



The interplay of teachers' passion, social support, and students' passion for a field of study in higher education

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Abstract

Passion in education, both for teachers and students, plays a critical role in shaping learning experiences and outcomes. This study explores the interplay between students' perceptions of their teachers' passion for the field, perceived social support, and students' passion for their field of study. Using a mixed-methods approach, we surveyed 355 university students from various disciplines and analyzed their perceptions of teacher passion and social support, alongside their own passion for their field of study. Results indicated that both perceived teacher passion and social support significantly predicted students' passion for their field of study, with an interaction effect suggesting that the highest levels of student passion occur when both teacher passion and social support are perceived as high. Qualitative data further illustrate the dynamic qualities students report when they think of passionate teachers, such as enthusiasm, energy, and engagement. Students also reported on their multifaceted conceptualizations regarding passion for their own field of study, emphasizing intellectual curiosity, practical applications, and problem-solving. These findings contribute to the understanding of motivational factors in educational settings, highlighting the influential relationship between teacher and student passion. This research provides valuable insights into the development of passion in higher education contexts, as well as practical implications for fostering supportive and passionate teaching environments.

Keywords Teacher passion · Student passion · Social support · Higher education · Teacher quality

Passion is a powerful motivator in education, affecting both students and teachers. It has been a focal point in educational research over the past three decades, highlighting its critical role in shaping learning environments. Passionate teachers, though rare, are unmistakable. Their influence extends beyond effective teaching, as noted by Talapatra et al. (2020),

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shaping students' perspectives on disciplines and enhancing their well-being (Vallerand et al., 2024; Prates et al., 2019). Passionate educators not only dedicate themselves to student learning but also engage with broader, community-focused goals that enrich their teaching and the learning experience of their students (Phelps & Benson, 2012; Rampa, 2012). As interest in this area grows, research has also begun to explore student passion, linking it to greater engagement, motivation, deep learning, and creativity (Luh & Lu, 2012; Ruiz-Alfonso & León, 2017; Sverdlik et al., 2022). The dynamics between teacher and student passions suggest a reciprocal relationship that enhances the educational experience, especially in higher education. This synergy becomes particularly crucial in environments where students are actively shaping their future careers and lifestyles.

Literature review

Passion in higher education

Higher education presents numerous challenges that extend beyond academic difficulties. Studies have documented university students' emotional, motivational, and psychological struggles, particularly in the post-COVID-19 academic landscape (Batra et al., 2021; Chang et al., 2021; Young et al., 2018). Alongside a demanding academic workload, these young adults, many experiencing independence for the first time, must manage their motivational and psychological well-being in ways that foster progress towards earning a degree. This is no small task, especially since approximately 20% of students who start university studies do not complete them (OECD, 2019).

Passion has been identified as one of the factors that can mitigate these struggles and enhance student perseverance and success (Bélanger & Ratelle, 2021; Sverdlik et al., 2022) but has remained relatively underexplored within the higher education context. The Dualistic Model of Passion (DMP, Vallerand et al., 2003) describes passion as a strong inclination towards an activity, person, or object that is dearly loved, highly valued, regularly engaged in, and integral to one's identity. From this perspective, passionate students are deeply engaged with their studies, hold their subject matter in high regard, and integrate their academic pursuits into their identities, such that statements like "I am an engineering student" reflect their self-concept rather than just their activities.

In examining the developmental pathways in higher education, it becomes crucial to understand how early interactions in a student's academic journey can be pivotal in shaping their learning attitudes and behaviors. For instance, the undergraduate years are marked by a relatively higher dependency on teacher-driven motivation and support, which gradually transitions as students progress to graduate studies. As students advance into later stages, such as postgraduate studies, their dependency on teacher support diminishes, with a shift towards self-motivated and self-directed learning engagements. This developmental shift underscores the importance of adapting teaching strategies to cater to the evolving needs of students at different academic stages.

While passion is a deeply ingrained and enduring aspect of one's identity that drives engagement in a specific activity, engagement in the educational context refers more broadly to the level and quality of a student's presence and participation in learning activities. Engagement can be seen as a broader term that encompasses behavioral, emotional, and cognitive dimensions involved in learning (Fredricks et al., 2004), indicating not only how much students are actively participating but also how emotionally and intellectually

invested they are in the learning process. Thus, while a passionate student is invariably engaged, not all engaged students are driven by passion for their subjects.

Furthermore, immediacy, as a communication behavior exhibited by educators, plays a distinct role in fostering an engaging learning environment. It involves behaviors that reduce the perceived distance between teacher and student, such as eye contact, open body language, humor, informal conversation, and timely responses (Andersen, 1979). Immediacy can enhance engagement by making students feel more connected and supported, but it does not necessarily cultivate passion. It acts more as a catalyst that can enhance the receptivity of students to the subject matter, potentially paving the way for the development of passion. In sum, while there is a significant overlap between passion, engagement, and immediacy, with each influencing the learning experience, the distinction between these concepts lies more in their focus and implications. Passion is about an internal drive and an emotional connection that makes an activity deeply fulfilling. Engagement is the outward manifestation of how actively involved and responsive someone is in a specific context or activity, among other factors. Finally, immediacy is a facilitative condition that creates a conducive and interactive learning environment, which can enhance engagement but is not necessarily driven by passion.

