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Does passion predict enjoyment and performance in an interteaching-based course?

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Does Passion Predict Enjoyment and Performance in an Interteaching-Based Course?

An Honors Program Project Presented to
the Faculty of the Undergraduate
College of Health and Behavioral Studies
James Madison University

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Abstract

The present study sought to examine whether passion for academic activities predicted students' enjoyment of and performance in an interteaching-based course. Although previous studies have shown interteaching to produce better student-learning outcomes than lecture, few studies have examined factors that predict how students respond to interteaching. Because people who have higher levels of harmonious passion tend to approach activities in an open and flexible manner, we predicted that harmonious passion for academic activities would predict increased enjoyment of and performance in an interteaching-based course. In contrast, because people with higher levels of obsessive passion approach activities in a rigid and inflexible manner, we predicted that obsessive passion for academic activities would predict less enjoyment and decreased performance in an interteaching-based class. In contrast with our hypotheses, we found that obsessive passion, but not harmonious passion, predicted higher mid-semester enjoyment. Neither type of passion, however, predicted enjoyment at the end of the semester. In addition, harmonious passion was negatively related to overall course performance.

Introduction

In recent years, there has been a growing concern that traditional methods of teaching may not be the most effective way for students to learn (McKeachie & Svinicki, 2006; Saville, Lambert, & Robertson, 2011). In response to this concern, researchers have begun to examine alternative teaching methods. One such method is interteaching. First introduced by Boyce and Hinline (2002), interteaching emerged from the belief that learning ought to be an active (rather than passive) process. Interteaching built upon previously proposed behavioral teaching methods such as Lindsley's (1964) precision teaching, Keller's (1968) personalized system of instruction, and Griffin and Griffin's (1998) reciprocal peer tutoring. Although the theoretical basis of these methods is similar to interteaching, these methods were not suitable for practical application in college classrooms due to unconstrained time limits, cumbersome administrative preparation, and the bimodal distribution of final grades (Boyce & Hinline, 2002). As such, interteaching seeks to offer an alternative that allows for better integration into classroom settings.

How Interteaching Works

A typical interteaching session proceeds as follows. Students are first provided with a preparation (prep) guide that requires them to read an assignment and answer questions before class. The teacher creates the prep guides, which typically contain 10-12 multilevel questions covering 10-15 pages of material (Saville et al., 2011). Once in class, students pair up and engage in collaborative discussion of the concepts presented in the prep guide. During this time, the teacher and teaching assistants (if available) roam among the groups and answer questions and guide the discussions. After the discussion, students complete a record sheet on which they note any topics with which they are still struggling and rate the quality of the discussion. The teacher then uses this information to construct a clarifying lecture that focuses on the most

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difficult material. The next class begins with this clarifying lecture and is followed by discussion of the next prep guide.

Other important aspects of interteaching include participation points, quality points, and frequent testing. To motivate students to attend class, Boyce and Hinline (2002) recommended that 10% of a student's final course grade should be based on his or her class participation. Additionally, quality points act as incentives for quality pair discussions. Students have the opportunity to earn quality points based upon their and their partners' performance on certain test questions, which come from the prep guide the two discussed together. If both partners perform well on those questions (i.e., if they each receive an A or a B on the specific question), each earns extra points. Importantly, these are not extra credit points. Rather, they account for approximately 10% of a student's overall course grade. Finally, Boyce and Hinline (2002) recommended frequent testing (no fewer than five tests per semester), which gives students multiple opportunities to show what they have learned. In addition, Boyce and Hinline suggested that the tests should be closely linked to the prep guides.

Research on Interteaching

Interteaching Versus Lecture

A growing number of studies have compared interteaching to other, more traditional teaching methods and have found significantly better performance when students learn through interteaching. In an early study, Saville, Zinn, and Elliot (2005) compared interteaching to other traditionally used teaching methods in a controlled laboratory setting. College students were randomly assigned to either an interteaching, lecture, reading, or control condition. In the interteaching condition, students read a brief article, completed a short prep guide, discussed their answers, and then heard a short clarifying lecture; those in the lecture condition received a

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lecture on the same article; and those in the reading condition simply read the article. Students in the control condition had no contact with the article. One week later, all participants took a 10-item multiple-choice quiz on the article. Saville et al. found that students in the interteaching condition achieved significantly higher quiz scores than students in the other groups, who were not significantly different from one another.

