# Impact of an Interdisciplinary Pedagogical Intervention on Interest, Engagement and Performance in French

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About 25% of students entering college drop or fail the Preparatory French (PF) course. Failing first language courses is associated with dropping out of school and, by extension, leads to workforce shortage. A possible cause of this problem might be students' lack of interest in the PF course. To stimulate interest in the PF course, a pedagogical intervention focusing on interdisciplinarity was elaborated.

## THE GOAL OF THE STUDY

To evaluate the impact of a pedagogical intervention focusing on interdisciplinarity between a less appreciated course (PF) and an appreciated course (psychology of sexuality) on student interest, engagement and performance.

## THEORETICAL FRAMEWORK

Hidi and Renninger (2006) formulated the four-phase model of interest development. In their model, the first two phases are situational interest (a transient state stimulated by the environment) and the two other phases are individual interest (stable state depending on a person's individual preferences). The authors posit that a situational interest must be triggered and be maintained in order for a stable personal interest to emerge and develop.

Because the major problem is students dropping out of the PF course and because the literature suggests that interest leads to engagement, we also planned to examine the impact of the intervention on behavioral and cognitive engagement in the PF course.

Finally, because a part of the problem is failing the course and because this particular course focuses on upgrading writing, our study assesses performance in spelling, grammar and agreement. It is chosen as a study variable because it is the most frequently failed criterion in the Ministerial College Examination of French.

## METHOD

- 106 college students (56 girls and 50 boys) aged 18.46 (s = 2.20) followed on a semester (4 months).
- Quasi-experimental design with a control group (CG; n = 79) and a quantitative method.
- The experimental group (EG; n = 27) was exposed to the pedagogical interdisciplinary condition.

**Experimental condition:**

- ✓ Planning of linkages between the PF course and a course of psychology of sexuality by both teachers.
- ✓ Same method for students to correct their writing errors in both courses.
- ✓ An important written assignment in the planning to evaluate the students in both courses (so they could work on this composition in both courses and talk about it with both teachers).

## DATA SOURCES

**At the first week of the semester:**

- A 7-point *Likert* scale comprised of four French items (α = .89) from Corbière et al. (2006) measuring students' expectations about situational interest in the PF course.
- A 7-point *Likert* scale comprised of five translated items (α = .93) from Harackiewicz et al. (2008) measuring personal interest in French.
- A dictation to get a measure of 3 types of *orthographic* errors: spelling, grammar and agreement.

**At the last week of the semester:**

- A 7-point *Likert* scale comprised of four translated items (α = .92) from Harackiewicz et al. (2008) measuring students' actual situational interest in the PF course.
- The personal interest scale as presented at the first week of the semester.
- A 6-point *Likert* scale measuring school behavioral and cognitive engagement. There were 4 subscales for behavioral engagement from the work of Bélanger et al. (2005): *interacting with the teacher* (4 items; α = .83), *interacting with other students* (4 items; α = .83), *using reference books* (2 items; α = .75), *speaking participation in class* (2 items; α = .80). Also, there were 2 subscales for cognitive engagement: *self-evaluation* (from Bélanger, et al., 2005) composed of 5 items (α = .83) as well as *cognitive and metacognitive strategies* (from Barbeau, 1994) composed of 6 items (α = .80).
- The same dictation as at the first week of the semester

**Also:**

- French teachers noted attendance in all classes during the semester.
- We collected the final grades of the participants for the PF course.
- As a prospective measure, we collected the final "pass/fail" mark for the first regular French course (*French 101*) of the participants who passed the PF so they could enroll in the *French 101* course.

## ANALYSES

- An ANCOVA for situational interest considering the expectation of situational interest measure as the co-variable.
- A repeated measure ANOVA for personal interest.
- A repeated measure MANOVA for *orthographic* competences.
- A MANOVA for school engagement.
- An ANOVA for the final grades of the PF course.
- Two Chi-square tests for the success rate of PF and *French 101* courses.

## RESULTS

**Means, (standard deviations), expectations about situational interest effect and group effect on students' actual situational interest in the PF course (ANCOVA).**

| | GE (*n* = 27) | GT (*n* = 79) | *F* (1, 103) | $\eta^2_p$ |
|---|---|---|---|---|
| **Co-variable:** expectations about situational interest in the PF course. | 3,19 (,88) | 3,20 (1,16) | 6,92** | ,06 |
| **Group** | 5,53 (1,07) 5,54[1] | 4,46 (1,37) 4,46[1] | 14,58*** | ,12 |

** $p \leq$ ,01; *** $p \leq$ ,001; adjusted $R^2$ : ,16.
[1] Adjusted means.
Dependent variable: students' actual situational interest in the PF course.