According to the DMP, passion develops through three key processes: activity selection, activity valuation, and the internalization of the activity into one's identity (Vallerand et al., 2003). Activity selection involves choosing an activity based on personal preference and autonomy. If this choice aligns with one's identity and is not influenced by external pressures, passion is likely to develop. This is particularly significant for university students who select their majors based on personal interests rather than external pressures, such as parental expectations or perceived financial rewards (Marathe & Wagani, 2022). Activity valuation pertains to the personal significance attributed to the activity. If a student views their discipline as meaningful to their life, community, or society, and the choice is autonomously made, the internalization of this activity into their identity is likely to deepen, enhancing the intensity of their passion for the subject.

Teacher passion

If passionate teachers can ignite passion in students, a natural question arises: What fuels passion in teachers themselves? Research on this topic within the realm of higher education is limited, making it challenging to identify the specific processes through which passion develops or fades. Nonetheless, existing studies indicate that university professors may hold two distinct types of passion: one for teaching and another for their discipline. This distinction aligns with findings from Phelps and Benson (2012), which suggest that the factors drawing teachers to their profession can relate both to the act of teaching and to their subject matter.

Teachers with a passion for their work tend to often employ teaching methods and strategies that visibly express their enthusiasm, such as a dynamic and engaging teaching style, the adoption of creative pedagogical approaches, up-to-date knowledge sharing, and a positive attitude towards students, characterized by respect and commitment (Benekos, 2016). Consequently, passionate teachers typically foster positive educational experiences for their students, not only by their pedagogical skills but also by displaying personal traits such as the use of humor and remaining transparent in their interactions with students.

Passionate educators are also noted for providing autonomy support (Chichekian et al., 2023; Huéscar Hernández et al., 2020). Unlike traditional teaching methods, where the

teacher dictates every aspect of learning, passionate teachers are more likely to foster autonomous learning environments in which students can explore personal interests and ideas, thereby contributing to students' enjoyment, motivation, engagement, and persistence (Gilal et al., 2019; Patall & Zambrano, 2019; Patrick et al., 2000), as well as nurturing the development of passion (Chichekian et al., 2023; Schellenberg & Bailis, 2015).

Social support

A key factor contributing to the development of students' passion includes teacher social support (Chichekian et al., 2023; Gilal et al., 2019; Huéscar Hernández et al., 2020). Thus, while passion development is often viewed as an internal individual process, educational research is beginning to explore the interpersonal dynamics that foster student passion, along with the pivotal role that teacher social support plays in the specific ways it influences the development of student passion (Vallerand et al., 2003).

In the context of cultivating student passion, both autonomy support and social support, while often interconnected, are complementary and assume distinct roles. Autonomy support fosters a personal connection with the subject, and social support ensures students have the resilience and encouragement needed to pursue their passions. Autonomy support refers to the degree to which teachers encourage students to make their own choices and take initiative in their learning processes. According to self-determination theory (Ryan & Deci, 2000), autonomy support is crucial for fostering intrinsic motivation and can lead to a higher quality of learning and engagement. Autonomy support specifically involves creating an environment that supports autonomous decision-making, empowering students to pursue learning paths that resonate with their personal interests and goals (Deci and Ryan, 1991). This form of support facilitates students' internalization of educational activities as personally meaningful, thereby nurturing a passion for the subject matter.

In contrast, social support refers to the emotional, informational, and appraisal support provided by teachers that fosters students' pursuit of their passions. Social support includes the encouragement, feedback, and resources that teachers provide, thus enhancing students' interest and engagement with the subject matter, which may ultimately develop into a deeper passion (Lazarides et al., 2019; Yu & Singh, 2018). Furthermore, social support from teachers helps students feel valued and understood, which is essential for maintaining motivation and persistence in their studies (Wentzel & Skinner, 2022).

While past studies offer valuable insights into how teachers may influence students' development of passion, the specific mechanisms underlying this process in higher education settings are not fully understood. Existing research has primarily focused on quantitative assessments of self-reported passion among teachers and students, along with models explaining the transmission and development of passion (Chichekian et al., 2023). Yet, there remains a lack of studies exploring how university students personally conceptualize their passion for their field of study, how they perceive their teachers' passion for the discipline, and their views on the social support provided by their teachers.

Present study

The overarching purpose of the current study examines how students' perceptions of their teachers' social support and passion for their field influence the development of their own passion for their field of study. The present research was conducted employing theoretical

models and definitions that have been predominantly developed within Western educational and psychological traditions and thus embodies specific cultural values and assumptions that may not be universally applicable across different cultural contexts.

The first goal was to understand how students themselves describe their passion for their field of study and the teacher qualities that nurture it. While much of the literature quantitatively measures passion, a qualitative perspective of how students conceptualize passion would enrich models such as the Dualistic Model of Passion (DMP) and enhance our theoretical understanding of passion in education, as well as its impact on identity formation, and the learning environments or pedagogical activities that effectively nurture passion. Moreover, identifying the qualities students appreciate in passionate teachers, such as enthusiasm, expertise in the subject, and supportive interactions (Gilal et al., 2019; Levitt et al., 2023), can influence how instructional methods are adapted to align more closely with these preferences, potentially enhancing student motivation, persistence, and academic success rates. This is particularly significant given that approximately 20% of students leave university without completing their degree (OECD, 2019). These considerations lead to the formulation of this study's first research question: How do students describe their passion for their field of study, and which qualities of their teachers do they attribute to nurturing this passion?