To test the generalizability of Saville et al.'s (2005) findings, Saville, Zinn, Neef, Van Norman, and Ferreri (2006) compared interteaching to lecture in two different college classes. In Study 1, the sample consisted of 35 students in an 8-week-long graduate-level special education course. At the start of the semester, students took pre-class quizzes to test their base level of knowledge. The class then alternated between lecture and interteaching during the semester. At the end of each class session, students took post-quizzes over the material. The difference between the pre- and post-quiz scores was consistently higher following interteaching sessions than following lecture sessions. Students also reported that they preferred interteaching to lecture.

In Study 2, Saville et al. (2006) compared interteaching to lecture in two sections of an undergraduate research methods course. They used an alternating-treatments design and counterbalanced the order of teaching method across sections. Six unit tests were administered throughout the semester—three after interteaching sessions and three after lecture sessions; students also took a cumulative final exam. Once again, unit test scores were consistently higher following interteaching sessions (an average of 10 percentage points across all six tests). In addition, students correctly answered a greater number of interteaching-based questions on the final exam. Also, as in Study 1, students reported a stronger preference for interteaching.

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In a more recent, lab-based study, Saville et al. (2014) examined the long-term retention of material learned by interteaching. As with Saville et al. (2005), students were divided into three groups—interteaching, lecture, or control. But in addition, they came to the lab on three separate occasions. During Session 1, students participated in interteaching, heard a lecture, or completed anagrams. At the end of Session 1, all groups took a quiz. Students then reported back to the lab 1 week and 1 month after the initial session to take variations of the original quiz. Students in the interteaching group performed significantly better than the lecture group on every quiz (and both did better than the control groups). In addition, students in the interteaching condition had higher quiz scores after 1 month than students in the lecture condition had at the end of the initial teaching session (i.e., 5 min after hearing the lecture).

Component Analyses

Along with the overall analyses of the effectiveness of interteaching (compared to traditional teaching methods), researchers have begun to conduct component analyses of interteaching. In the first study of this type, Saville and Zinn (2009) examined the effects of quality points on exam scores in a classroom-based study. Forty-four undergraduate students participated from two separate sections of an interteaching-based introductory psychology course. Following each class unit, both sections completed the same exam. Saville and Zinn (2009) varied the use of quality points and no quality points using an alternating-treatments design; they also counterbalanced the presentation of quality points across the two sections. Saville and Zinn found no significant difference between the two sections on 5 of the 6 class exams, suggesting that quality points did not affect learning.

In a more recent study, Rosales, Soldner, and Crimando (2014) further examined the impact of quality points on quiz scores. The participants were 11 students enrolled in an

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introductory psychology course. The researchers used an alternating-treatments design so that quality points were available quasi-randomly throughout the semester (students were aware of when the quality-points contingency was in effect). In contrast to Saville and Zinn (2009), Rosales et al. provided immediate feedback on student quizzes. Rosales et al. observed that students' average quiz scores were significantly higher when the quality points contingency was in effect. These results suggest that the immediacy of quality points may impact their efficacy.

In another study, Saville, Cox, O'Brien and Vanderveldt (2011) sought to determine how important clarifying lectures were to the success of interteaching and whether the placement of the lectures affected exam scores. Participants were undergraduate students enrolled in three separate sections of the same research methods course, and each section was exposed to a different lecture condition: Section 1 (delayed lecture) received a clarifying lecture at the beginning of the next class, Section 2 (immediate lecture) listened to a lecture shortly after completing the discussions, and Section 3 (control) did not receive any lectures at all. Each section then took the same exam after each unit. Saville, Cox, et al. found significant differences on only two of the five exams, with students in the delayed-lecture and immediate-lecture conditions performing better than those in the control group. However, when examining cumulative points earned across the semester, Saville, Cox, et al. found that students in the immediate-lecture and delayed-lecture conditions earned significantly more points than those in the control group. Thus, the lectures may have a cumulative effect on learning. In addition, the timing of the lectures may not matter that much.

Research has also examined whether frequent testing impacts course performance. As noted previously, Boyce and Hinline (2002) suggested administering tests at least five times per semester. In a recent study, Felderman (2014) investigated whether frequent testing affected

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exam scores. Participants were students enrolled in two sections of an interteaching-based introductory psychology course. Students in both sections took a pretest at the beginning of the semester. Section 1 then completed six exams during the semester, whereas Section 2 completed 12 exams. Finally, students all took a posttest to determine whether exam frequency impacted their grades. There were no statistically significant differences between the two groups.

