Martone & Sireci, 2009).

In this paper, we provide a method, based on previous research and our own experience, to implement a curricular alignment effort in higher education when little or no precedent or guidelines are present. This method can be used both by individual professors as a professional development tool, or by a department that wishes to undertake discussions among their professors on curriculum and coherence, or bring objective evidence to the table for such ongoing discussions (Bateman, Taylor,

Janik, & Logan, 2009; Hammerness, 2006) It can also be used by states to measure alignment of standardized tests with what is being taught (Beach, 2011; Pellegrino, 2006; Porter, McMaken, Hwang, & Yang, 2011).

Following a rigorous method to analyze the content of pedagogical material and evaluations will bring an evidence-based and objective view to higher education teachers and lecturers and provide them with a precious tool to improve students' learning (Biggs, 1996; Cohen, 1987; Squires, 2009). In our own experience, we found that conducting curricular alignment in a professional development fashion brought forward many interesting improvement avenues and eased the resistance to change that can be encountered when curricular alignment is mandatory and intends to impose a homogenous structure.

## Method

### Departmental settings

In order to assess new departmental policies, a first curricular alignment project was introduced in 2012 at Vanier College in Montréal. Vanier is an Anglophone *Collège d'enseignement général et professionnel* (CÉGEP), the first higher education level in Quebec where all students have to go through two mandatory FSL courses of various difficulties depending on their baseline level. Our aim was to conduct a curriculum alignment analysis of seven different level 3 courses (602-102-MQ, intermediate) taught by six instructors. The participation of the teachers was never mandatory and that we offered them this opportunity as a pilot project. We found that it is important, when curricular alignment is used as a professional development tool, not to coerce teachers in the process so that they do not feel that their competence is questioned or threatened. Such attitude allows all the participants to approach the project with an open mind and to see the results as providing them with a fair mirror of their course and an otherwise impossible mean of comparison with colleagues.

### Research team

Our team included one project coordinator (the main author), two teachers who acted as experts (the third and fourth author), and a statistician (the second author). The targeted teachers and departmental administration were also an important part of the process.

A division by area of expertise between the role

and involvements of the authors enabled us to assess various aspects of the situation. At least two experts have to be involved in order to ensure inter-rater agreement. Having someone to deal solely with the quantitative aspect of the research is also important since experts in the field of the courses being studied are not always experts in statistics and data processing. Someone with sufficient experience should be made responsible for coordinating administration, participation, and general project management.

The teachers whose courses are analyzed also have a key role to play, namely in interpreting the data and bringing essential feedback to the research team. When presenting the results to those professors, we found it important to keep them confidential; never could a teacher pinpoint who taught which course. Such anonymity allows open discussions about the content of each course without labelling individuals and permits more constructive criticism coming both from the researchers and the professors. We found that when looking at the results, professors often recognized themselves but tended to keep the anonymity during the discussions.

The involvement of the institution's administration is also crucial in order to procure tangible results from a curricular alignment project. They are usually the ones that support the project financially and at least partially delimit the issues at stake. Following the results of the projects, new departmental policies can be established, and old ones can be changed or straight-out removed. The expectations of the department and administration and what type of decisions can be made on the basis of the results of the alignment analysis have to be clear from the start.

### Choice of the taxonomies

Our aims were, first, to measure the congruence between evaluations in the course and corresponding ministerial standards and, second, to measure the degree of fairness between the evaluations of the classes.

With the gathered information, we were also able to start an enriching discussion with each instructor as to how adequate the composition of their evaluation was in regards to the level of the course they were teaching and in comparison with colleagues. In this sense, evaluation items in written and oral expression as well as in reading comprehension were coded using taxonomies selected and forged to refine the understanding of what is being evaluated.

Regarding the particular choice of taxonomy, it is

crucial to take valid a priori decisions depending on what is expected out of the curricular alignment exercise. They have to be chosen with the previously defined objectives in mind and have to be based on existing literature on the assessed subject, if such literature is available. If governmental or institutional policies apply to the course at hand they should be treated as mandatory. They also should elicit stricter treatment and recommendations as they are compulsory to the requirements of the courses and do not solely apply to professional development and fairness to students.