The second goal was to investigate the specific ways in which students' perceptions of their teachers' passion influence their own passion for the same subject. While research has thus far demonstrated the positive impact of teacher passion on student outcomes, the latter topic remains largely unexplored. This gap is critical, as the diversity in students' perceptions of teacher passion could offer new insights on the variance in students' responses regarding their own passion for a specific discipline. This leads directly to the second research question of this study: How do students' perceptions of their teachers' social support and passion for their subject influence their own passion for the same subject? In line with past findings from Frenzel et al. (2009) showing how teachers' enthusiasm positively affects students' interest and enjoyment in the subject matter, it was expected that higher levels of perceived teachers' passion for their field would also be positively associated with the development of students' passion for their field of study (H1). By addressing this question, we can develop a clearer framework for understanding the dynamics of passion transmission within higher education, thus providing actionable strategies for enhancing teaching effectiveness and student success.

Passionate teachers, who are typically intrinsically motivated, display a deep commitment not only to their subject matter but also to the teaching process and their students' success. They are likely to go beyond mere content delivery and show genuine concern for their students' learning and emotional well-being. This investment manifests as social support, where teachers engage in behaviors that create a supportive and encouraging learning environment. Consequently, the third goal of the current study was to examine how teachers' social support might moderate the effects of their passion on students' development of their own passion. While social support from teachers is widely recognized as enhancing students' motivation and well-being (Quin, 2017), the role of teacher passion as a moderator in this relationship has been less frequently explored with existing studies typically treating teacher passion and social support as independent variables without examining their potential interaction (Carbonneau et al., 2008). This research gap is crucial for determining if high levels of teacher passion can enhance the positive effects of social support. Specifically, understanding the interplay between these factors could reveal the extent to which teacher passion influences social support, thereby also influencing student passion. Exploring this interaction could have implications for teacher-education programs, aiming

to foster student engagement and passion more effectively. These insights directly address our third research question: To what extent does social support moderate the relationship between teacher passion and student passion?

Based on past research (Malecki & Demaray, 2006) advocating how perceived support from teachers significantly influences students' academic motivation, engagement, and emotional well-being, it was hypothesized that higher levels of perceived social support from teachers would be positively associated with the development of students' passion for their field of study (H2). Furthermore, similar to research findings from Reeve (2006) and Ryan and Deci (2020) regarding the role and importance of autonomy-supportive teaching in fostering student motivation and passion, it was expected that teachers' social support would moderate the relationship between perceived teacher passion and the development of students' passion for their field of study (H3), such that students who perceive both high social support and high passion from teachers will report the highest levels of passion.

Methods

Sample

A total of 355 (138 M, 213 F, 4 other) students were recruited from a Canadian public university during class time to complete an online survey. A link to a video presenting the study was emailed to teachers who had agreed to participate in the first phase of this study (Chichekian et al., 2023). The video link was played in class, and time was allocated to complete the survey following a scan of a QR code. The sample included 235 undergraduate and 120 graduate students from the Faculties of Education ($n=95$), Health Sciences ($n=107$), and Social Sciences ($n=148$) (5 missing). Just over half (51%) were also enrolled in a co-op stream, which included internships and alternating work-study terms.

Measures

All survey measures used a Likert-type scale ranging from 1 (*do not agree at all*) to 7 (*absolutely agree*) unless otherwise indicated. Students were asked to think about how they perceived the social support provided by their teachers, as well as their teacher's passion for the field; finally, they were also asked to report on their own passion for the field.

Students' perceptions of their teachers' passion for their field of study (TP_Field)

Four modified items from the Dualistic Passion Model (DPM; Vallerand et al., 2003) were used to measure student's perceptions of their teacher's passion (e.g., "My teacher loves their field of study"), $\alpha=0.82$, $\omega=0.82$. These four items describing the passion criteria were selected instead of the other items related to harmonious passion (HP) and obsessive passion (OP) because they provided more specific, observable behaviors which are more concrete and easier for students to recognize in their teachers. In academic settings, students can easily notice and readily understand and identify passion through behaviors directly relevant to the classroom context, such as the teacher's preparedness, energy during lessons, and willingness to support students. In contrast, discerning whether the teacher's passion is harmonious or obsessive can be challenging for students without direct insight into the teacher's personal experiences and thoughts. The latter would require a

deeper understanding of the teacher's life outside the classroom and their overall relationship with the teaching profession, which students typically do not have access to.

Up until now, the DMP framework's scale operationalization has proven to be effective in validating its constructs, predictive, discriminant, and external validity (Castelda et al., 2007; MacKillop et al., 2006; Stenseng, 2008). It has also demonstrated high levels of internal consistency and has been demonstrated to be largely invariant for gender, language, culture, and the type of activities (Vallerand & Rahimi, 2023).

Perception of teacher's social support (T_SS)

Three items from the Social Support Questionnaire (SSQ; Malecki & Demaray, 2003) (e.g., "My teacher cares about me") were used to assess the extent to which students perceived ($\alpha=0.85$, $\omega=0.85$). In this study, the SSQ was employed to explore how social support from teachers would influence the development of students' passion for the field. While direct studies using the SSQ to link teacher support to student passion development are limited, the broader literature strongly suggests that teacher support, characterized by caring, high expectations, and encouragement, positively influences students' academic interest, increased enthusiasm, and interest in learning (Furrer & Skinner, 2003).

Students' passion for their field of study (SP_Field)

Passion was measured using five items from the DMP scale (Vallerand et al., 2003) (e.g., "This subject is important to me," $\alpha=0.80$, $\omega=0.82$). The DMP framework has been validated in multiple languages and has been demonstrated to be consistent across gender, culture, and type of activity (Marsh et al., 2013; Vallerand & Rahimi, 2023). It has also shown strong internal consistency and provided evidence of predictive, discriminant, construct, and external validity.