Improving the Efficacy of Interteaching

In their review of interteaching, Saville et al. (2011) suggested that researchers should study ways to further improve the efficacy of interteaching. In response to this suggestion, Lambert and Saville (2012) examined the effects of quizzing after each interteaching session. Previous research on the testing effect suggests that retention of information improves when people are tested immediately after learning material (Butler & Roediger, 2007; Roediger & Karpicke, 2006). To examine whether including a brief quiz after discussion would improve performance on a subsequent quiz, participants in this lab-based study experienced an interteaching session. All students read a short article, completed a prep guide, participated in a pair discussion, and completed a record form. One group then took a brief quiz, while the other group completed anagrams. A clarifying lecture followed for both groups. Students returned to the lab 1 week later and were given a multiple-choice quiz. Lambert and Saville found that students who took a quiz immediately after the mock interteaching session performed significantly worse on the follow-up quiz than those who completed anagrams. In a subsequent study, Saville, Pope, Lovaas, and Williams (2012) found similar results in a classroom setting.

Individual Differences in Interteaching Performance

Overall, the results from these studies reinforce the notion that interteaching may be a more effective method than other traditional teaching methods and that multiple components

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contribute to its efficacy. Nevertheless, there is still variability in how students perform with interteaching, which begs the question: Are there certain “individual difference” or “personality” variables that might predict better preference for, and performance with, interteaching? To date, only one study has provided insight into this question. Saville, Pope, Truelove, and Williams (2013) investigated whether interteaching would affect performance differently in students with different GPAs. Seventy-one students were split into three groups (high, medium, low) based on their self-reported GPA. The procedure followed Saville et al. (2006, Study 2) in which class sessions alternated between interteaching and lecture. As with previous studies, students in all groups tended to perform better on tests following interteaching. However, researchers observed the greatest improvement by students in the moderate- and low- GPA groups, suggesting that interteaching may be especially helpful for students who typically perform worse in their classes.

Other than Saville et al.’s (2013) study, no interteaching studies of which we are aware have examined whether different “personality” variables might help us predict who performs well under and who enjoys interteaching. One variable that we believe might predict enjoyment and performance is passion.

Passion for Activities

Passion for an activity is defined as “a strong inclination toward a self-defining activity that people like (or love), find important, and in which they invest time and energy” (Vallerand & Verner-Filion, 2013, p. 35). According to Vallerand et al.’s (2003) Dualistic Model of Passion, there are also two different types of passion: harmonious or obsessive.

Harmonious passion (HP) emerges when a person freely chooses to engage in an activity that he or she loves, spends time on, and values. Because of the free choice involved, a person approaches the activity in an open and flexible manner, feels a sense of control over engagement

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in the activity, and does not attach external contingencies to its participation. The passion activity becomes well integrated into the person's identity but does not overwhelm it, which means that the passion is nicely balanced in the person's life and leads to a number of positive psychological outcomes (for a review, see Vallerand & Verner-Filion, 2013).

The second type of passion is obsessive passion (OP). In contrast to HP, OP develops through a controlled internalization, which means that individuals initially engage in an activity because of pressure to do so. These pressures can be external and may come in the form of parents, peers, or societal expectations; or these pressures can be internal, such as when an individual's self-esteem is dependent on performing the activity. The person still loves and values the activity, but as a result of these pressures, the passionate activity overtakes the person's sense of identity. As a result, the activity is not well integrated into a person's self-concept, and the person depends on the activity to construct his or her personal sense of self. Moreover, because the passion activity often has external contingencies associated with it, the person feels an uncontrollable pressure to engage in the activity and does so in a rigid and "closed" manner, which often leads to imbalance and a variety of negative psychological outcomes.

As noted above, HP most often has positive consequences, such as experiences of flow, increased positive affect during and after participation in the activity, and little conflict between the passion activity and other areas of life (Vallerand et al., 2003; Vallerand & Verner-Filion, 2013). OP, in contrast, is often associated with less positive effects, such as conflict between engagement in the passion activity and other important activities, negative affect and stress when prevented from doing passion activity, and inadequate performance in other activities because of

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an inability to focus on anything other than the passionate activity (Vallerand et al., 2003; Vallerand & Verner-Filion, 2013).