**Means, (standard deviations), F values, signification and effect sizes according to group and time of the measure (ANOVA).**

| Variables | Experimental group (*n* = 27) | | Control group (*n* = 79) | | *F* values *Effect sizes* ($\eta^2_p$) | | |
|---|---|---|---|---|---|---|---|
| | Time 1 | Time 2 | Time 1 | Time 2 | Time | Group | Time X Group |
| **Personal interest** | 3,52 (1,17) | 3,99 (1,33) | 3,45 (1,22) | 3,76 (1,14) | 13,21*** *,11* | ,37 ,00 | ,53 *,01* |

*** $p \leq$ ,001.

**Means, (standard deviations), F values, signification and effect sizes according to group (MANOVA).**

| | Variables | Mean scores (standard dev.) GE (*n* = 27) | GT (*n* = 73) | *F* values *Effect sizes* ($\eta^2_p$) |
|---|---|---|---|---|
| Behavioral engagement | **Interacting with the teacher** | 3,36 (1,20) | 2,97 (1,16) | 2,13 *,02* |
| | **Interacting with other students** | 3,76 (,98) | 3,15 (1,18) | 5,75* *,06* |
| | **Using reference books** | 4,74 (,91) | 3,97 (,92) | 14,09*** *,13* |
| | **Speaking participation in class** | 4,09 (1,23) | 3,45 (1,30) | 5,02* *,05* |
| | **Accumulated average absences/student** | 6,70 (8,44) | 10,70 (15,22) | 1,66 *,02* |
| Cognitive eng | **Self-evaluation** | 4,01 (,89) | 3,70 (,90) | 2,38 *,02* |
| | **Cognitive and metacognitive strategies** | 4,41 (,89) | 4,18 (,74) | 1,64 ,02 |

* $p <$ ,05; *** $p <$ ,001.

**Average number of errors, (standard deviations), *F* values, signification and effect sizes for the 3 types of *orthographic* errors (spelling, grammar and agreement) according to group and time of the measure (MANOVA).**

| Variables | Experimental group (*n* = 22) | | Control groupe (*n* = 55) | | *F* values *Effect sizes* ($\eta^2_p$) | | |
|---|---|---|---|---|---|---|---|
| | Time 1 | Time 2 | Time 1 | Time 2 | Time | Group | Time X Group |
| **Spelling errors** | 5,32 (3,08) | 3,95 (2,36) | 7,07 (3,59) | 4,49 (2,54) | 36,43*** *,32* | 2,83 *,04* | 3,45 *,04* |
| **Grammar errors** | 10,86 (4,59) | 7,77 (3,56) | 12,39 (4,99) | 12,00 (5,38) | 11,91** *,13* | 6,58* *,08* | 7,17** *,08* |
| **Agreement errors** | 4,82 (1,99) | 4,23 (2,20) | 6,10 (2,96) | 6,03 (3,15) | ,76 *,01* | 6,64* *,08* | ,48 *,01* |

* $p \leq$ ,05; ** $p \leq$ ,01; *** $p \leq$ ,001.

**Average final grades for the PF course, *F* values, signification and effect size according to group (ANOVA).**

| Variables | Average scores GE (*n* = 27) | GT (*n* = 79) | *F* values *Effect size* ($\eta^2_p$) |
|---|---|---|---|
| **Final grades for the PF course** | 64 % | 55 % | 8,14** *,07* |

** $p \leq$ ,01

**Success rate in the PF course according to group (Chi square).**

| Variables | GE (*n* = 27) | GT (*n* = 79) | $\chi^2$ value |
|---|---|---|---|
| **Success rate in the PF course** | 78 % | 49 % | 6,61** |

** $p \leq$ ,01

**Success rate in the *French 101* course according to group (Chi square).**

| Variables | GE (*n* = 21) | GT (*n* = 39) | $\chi^2$ value |
|---|---|---|---|
| **Success rate in the *French 101* course** | 52 % | 28 % | 3,44 (*p* = ,06) |

## SCIENTIFIC AND SCHOLARLY SIGNIFICANCE OF THE STUDY

The results of this study support Hidi's and Renninger's model of interest development, proposing that situational interest precedes the development of individual interest. Indeed, the situational interest score of the EG at the end of intervention is much higher than their personal interest score. We might believe that the small increase of personal interest represents a beginning of this development as a result of the situational interest the students felt for the PF course during the semester. Could we expect a significant increase of personal interest if the intervention were to last two semesters instead of one? Second, the results are consistent with the studies reporting links between interest, engagement and performance.

The results as a whole support the idea that interdisciplinarity in teaching promotes motivation and learning, as suggested by Lattuca (2001). Also, the positive impact of the intervention on the EG students seems to endure during the following semester because even though the participants were scattered in different groups, even in different colleges, for the *French 101* course, the EG and the CG still have different pass rates.

This study also contributes to educational practice. In fact, the latest provincial reform in education recommends cross-curricular teaching. This study shows that it is feasible to include language courses in interdisciplinary pedagogical planning.

The principal limits of the study concern the small number of students in the EG and the fact that it was impossible to have the EG and the CG taught by the same French teacher for ethical reasons.

For the purposes of future research, this pedagogical device should be replicated and pursued over more than one semester. Also, it could be implemented with other courses causing difficulties for many students, such as mathematics. Partnership among teachers appears to be a good approach in education and should be promoted in educational communities.

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