Additionally, two open-ended questions were included in the survey to enrich the interpretation of the quantitative results and gather insights on students' description of their own passion for their field of study and the sought-after qualities they look for in a professor: (1) *Write 2–3 short sentences that would describe the extent to which you consider yourself as being passionate about your field of study (e.g., I love solving complex problems)* and (2) *Write three qualities you look for in a professor*.

Demographic data were also collected regarding students' gender (1 = male, 2 = female, 3 = other), domain of study (1 = Education, 2 = Health Science, 3 = Social Science), and program level (1 = undergraduate, 2 = graduate).

Data analysis

To assess *SP_Field*, data were analyzed using SPSS 28 and R (version 2023.12.1 + 402). The means and standard deviations of the key variables, as well as the correlations examining the relationships between *T_SS*, *TP_Field*, and *SP_Field*, are presented in Table 1. A moderation analysis was conducted using PROCESS macro for SPSS to test the interactive effects using simple slopes, as a means to understand how different levels of perceived teachers' passion for the field impact the relationship between perceived teacher social support and students' passion development.

To consolidate the top qualities students sought in a professor, a frequency analysis was conducted by counting the number of times each quality was mentioned and subsequently

Table 1 Descriptive statistics and correlation of study variables ($N=355$)

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. TP_Field ¹	6.48	0.66	-		
2. T_SS ²	5.69	1.01	.42***	-	
3. SP_Field ³	5.39	0.92	.20***	.19**	-

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

¹TP_Field, perceptions of teacher's passion for the field

²T_SS, perceptions of teacher's social support

³SP_Field, student's passion for the field

ranking them based on their frequency count. A thematic analysis using manual coding followed in which two independent coders (AS & CM) reviewed and grouped similar qualities under a broader category which represented the quality with the highest count within that group. For instance, the category “Dynamic” included qualities such as “interactive” and “expressive” to better reflect the broader category. Initial inter-rater reliability was approximately 84% after which both coders deliberated by comparing and refining categories, as well as discussing any disagreements until a full consensus was reached. This dialogue was critical to develop a deep understanding of the data and ensure the credibility and trustworthiness of the findings.

A thematic analysis was also performed to capture the fundamental elements that manifest as students' passion for their field of study.

Initially, Coder AS engaged in an in-depth immersion in the dataset, reading through it and performing an initial deductive analysis, which ultimately proved inadequate for the dataset. Following this, Coder AS proposed a preliminary set of themes based on her extensive engagement with the data and knowledge of relevant theoretical frameworks. These themes underwent a collaborative process of refinement involving AS and the main researcher until a final thematic structure was agreed upon. It is worth noting that the principal investigator had previously familiarized herself with the dataset before engaging in these deliberations. To ensure the integrity of the coding process, a secondary coder, CM, conducted a validation exercise. Any coding disagreements were deliberated among coders AS and CM, and the principal investigator until consensus was attained. The approved coding of this sample was then utilized to guide the auto-coding process applied to the remaining dataset using Nvivo 12. This auto-coding feature leveraged the user-defined coding to automatically define coding patterns and identify and code key terms or combinations of terms within each theme. To refine this process, general terms that were not semantically linked to the themes were excluded to minimize noise in the analysis. To validate the quality of this auto-coding analysis, coder CM conducted another validation process on a new, randomly selected subsample, representing 21% of the auto-coded cases. The overall agreement rate of 80% indicated a high level of consistency, with agreement percentages per theme ranging between 71 and 88% (e.g., 80% for Love for the field, 71% for Love for practice, 88% for Love for problem-solving, and 79% for Love for learning), reflecting the reliability of the auto-coding process.

Results

Preliminary analyses

Preliminary analyses were conducted to examine group differences in three main variables, *SP_Field*, *T_SS*, and *TP_Field*, across gender, program level, and domains of study. An independent samples *t*-test showed no significant differences in *SP_Field* between males ($M=5.35$, $SD=0.91$) and females ($M=5.38$, $SD=0.97$), $t(355)=-0.316$, $p=0.752$. For *T_SS*, no significant gender differences were found, $t(355)=0.756$, $p=0.450$ (males: $M=5.80$, $SD=0.88$; females: $M=5.72$, $SD=1.02$). However, a significant difference was observed in *TP_Field*, with females scoring higher ($M=6.40$, $SD=0.64$) than males ($M=6.19$, $SD=0.81$), $t(360)=-2.818$, $p=0.005$. Additionally, independent samples *t*-tests revealed no significant differences in *SP_Field*, $t(355)=0.465$, $p=0.642$, or *T_SS*, $t(355)=-0.201$, $p=0.841$, between undergraduate and graduate students; however, a significant difference was observed in *TP_Field*, with undergraduates scoring higher ($M=6.38$, $SD=0.68$) than graduates ($M=6.20$, $SD=0.78$), $t(355)=2.322$, $p=0.021$. Finally, a one-way ANOVA also indicated no significant differences among the means of *TP_Field* across the three domains of study, $F(2, 352)=0.727$, $p=0.484$. Significant differences were found for *T_SS*, $F(2, 352)=7.617$, $p<0.001$, and *SP_Field*, $F(2, 352)=6.000$, $p=0.003$. Post hoc tests revealed that for *T_SS*, Education ($M=5.45$, $SD=0.94$) was significantly lower than Health Sciences ($M=5.83$, $SD=0.98$, $p=0.011$) and Social Sciences ($M=5.93$, $SD=0.90$), $p<0.001$). For *SP_Field*, significant differences were noted between Education ($M=5.38$, $SD=1.11$) and Health Sciences ($M=5.63$, $SD=0.84$, $p=0.023$) and between Health Sciences and Social Sciences ($M=5.24$, $SD=0.81$, $p<0.001$). There were no significant differences for *TP_Field* among the three domains of study. These findings suggest variability in these constructs across different academic fields, genders, and program levels. Consequently, these three variables will be controlled for in further analyses.