Although passion has been empirically linked to many other aspects of life, few studies have examined the possible connection between passion and educational activities (Vallerand et al., 2003; Vallerand and Verner-Filion, 2013). And no studies have examined the relation between passion and different teaching methods (e.g., interteaching). Thus, one purpose of the present study is to examine further passion for academic activities in college students.

Passion for Academic Activities

In one of the first studies on passion and education, Stoeber, Childs, Hayward, and Feast (2011) examined the relation between OP and HP for studying and academic engagement and burnout in university students. The results of this study showed that HP was related to increased levels of academic engagement and decreased levels of burnout. OP was also related to increased levels of academic engagement and negatively related to two aspects of burnout (cynicism and inefficacy). These results suggest that harmonious and obsessive passion might help explain individual differences in how students perform in different academic settings.

In another study, Bonneville-Roussy, Vallerand, and Bouffard (2013) examined the relations among autonomy support, passion (HP and OP), and educational persistence in students pursuing higher education. Bonneville-Roussy et al. found that students in an autonomy-supportive environment tended to develop HP, whereas those in a more controlled environment tended to develop OP. Moreover, only HP predicted educational persistence.

The present study seeks to expand previous research on passion and education by examining whether passion for academic activities might predict students' enjoyment of and performance with interteaching (which, for many, is a new teaching method). Because people

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who have higher levels of HP tend to approach activities in an open and flexible manner, we hypothesize that HP will predict higher levels of enjoyment and performance in an interteaching-based class. In contrast, because OP is associated with a rigid and inflexible approach to activity engagement, we expect that OP will be associated with less enjoyment and worse overall performance.

Method

Participants

Participants were 69 undergraduate students enrolled in a psychology of learning course at James Madison University. The remaining 61 participants in the sample consisted of 5 sophomores, 31 juniors, and 25 seniors. There were 50 women and 11 men, and the median age was 21.

Materials

Passion Scale. The Passion Scale (see Appendix A) is a 16-item questionnaire that assesses an individual's overall passion, as well as his or her levels of HP and OP, for a given activity. Each of the 16 items is answered on a Likert scale ranging from 1 (*Not Agree at All*) to 7 (*Very Strongly Agree*). The first four items correspond with Vallerand et al.'s (2003) definition of passion and ask respondents to rate the extent to which they like, value, and spend time on an activity; a fourth question asks respondents to rate if they think the activity is a passion for them. The subsequent 12 questions determine a person's level of HP (6 questions) and OP (6 questions), both of which are calculated by computing the mean of their respective 6 questions. Since Vallerand et al.'s (2003) development of the Passion Scale, numerous studies have confirmed its validity and reliability (for a review, see Marsh et al., 2013). In the present study,

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the internal reliability score for the four criterion items was .58, while the reliability for the harmonious and obsessive subscales was .73 and .64, respectively.

Achievement Emotions Questionnaire. In its entirety, the Achievement Emotions Questionnaire (AEQ; see Appendix B) is a 232-item self-report tool that assesses nine academic emotions—enjoyment, hope, pride, relief, anger, anxiety, boredom, shame, and hopelessness—as they occur in three specific areas at three distinct times: class-related emotions, learning-related emotions, and test-related emotions (Pekrun, Goetz, & Perry, 2005). Each question is answered on a 5-point scale ranging from 1 (*do not agree at all*) to 5 (*very strongly agree*) and respondents receive an averaged score for each emotion assessed. For this study, students completed only the 80 questions on class-related emotions. Moreover, because the primary purpose was to examine whether students enjoyed interteaching, we only report responses from the enjoyment subscale. Pekrun et al. (2005) found that this shortened form of the AEQ is both valid and reliable. In this study, the reliability scores for the enjoyment subscale were adequate (.85 at Time 1 and .87 at Time 2).

Procedure

Participants completed the Passion Scale and the demographic information during the second week of class. Students then participated in an interteaching-based class on the psychology of learning. A typical interteaching session proceeds as follows. Students are provided with a prep guide that requires them to read a selection of text and respond to a number of short-answer questions prior to coming to class each day. Once in class, students pair up and engage in collaborative discussion of the concepts presented in the prep guide. The teacher and four undergraduate teaching assistants help answer specific questions and facilitate the pair discussions. After the discussion, students use a record form to note any topics with which they

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are still struggling and to rate the quality of their conversation with their partner. The teacher then uses this information to tailor a clarifying lecture that focuses on the most challenging material. The next class begins with this clarifying lecture and is followed by a discussion of the next prep guide.