The choice of taxonomy has to reflect the content, subject, and discipline of the class that is being assessed. Since we assessed a language class in which oral and written expression, reading comprehension, grammar, and vocabulary were taught, taxonomies applying to these components were used. Reading processes (Giasson, 2011; Irwin, 1986), and question-answer relation (Pearson & Johnson, 1978), are a few of the taxonomies that we used, but since the aim of this paper is to guide the implementation of a similar program in any discipline, we will not detail the rationale behind our choice. We will, however, redirect the reader to the full report for further theoretical discussion about these issues (Gagné et al., 2012). The investigators can also put ad hoc taxonomies together in order to address particular needs. For example, a project held for an anatomy class could decide to assess which biological systems are evaluated in each question.

## Encoding and data processing

All six teachers in the study had to hand in their pedagogical material and evaluations. The questions in the evaluations were divided into different items when they were two- or threefold (e.g., Is the sentence above true or false [1]; Justify your answer [2]). Simple division was used to calculate the value of each evaluation, question, and item on the final grade. Knowing the exact value of each item allowed us to see its weight not only in terms of points on the final grade of the student, but also in relation to the taxonomies they represent.

As for the assessment of the evaluations, the two experts first went through the content of a whole course together in order to pinpoint divergences of opinion and to form a common understanding of each taxonomy. Second, the experts both coded the rest of the courses. Such double coding can be tedious and seems redundant but the analysis of the divergences in classification can be interesting per

se. They allow for inter-rater agreements to be calculated and for divergences to be corrected when they occur. This extensive double coding allowed us to attain inter-rater agreements of 86.5% at the end of the process in average across taxonomies, which is excellent. If time and resources are insufficient to conduct such an extensive coding, we still advise experts to go through a few evaluations together or to have as much cross-verification as possible in order to ensure quality and reliability of the classifications.

## Results and Possible Analysis

Given the scope of this paper, we will present, as examples of the possible applications of a curricular alignment project, a fraction of the analyses conducted in our case. If the reader is interested to obtain more in depth presentation of the theoretical background, methodology and results, we strongly encourage referring to the full report (Gagné et al. 2012). It has to be noted that only descriptive statistics have been used in our project since statistical significance was not what was sought here. We preferred a descriptive approach, at the edge between quantitative and qualitative analysis, which was sufficient for a first project and still allowed in depth discussions.

The first analyses that should be conducted are those that refer to official constraints. In our case, the only official constraint imposed on the teachers by the department is a minimal weight in percentage for each ministerial objective. It is possible to continue straight to further analysis when apparent validity is met in regards to the official requirements, as it is the case in our results. If it happens that one or many professors did not meet these baseline requirements, it is at the discretion of the research team and the department to see how rectifications can and should be brought to the concerned professors. If divergences from the official constraints are important enough, the content of the course in question should not be included in the other analysis since it is not valid for comparison with other courses.

In our case, it is possible to see that beyond the minimum weight for each objective, there is a discretionary 30% of the final mark which professors can use as they wish. Comparing how this discretionary margin is distributed across objectives between professors brings more instructive feedback and falls in the food-for-thought and professional development category of analysis.

The composition of the different evaluations and

Table 1

*Percentage attributed to each ministerial objective*

<b>Professor</b>	<b>Obj. 1</b>	<b>Obj. 1</b>	<b>Obj. 1</b>	<b>Obj. 1</b>	<b>N/A</b>
Prof. 1	20 %	21 %	49 %	10 %	0 %
Prof. 2	28 %	20 %	37 %	12 %	3 %
Prof. 3	21 %	27 %	38,5 %	10 %	3 %
Prof. 4	18 %	18 %	54 %	10 %	0 %
Prof. 5	21 %	25,5 %	37,5 %	15 %	1 %
Prof. 6	22 %	24 %	42 %	11 %	1 %
Prof. 7	23 %	20 %	47 %	10 %	0 %
Average	21,86 %	22,21 %	43,57 %	11,14 %	1,14 %
Minimum weight	30 %		30 %	10 %	--

the number of evaluations of each type can also be compared, even before taxonomies are taken into consideration, and can be applied to any discipline. In our case, this is one of the places where we observed the greatest discrepancies between the professors. Indeed it is understandable that different professor have different preferred means of evaluation but the fact that the total number of items for one whole course can vary between 132 and 319 brings important questions as to what amount of work and preparation is asked from the students for the different versions of what is supposed to be the same course. Like the differences in official guidelines, these inconsistencies between professors have to be kept in mind through the rest of the analyses since they will have an impact on the forthcoming analysis and this impact is quite complex to quantify.