Students' descriptions of their passion for the field

Understanding the passion that students have for their chosen fields of study can highlight the diverse and profound ways in which students express their enthusiasm for their academic disciplines. The themes described below collectively paint a vivid picture of the driving forces behind students' dedication to their studies. The reflections and quotes presented offer a window into how students perceive their fields not just as academic pursuits, but as pathways to personal and professional growth, societal impact, and innovative contributions.

Love for the field (n = 395 references)

The students' reflections on their passion for their field of study revealed a rich description of intellectual curiosity, specific subject interest, interpersonal relationships, and professional growth. Many students expressed a profound joy in discovering new things and accumulating knowledge, as evidenced by quotes like "I love discovering new things" and "I am constantly seeking new knowledge in my field." They also highlighted the importance of applying theoretical knowledge to real-world problems, such as "I like applying what I learned at university on the field" and "I like the idea of contributing to environmental

protection as part of my future job.” Additionally, a significant number of students also drew on specific subjects, saying, for instance, “I have always loved taxation” and “I am passionate about aerospace and space technologies.” Lastly, many students viewed their studies as crucial for their professional growth and career aspirations, stating, “I see myself making this field of study my profession” and “My field of study represents a way for me to acquire the necessary knowledge for my professional career development.” These themes collectively underscore the diverse personal motivations driving students’ passion for their chosen fields.

Love for the practical applications (n = 144 references)

The statements from students expressing their passion for their fields of study also revealed several key themes related to their love of the practical aspects associated with the latter. Several students highlighted their desire to make a positive impact on society and the environment, such as one student who mentioned, “I chose to study the environment to give myself the tools to work in this field and do my part.” Another recurring theme was the importance of practical application and real-world relevance, with many students expressing enjoyment in applying their knowledge in practical settings, as reflected by the statement, “I like applying what I learned at university in the field and making connections between my courses and research projects.” These themes collectively showcase students’ drive to contribute meaningfully to their fields and apply their knowledge practically.

Love for solving challenging problems (n = 82 references)

The students’ expressions of passion for their field of study included statements related to problem-solving and innovation, with or without the use of technology, and a desire to make a positive impact on society, further illustrating the multifaceted nature of students’ enthusiasm for their fields of study. Many students seemed motivated by the intellectual challenge of their disciplines, emphasizing their enjoyment of finding solutions to complex problems. For instance, one student noted, “The more complex the problems in my field, the more interesting I find them.” This theme of embracing complexity was echoed by others who appreciated the interdisciplinary nature of their work, “I particularly appreciate when the problem requires combining different fields of knowledge.” Another significant theme under this category was the innovative thinking applied to real-world issues. Students frequently mentioned their enthusiasm for using technology to solve problems, with one stating, “I like using technology to solve my problems and those of others,” and another highlighting, “I like finding creative solutions to problems.” This innovative mindset was linked to their desire to make a tangible impact on the world, as reflected in the quote, “I would like to find solutions to reduce the impact of climate change.”

Teacher qualities

A thematic analysis revealed five themes under which students identified teacher qualities that would nurture their passion. The themes by order of frequency were teachers who are dynamic, student-centered, professional, passionate, and easy to communicate with.

Dynamic

This was the most frequently mentioned theme among students, with 274 of the responses including a quality that fell into this category. The overarching flavor of this theme centers around the teacher's high energy levels and entertaining demeanor in class and includes qualities such as "dynamic," "enthusiastic," and "energetic" and, to a lesser extent, "creative," "playful," and "fun."

Student-centered

The second most frequent theme, which includes 260 mentions, underlines qualities that demonstrate the teacher's commitment to their students by being attentive to student needs, involved in students' progress, and available to the students. This theme includes qualities such as "attentive," "listening," and "available," as well as "caring," "involved," and "present."

Professional

Professionalism appears to be an important aspect of a good teacher, according to the participants. With 212 mentions, this theme includes qualities that pertain to the teacher's qualifications and organizational skills, such as "pedagogical," "professional," "organized," "competent," and "experienced."

Passionate

Educational research has outlined the numerous benefits that passionate teachers have on their students (Levitt et al., 2023). The results demonstrate that students themselves recognize these benefits as well, with qualities under this theme being mentioned 177 times in participants' responses. Such qualities include "motivated," "passionate," "interested," and "committed."

Easy to communicate with

The final theme, which includes 155 mentions, revolves around the ease with which students are able to be open and honest with their teachers and feel understood when communicating with them. In addition, this theme includes the proclivity of the teacher to communicate clearly and openly with their students about any course-related topics. Qualities under this theme include "clear," "open," "good communicator," "understanding," and "open-minded."