Midway through the semester, students completed the shortened AEQ to assess their feelings towards an interteaching-based course as they have experienced it thus far. Students also completed this measure again at the end of the semester, along with demographic questions.

Results

First, because of their failure to complete either the Passion Scale or one (or both) AEQ surveys, we removed seven participants' data from the data set. Additionally, because of their small numbers, and because we found year in school to be related to several of our variables, we chose to remove students who indicated their year in school to be "sophomore" ($n = 5$). The subsequent results thus come from analyses of the data of the remaining 56 participants. Of the remaining participants, there were 10 men and 46 women, 31 of whom were juniors and 25 of whom were seniors.

Preliminary Analyses

We first examined whether any of our demographic measures were related to our primary variables. Enjoyment at Time 1 differed as a function of Greek-life affiliation, $t(54) = 2.04, p = .046$, with Greek members scoring lower ($M = 3.34$) than non-Greek members ($M = 3.64$) on the AEQ. Performance also differed as a function of Greek-life affiliation: Greek members earned more points ($M = 531.25$) than non-Greek members ($M = 505.29$). Additionally, we found that OP scores differed as a function of gender, $t(54) = 2.82, p = .007$, with men reporting higher OP scores ($M = 3.46$) than women ($M = 2.71$). OP also differed as a function of year in school, $t(54)$

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= -2.07, $p = .043$, with seniors having higher OP scores ($M = 3.09$) than juniors ($M = 2.65$).

Total points earned in the course was also related to year in school, $t(54) = 2.33$, $p = .023$, with seniors earning fewer total points ($M = 501.56$) than juniors ($M = 525.05$). Finally, age was related to OP ($p = .016$) and to total points earned ($p = .021$).

We found that students' passion scores were positively and significantly related to HP ($r = .50$, $p < .001$), but not significantly related to OP ($r = .07$, $p = .58$). We also did not find a significant correlation between OP and HP ($p = .75$), suggesting that the two types of passion were independent of one another in the present study. Enjoyment at Time 2 was marginally correlated with Enjoyment at Time 1 ($p = .06$). Cumulative GPA was also positively related to total points earned ($p = .002$). Due to the relations between these variables, we chose to control for Greek-affiliation, gender, year in school, age, Enjoyment at Time 1, and GPA in the following analyses.

Passion, Enjoyment, and Course Performance

For each of the following analyses, we ran a linear regression controlling for age, year in school, Greek affiliation, gender, and cumulative GPA in Step 1. In addition, for Enjoyment at Time 2 we controlled for each of these variables as well as Enjoyment at Time 1 in Step 2 (see Table 1 for more detail).

Enjoyment at Time 1. For Enjoyment at Time 1, OP served as a significant predictor. Beta weights showed that OP for academics ($\beta = .33$, $p = .02$) was positively and significantly related to Enjoyment at Time 1. However, HP for academics was not significantly related to Enjoyment at Time 1 ($\beta = .05$, $p = .72$).

Enjoyment at Time 2. For Enjoyment at Time 2, OP and HP did not serve as significant predictors. Beta weights showed that OP for academics ($\beta = -.18$, $p = .29$) was negatively related

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to Enjoyment at Time 2, but not at a statistically significant level. HP for academics ($\beta = .14, p = .32$) was positively related to Enjoyment at Time 2, but also not at a significant level.

Course Performance. For total points earned over the course of the semester, OP was not a significant predictor. Beta weights showed that OP for academics ($\beta = .12, p = .38$) was positively related to overall performance, but not at a statistically significant level. In contrast, HP for academics was negatively related to overall course performance at a marginally significant level ($\beta = -.22, p = .07$).