When it comes to the analysis of the particular taxonomies, they can be explored both in terms of number of items and of weight on the final mark, alone or in combination with each other. Often, analyses will seem to show similar patterns among teachers. In these cases, looking at the differences with the average or standard will be more informative. Figure 1 shows which kind of analysis the classifications we used can lead. For example, we compared the repartition of items for each teacher in one single ministerial objective, in terms of one particular taxonomy. In brief, such combination brings questions such as “How should this objective be evaluated?” and “Is a particular combination preferable to another in terms of learning opportunities?” and have fed lively and productive discussions in our department.

Table 2

*Content of the evaluations*

<b>Professor</b>	<b>Number of evaluations</b>	<b>Minimum number of item</b>	<b>Maximum number of items</b>	<b>Total number of items for the evaluations</b>	<b>Average number of items per evaluation</b>
<b>P1</b>	13	1	65	171	12.92
<b>P2</b>	12	1	64	192	16.00
<b>P3</b>	8	1	65	252	31.50
<b>P4</b>	8	1	20	166	8.38
<b>P5</b>	8	1	261	319	39.88
<b>P6</b>	8	1	248	303	37.88
<b>P7</b>	9	1	43	132	14.67

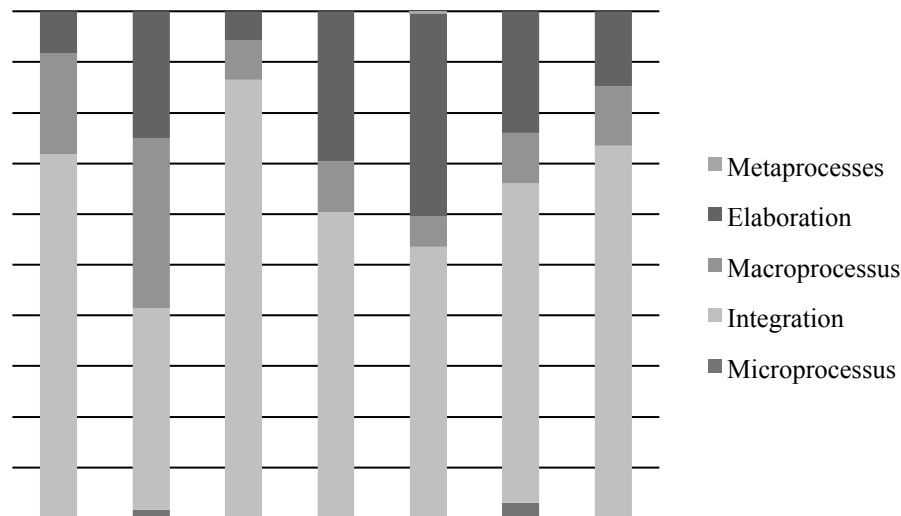


Figure 1

*Proportion of items in the third ministerial objective, separated by professor and reading processes*

## Discussion and Future Directions

Overall, we found satisfying consistency between teachers. The results show that the courses are aligned with ministerial standards and they offer a good balance between them in this regard. We observed important discrepancies in terms of the number of items but also regarding the reading processes that we expect our comprehension questions to allow the students to use. Once the teachers had recognized themselves, it often led to interesting insight in terms of best practices. Conducting a curricular alignment project in a higher education setting asks for proper planning and communication between all actors involved but can bring an inestimable amount of objective information towards improving the quality of both the teaching and the services offered to students. We agree with Bateman et al. (2009); this kind of analysis provides teachers with a common objective vocabulary and understanding of course content. In our case, the discussion can move from, “in my course, I feel that...” to “about the amount of microprocesses questions, I think that at this level of proficiency, our students should be given the opportunity to...” Future directions will lead us to investigate the degree of alignment between two or more FSL departments and also between high schools and our college courses.

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## Biographies

Philippe Gagné is a French as a Second Language faculty and principal researcher for this action research at Vanier College in Montreal. He is a Ph.D. student in Education at Université du Québec à Montréal.

Laurence Dumont is a neuropsychology masters student at Université de Montréal. She is conducting cognitive and behavioral studies on normal subjects and acted as our statistics expert.