These top five teacher qualities (dynamic, student-centered, professional, passionate, and easy to communicate with) provide strong confirmation and contextual support for the study's variables (i.e., teacher social support, teacher passion for the field, and students' passion for their field of study). A teacher who focuses on students' needs, interests, and learning processes (student-centered) and is approachable and available for students (easy to communicate with) embodies the essential components of perceived social support as highlighted in the Social Support Questionnaire (SSQ) by Malecki & Demaray (2002). Moreover, a teacher exhibiting enthusiasm and

dedication towards their subject matter (passionate) in addition to making lessons interesting, lively, and engaging (dynamic) is a direct indicator of teachers' passion for the field. Being dynamic is often a manifestation of a teacher's passion for their field. It indicates an active and enthusiastic approach to teaching, which can inspire students, contribute to their interest, and foster their own passion (Frenzel et al., 2009). Finally, teacher behaviors reflecting high standards and expertise (professionalism) can significantly influence students' perceptions of the field and promote their own passion for it by modeling what it means to be deeply committed in a field. These sought-after qualities from students highlight the crucial aspects of teacher social support and passion for their field, which are both relevant and impactful in understanding the development of students' own passion for their field of study.

The role of social support in the relationship between teachers' and students' passion for the field

Means, standard deviations, and correlations are presented in Table 1.

Perceptions of teachers' social support and passion for the field were used to predict students' passion for their own field of study, while controlling for gender, program level, and domain of study. Data were checked for outliers and assumptions of regression, and no violations were found. The QuantPsyc package in R was used to center variables and analyze the interaction between perceptions of teachers' social support and passion for the field predicting students' passion for their own field of study.

The regression model presented in Fig. 1 assessing how students' perceptions of their teachers' social support (T_SS) predict their passion for a field of study (SP_Field), with their teacher's passion for the field (TP_Field) as a moderator, was statistically significant, $F(6, 344) = 4.90$, $p < 0.001$. Students' perceptions of their teachers' social support positively predicted their own passion for the field, $b = 0.17$, $t = 2.88$, $p = 0.004$, suggesting that higher perceived social support is associated with greater student passion. Similarly, perceptions of their teachers' passion for the field also significantly predicted students' passion for the field, $b = 0.21$, $t = 2.47$, $p = 0.014$. Moreover, the interaction between teachers' passion for the field and their social support was significant, $b = 0.17$, $t = 2.261$, $p = 0.024$, indicating that the effect of perceived social support on student passion varies depending on the level of teacher passion.

For average perceptions of teachers' passion for the field, there was a significant positive effect on students' passion when teachers were also perceived as supportive, $b = 0.20$, 95% CI (0.03, 0.37). At low levels of teachers' passion, the effect of social support on students' passion was non-significant, $b = 0.04$, 95% CI (-0.15, 0.22). Conversely, at high levels of perceived teachers' passion, the positive impact of social support on students' passion was the most pronounced, $b = 0.36$, 95% CI (0.11, 0.62). The interaction effect became significant at $M = 5.54$ for social support with 40.46% of the sample falling below this value. These results underscore the complex interplay between teachers' passion for their subject and the social support they provide in cultivating passion within their students. Specifically, the findings highlight that while both teachers' passion and social support independently contribute to fostering students' passion, teachers' passion for their subject may influence students' passion more strongly when students also perceive a high level of social support.

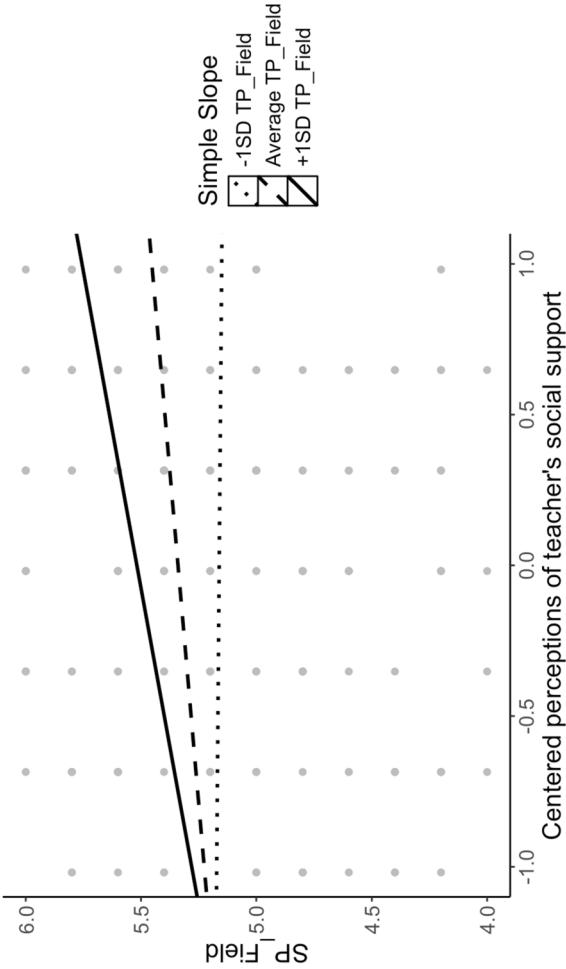


Fig. 1 Students' passion for a field of study

Discussion

The primary objectives of this study were to explore how students perceive their teachers' passion and social support and the influence these perceptions have on students' own passion for their field of study. We aimed to identify and describe the specific teacher qualities that students attribute to nurturing their passion and to examine how the interplay between perceived teacher passion and social support could affect students' engagement and enthusiasm towards their academic pursuits.