Discussion

In this study, we examined whether HP and OP for academic activities could predict enjoyment and performance in an interteaching-based course. In line with previous research, we predicted that, due to their tendency to be more open to new experiences, individuals with higher levels of HP would enjoy an interteaching course more than individuals with higher levels of OP (Vallerand et al., 2003, Vallerand & Verner-Filion, 2013). We also predicted that HP would be related to better performance. Our hypotheses were not supported. We found that OP predicted increased Enjoyment at Time 1 (halfway through the semester). Interestingly, OP did not predict Enjoyment at Time 2. We also did not find any significant relation between HP and enjoyment at either time. In regard to course performance, OP was not a predictor. HP, however, was negatively and marginally related to course performance.

Previous research on interteaching has shown that it tends to produce better performance than more traditional lecture-based teaching methods (Saville et al., 2005; Saville et al., 2006; Saville et al., 2014). However, there is limited research on whether individual difference variables can predict who enjoys interteaching and who will perform well under this new teaching method. To date, only one study has examined this question. Saville et al. (2013) found

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that all students performed better with interteaching than with lecture but that students with low and moderate GPAs showed the most improvement with interteaching.

We also assumed the passion for academic activities might be one individual-difference variable that predicts enjoyment of and performance in an interteaching class. Vallerand et al. (2003) introduced the Dualistic Model of Passion, which suggests that there are two distinct types of passion—obsessive and harmonious. According to Vallerand et al.'s (2003) model, OP and HP are related to different behavioral and psychological outcomes. Harmonious individuals engage in passion activities with flexibility, and these activities are in balance with other activities in their life, while obsessive individuals are rigid in their engagement with the passion activity and experience feelings of control from participation in the passion activity (Vallerand et al., 2003; Vallerand & Verner-Filion, 2013). As such, we assumed that HP would predict more enjoyment and better performance, whereas OP would predict less enjoyment and worse performance. In contrast with our hypotheses, we found that OP predicted more enjoyment (at least at mid-semester) and then HP predicted worse performance.

So why might it be that OP for academic activities might predict more enjoyment with interteaching? Interteaching provides a highly structured learning environment—students complete prep guides every day and must come to class prepared. If they are not prepared for class, they often experience negative consequences in the form of social punishers (from their discussion partners and teachers) and maybe even tangible punishers if they lose participation points (see Boyce & Hineline, 2002). These contingencies may, for some students, create the perception of a highly controlled and rigid environment. As such, it is possible that interteaching's highly structured environment corresponds with the rigidity that is characteristic of OP.

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In fact, a study by Amiot, Vallerand, and Blanchard (2006) supports this idea. These researchers examined whether HP and OP for hockey were related to psychological adjustment when players were placed in one of two different environments, a highly competitive hockey league or a less competitive hockey league. Amiot et al. found that OP was related to higher levels of psychological adjustment when playing in the highly competitive league, while HP was related to higher levels of psychological adjustment when playing in the less competitive league. In accord with our results, Amiot et al.'s subjects thrived when the environment matched their type of passion.

Similarly, the perceived rigidity of an interteaching course might appeal to people's obsessive side because they have the opportunity to focus intensely on the subject matter of the interteaching course and allow the process to control their engagement with the material. In contrast, HP may not jibe with the inflexibility of the interteaching process. Instead, individuals with high levels of HP may thrive more in environments that are a little more open or "free-wheeling" (at least initially; see below).

Interestingly, we found that OP was no longer correlated with enjoyment at the end of the semester. Previous research has shown that OP is related to the experience of more negative emotions both during and after engagement with a passion activity (Vallerand et al., 2003; Vallerand & Verner-Filion, 2013). While levels of OP predicted Enjoyment at Time 1, it is possible that as the semester progressed, these individuals with higher levels of OP began to experience more negative emotions towards the course, which took away from their initial enjoyment. Similarly, for HP, it is possible that small experiences of positive emotions accumulated over the course of the semester to produce an overall more positive experience with

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the course, thus becoming correlated (although not significantly) with HP at Time 2. Future research should examine how these feelings might change across time.

Another interesting result of the current study comes from the data on course performance. We found that neither HP nor OP predicted overall course performance. Although this went against our predictions, previous research on interteaching might provide an explanation. As noted above, Saville et al. (2013) found that interteaching reduced the overall differences in performance between low-, moderate-, and high-GPA students. Maybe it is the case that interteaching “levels the playing field” when it comes to passion as well. Regardless of individual differences, maybe interteaching produces equally good (or bad) performance in many types of individuals.

That being said, although there were not significant relations between HP and OP and overall performance, the direction of the results is worth mentioning. HP was related to lower course performance, which was opposite of our predictions. In contrast, OP was related to increased performance (although not significantly). In previous research, Vallerand et al. (2007) found that both HP and OP predicted increased performance, even though OP was related to more negative emotions as performance increased. Vallerand and colleagues suggested that both HP and OP might provide a route to successful performance. Given the different directions of the correlations in our study (and the relatively small sample size; see below), future research might wish to examine these variables further to understand why HP might predict potentially *worse* performance in an interteaching-based class.

Limitations

Although the present study expands the research available on passion for activities and interteaching, there are also several limitations to our study. First, it is important to note that the

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nature of our analyses was correlational. Because of this, we are unable to imply causation between any of our variables. Future studies may be able to use experimental designs to provide evidence of causation between passion levels and enjoyment and performance in an interteaching-based course. Additionally, this study used retrospective self-report measures, which may not accurately reflect the participants' emotions *during* the process of interteaching. Future studies might seek to use more objective measures. Finally, a major limitation of this study was the sample. The sample size was relatively small. Given the strength of some of our correlations, a larger sample size might further elucidate the extent to which passion predicts enjoyment and performance in an interteaching-based course.

Conclusion

In conclusion, the present study examined whether passion for academic activities could predict enjoyment and performance in an interteaching-based course. We found that obsessive passion predicted higher mid-semester enjoyment, but the effect was not seen at the end of the semester. Harmonious passion did not predict enjoyment at either time; however, there was a marginally significant negative relation between harmonious passion and performance. These results suggest that there may be a relation between passion for academic activities and enjoyment and performance; however, further research is needed in this area.

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Appendix A

Passion Scale

The following questions are answered on a 7-point scale (1 = do not agree at all, 7 = very strongly agree)

Please answer the following questions while thinking of your **TYPICAL ACADEMIC ACTIVITIES** (which may include going to class, studying, and any other academic activities you do, either inside or outside of class).

I spend a lot of time doing these activities.

I like doing these activities.

These activities are important for me.

These activities are a passion for me.

The activities are in harmony with the other activities in my life.

I have difficulty controlling the urge to do these activities.

The new things that I discover while doing these activities allow me to appreciate them even more.

I have an almost obsessive feeling about doing these activities.

Doing these activities reflect the qualities I like about myself.

Doing these activities allows me to have a variety of experiences.

These activities are the only things that I get excited about.

These activities are well integrated into my life.

If I could, I would only engage in these activities.

These activities are in harmony with other things that are part of me.

I sometimes feel as if I lose control over these activities.

I have the impression that these activities control me.

Appendix B

Achievement Emotions Questionnaire (AEQ)

Part I – Class-Related Emotions

“Attending classes at university can induce different feelings. This part of the questionnaire refers to emotions you may experience when attending class in this course. Before answering the questions on the following pages, please recall some typical situations of being in class which you have experienced in this course.”

Before Class

“The following questions pertain to feelings you may experience **BEFORE** being in class in this course. Please indicate how you feel, typically, before you go to class.”

Strongly Disagree					Strongly Agree
1	2	3	4		5

1. I get excited about going to class.
2. It’s pointless to prepare for class since I don’t understand the material anyway.
3. Even before class, I worry whether I will be able to understand the material.
4. Being confident that I will understand the material motivates me.
5. I am looking forward to learning a lot in this class.
6. Because I’m so nervous I would rather skip the class.
7. I am confident when I go to class.
8. I wish I didn’t have to attend class because it makes me angry.
9. I am full of hope.
10. Even before class, I am resigned to the fact that I won’t understand the material.
11. I am motivated to go to this class because it’s exciting.
12. I worry whether I’m sufficiently prepared for the lesson.
13. My confidence motivates me to prepare for class.
14. The thought of this class makes me feel hopeless.
15. I worry whether the demands might be too great.
16. My hopes that I will be successful motivate me to invest a lot of effort.
17. Thinking about class makes me feel uneasy.
18. Because I’ve given up, I don’t have energy to go to class.
19. When I think about class, I get queasy.
20. I am optimistic that I will be able to keep up with the material.
21. I feel scared.
22. I’d rather not go to class since there is no hope of understanding the material anyway.
23. I am hopeful that I will make good contributions in class.

During Class

“The following questions pertain to feelings you may experience **DURING** class in this course. Please indicate how you feel, typically, during class.”