The role of teacher's passion for their field in higher education

The findings of this research underline the substantial impact that teacher passion and social support have on enhancing student passion, echoing and extending the established body of educational literature. Teachers who exhibit a strong passion for their subject not only deepen students' engagement and motivation but also model a commitment to the subject that can inspire students to pursue their studies with heightened vigor and interest. The contagious nature of teacher enthusiasm (Talapatra et al., 2020) suggests that passionate teachers do more than just teach; they profoundly influence students' perspectives on disciplines and contribute significantly to their overall well-being.

This study's exploration of the nuanced ways in which teacher passion and social support interact provided new insights into the mechanisms through which these factors promote a passionate and engaged student body. The results suggest a synergistic effect, where the presence of both strong teacher passion and high levels of social support creates the most conducive environment for fostering student passion.

Qualitative data from the study further highlighted the importance of teacher passion. Many students described their passionate teachers as "dynamic," "enthusiastic," and "inspiring," noting that these teachers made the subject matter more interesting and engaging. Students often mentioned that passionate teachers were instrumental in sparking their interest and deepening their understanding of the field, demonstrating the powerful impact of teacher enthusiasm on student learning experiences.

The role of teachers' social support in higher education

Research about teachers has consistently shown that providing social support such as being attentive to student needs, offering constructive feedback, encouraging autonomy, and creating a supportive classroom environment significantly influences student outcomes (Malecki & Demaray, 2006). Perceived social support is particularly important in higher education, where students face numerous challenges, including academic pressures and the transition to independence.

Our findings suggested that students' perceptions of their teachers' social support positively predicted their passion for their field of study. This is consistent with prior research indicating that perceived teacher support enhances student interest and motivation (Lazarides et al., 2019; Yu & Singh, 2018) and is vital for student perseverance and success in higher education (Chang et al., 2021; Young et al., 2018). Moreover, the results also showed that the interaction between perceptions of teachers' social support and passion for the field significantly predicted students' passion for their own field of study which is in line with researchers who emphasized the role of autonomy-supportive teaching in fostering student motivation and passion (Reeve, 2006; Ryan & Deci, 2020). This means

that teacher passion alone, while significant, is most effective when combined with strong social support. For instance, a teacher who is enthusiastic about their subject and also provides emotional and informational support can significantly enhance students' passion and academic success. Qualitative data from the study also highlighted the importance of teacher social support. Students frequently mentioned the positive impact of teachers who are attentive, available, and involved in their academic progress. This sentiment echoes the findings of Furrer and Skinner (2003), who demonstrated that caring teacher-student relationships are crucial for fostering students' enthusiasm and interest in learning.

Students' passion for their field of study

Passionate students are not only engaged with their studies but also view their academic pursuits as integral to their identities. When students choose their field of study based on personal interests rather than external pressures, they are more likely to develop a deep passion for it. This alignment with personal interests lays a foundation of intrinsic motivation, which, as Marathe and Wagani (2022) suggest, is crucial for the development of passion. However, the role of teacher passion and social support extends beyond merely amplifying existing interests.

Our findings indicated that students' perceptions of their teachers' passion for the field and social support positively predicted their own passion for a field of study, highlighting the transformative potential of teacher passion and social support in fostering passion across different student groups.

Research by Chichekian et al., (2023) and Gilal et al. (2019) demonstrates that passionate university teachers can inspire similar feelings among their students, regardless of the students' initial motivations for choosing their major. This indicates that while personal interest in a subject can lead to passion, a passionate teacher can ignite or amplify a student's passion, even in the absence of prior personal interest. This is critical, as it suggests that teacher passion and effective social support can help bridge the gap between student interest and engagement, potentially encouraging students to develop a passion for subjects they might not have initially chosen out of personal interest.

Many students in the current study also expressed a profound joy in discovering new things and accumulating knowledge which aligns with Bélanger and Ratelle's (2021) findings that passionate students are deeply engaged and integrate their academic pursuits into their identities. Furthermore, students emphasized the importance of applying theoretical knowledge to real-world problems, underscoring the personal relevance of their studies beyond the classroom. This suggests that even students who did not initially choose their major based on personal interest can discover passion through experiential learning and practical application, facilitated by passionate teaching and supportive educational practices.

The evolution of teacher passion from the undergraduate to graduate years highlights its shifting impact on students' academic journeys. During the undergraduate years, students are often in the process of exploring a more specific academic discipline and beginning to form their own professional identities. In addition to sparking interest and motivation among students who may still be discovering their preferences and potential career paths, teacher passion also serves as a model for how students can engage deeply with academic content. The transition from undergraduate to graduate studies typically involves a shift towards a more research-focused, independent learning style where students are expected to take greater ownership of their educational and professional trajectories. As students

transition into graduate programs, the nature of teaching and learning changes significantly. Graduate students are generally expected to engage in more self-directed learning develop greater autonomy over their learning processes and contribute to academic discourse through original research. Our findings show that the influence of teacher passion may not be as pronounced as in the undergraduate setting, but it nevertheless remains important. In graduate studies, the focus of teacher passion shifts from igniting interest to reinforcing and supporting students' existing passions. Graduate students benefit from professors who are not only passionate about the subjects they teach but also about the act of research and discovery itself, which is an important component in helping them navigate and persevere through the complex challenges of graduate research. It also helps in maintaining motivation through longer, more autonomous projects, as well as building a scholarly community that values curiosity, critical thinking, and innovation.