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24. I enjoy being in class.
25. I worry the others will understand more than me.
26. I'm tempted to walk out of class because it is so boring.
27. When I say something in class, I feel like I turn red.
28. I feel frustrated in class.
29. Because the time drags, I frequently look at my watch.
30. I take pride in being able to keep up with the material.
31. Because I don't understand the material, I look disconnected and resigned.
32. My enjoyment of this class makes me want to participate.
33. I get restless because I can't wait for the class to end.
34. When I say anything in class, I feel like I am making a fool of myself.
35. I get tense in class.
36. I get bored.
37. I am confident because I understand the material.
38. After I have said something in class I wish I could crawl into a hole and hide.
39. I feel anger welling up in me.
40. I am proud that I do better than the others in this course.
41. It's so exciting that I could sit in class for hours listening to the professor.
42. I get so bored, I have problems staying alert.
43. I get embarrassed.
44. Thinking about the poor quality of the course makes me angry.
45. I start yawning in class because I'm so bored.
46. When I make good contributions in class, I get even more motivated.
47. I'm embarrassed that I can't express myself well.
48. I feel hopeless.
49. I enjoy participating so much that I get energized.
50. I feel nervous in class.
51. The lecture bores me.
52. Because I get embarrassed, I become tense and inhibited.
53. I am proud of the contributions I have made in class.
54. Because I'm angry I get restless in class.
55. I have lost all hope in understanding this class.
56. I get scared that I might say something wrong, so I'd rather not say anything.
57. During class I feel like I could sink into my chair.
58. I am ashamed.
59. Thinking about all the useless things I have to learn makes me irritated.
60. When I do well in class, my heart throbs with pride.
61. Because I get bored my mind begins to wander.
62. When I talk in class I start stuttering.
63. I find this class fairly dull.
64. If the others knew that I don't understand the material I would be embarrassed.
65. When I don't understand something important in class, my heart races.
66. I think about what else I might be doing rather than sitting in this boring class.

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After Class

“The following questions pertain to feelings you may experience **AFTER** having been in class in this course. Please indicate how you feel, typically, after class.”

67. After class, I start looking forward to the next class.
68. I am ashamed because others understood more than I did.
69. I wish I could tell the teacher off.
70. I am proud of myself.
71. I am happy that I understood the material.
72. I'd rather not tell anyone when I don't understand something in class.
73. I am angry.
74. I think that I can be proud of what I know about this subject.
75. I feel so hopeless all my energy is depleted.
76. I am glad that it paid off to go to class.
77. Because I take pride in my accomplishments in this course, I am motivated to continue.
78. When I think of the time I waste in class I get aggravated.
79. I feel hopeless continuing in this program of studies.
80. I would like to tell my friends about how well I did in this course.

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Table 1

This table has the regression analyses with the Enjoy1, Enjoy2, and TotalPts entered as the primary criterion variables. Gender, Greek-affiliation, age, year in school, and Cumulative GPA were entered as controls and obsessive and HP for academic activities were entered as the predictor variables.

Enjoy1			β	t	p	R^2	ΔR^2	F	p
	Step 1	Gender	.11	.79	.44	.2		2.37	.05
		Greek	-.38	-2.76	.01				
		Age	.01	.05	.96				
		Year	-.39	-2.28	.03				
		GPA	-.17	-1.15	.26				
	Step 2	OP	.33	2.34	.02	.28	.09	2.81	.07
		HP	.05	.37	.72				
Enjoy2									
	Step 1	Gender	-.09	-.6	.55	.06		.62	.69
		Greek	-.17	-1.17	.25				
		Age	.00	.02	.98				
		Year	-.18	-.99	.33				
		GPA	.04	.25	.81				
	Step 2	Enjoy 1	.21	1.36	.18	.09	.04	1.85	.18
	Step 3	OP	-.18	-1.07	.29	.14	.04	1.1	.34
		HP	.14	1.0	.32				
Total									

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Points									
	Step 1	Gender	-.03	-.21	.84	.28		3.77	.01
		Greek	.24	1.86	.07				
		Age	-.23	-1.56	.13				
		Year	.05	.32	.75				
		GPA	.38	2.78	.01				
	Step 2	OP	.12	.89	.38	.34	.06	2.08	.14
		HP	-.22	-1.83	.07				