Practical and theoretical implications

The study contributes to the existing literature by highlighting the dynamic interplay between teacher passion, social support, and student passion in higher education contexts. The findings corroborate and extend the Dualistic Model of Passion (DMP) by Valierand et al., (2003), suggesting that the development of passion in educational settings is not solely an individual pursuit but significantly influenced by interpersonal dynamics. By empirically demonstrating that both perceived teacher passion and social support independently and interactively predict student passion, this research underscores the complex, multifaceted nature of passion in educational settings. Moreover, the significant interaction effect between teacher passion and social support in predicting student passion suggests that the conditions under which passion is fostered may be as critical as the presence of passion itself. This research advances theoretical models of motivational dynamics in education by emphasizing that teacher behaviors and the broader educational environment play critical roles in transforming passion into an integral aspect of students' identities.

The findings also lead to several practical implications. First, teacher training programs should prioritize not only subject matter expertise but also the cultivation of passionate teaching practices. Professional development workshops can encourage educators to explore and express their passion for their subjects by focusing on dynamic, interactive, and student-centered teaching strategies. These workshops should also demonstrate how educators can integrate their personal interests with the curriculum. Additionally, incorporating sessions on reflective practices can help teachers continuously refine their approaches based on feedback and self-assessment, thereby sustaining and deepening their passion for teaching.

Second, institutions should foster environments that promote and recognize passionate teaching. This can be achieved through policies that allow for more autonomy in curriculum design, allowing teachers to incorporate their passions into their teaching. Additionally, recognition programs that celebrate passionate teaching can inspire educators to maintain their enthusiasm and commitment. Facilitating opportunities for mentorship and collaboration among teachers can further enrich this environment, as sharing experiences and successes can help reignite and maintain passion within the teaching community.

Third, the significant role of social support in fostering student passion implies that curriculum designers should consider structuring courses to facilitate meaningful teacher-student interactions. Including collaborative projects and discussions can create opportunities for teachers to provide personalized support and feedback, essential for nurturing student

passion. Moreover, implementing support systems that encourage ongoing professional development and offer both psychological and administrative assistance can help teachers feel valued and supported, enhancing their ability to engage passionately with students.

Considering the impact of teacher passion and social support on student outcomes, educational institutions should integrate these elements into teacher evaluations and student satisfaction surveys. Incorporating metrics that assess the expression of passion and the level of social support offered could yield valuable insights into teaching effectiveness and highlight areas for improvement. Additionally, future professional development initiatives could specifically focus on the cultivation of passion among educators, ensuring that all teachers, regardless of their initial level of passion, have opportunities to develop and sustain their passion for teaching.

Limitations

When interpreting the results of this study, several limitations should be pointed out. First, the study relied on self-reported measures which are subject to biases such as social desirability bias. However, while participants may have responded in a manner they perceived as favorable rather than providing authentic responses, they also did provide qualitative responses which triangulated the findings and justified the inclusion of the variables in the study. Second, this study's design was cross-sectional, which limits the ability to infer causality. Without longitudinal data, it is challenging to determine if the perceived passion and support from teachers leads to an increase in students' passion over time, or if students with inherent passion are more likely to perceive their teachers positively. This could be a good avenue for future research. Third, the sample was confined to one university, which might limit the generalizability of the findings given that different educational systems and cultural backgrounds might exhibit different dynamics in the relationship between teacher passion, social support, and student passion. Cultural factors significantly influence how educational concepts like passion and support are manifested and perceived across different communities. For instance, the norms and expectations in different academic disciplines and cultural settings can influence how passion is publicly displayed and perceived by students. Understanding these differences can guide more tailored approaches in teacher training programs, ensuring that passion is nurtured and effectively transmitted in ways that resonate with diverse student bodies. Therefore, the applicability of our findings may be limited by cultural factors, and caution should be exercised when extending our conclusions to contexts beyond those directly studied. We acknowledge the need for further research to explore these concepts across diverse cultures to fully understand their global relevance and applicability.

Finally, other potential confounding variables may have influenced the development of student passion that were not accounted for in the study, such as students' prior academic experiences, personal interests, family background, or mental health status.

Conclusion and future research

In sum, while the initial spark of passion in undergraduate studies is crucial for drawing students into a discipline, the sustaining flame of passion in graduate studies is essential for guiding them towards becoming autonomous scholars and professionals. This nuanced understanding underscores the importance of cultivating and maintaining

passion in teaching across all levels of higher education, ensuring that it evolves in ways that meet the changing needs and growing independence of students.

In conclusion, the study offers insights into the impact of teacher passion and social support on students' passion within the realm of higher education and the critical role that educators play in inspiring and sustaining student engagement and emotional investment in their studies. The findings suggest that passionate and supportive teaching practices significantly contribute to fostering a learning environment where students not only persevere but thrive and internalize their academic pursuits as integral components of their identity. These results not only reinforce the importance of nurturing passion in educational settings but also highlight the potential for such passion to enhance academic outcomes and well-being among students.

The relationship between teacher passion and its manifestation in educational settings warrants a nuanced exploration to better understand its diverse impacts on student outcomes. While the traditional view of a passionate teacher often invokes images of dynamic classroom interactions, the reality is that teacher passion can manifest in a multitude of ways. Future research should explore how different forms of passion, such as passion for the subject matter, passion for teaching, passion for research, and passion for student interaction, influence teaching styles and student outcomes. Studies could examine how teachers who primarily display their passion through content expertise and rigorous standards affect student's own passion for the subject matter compared to those who engage more directly with students. This would help in understanding whether the passion for the subject alone, without extensive immediacy behaviors, can still foster deep learning and passion among students. Further studies should also investigate how institutions can support teachers who may not naturally employ immediacy behaviors but are still passionate about their subjects. Research could focus on identifying alternative strategies that these educators can use to convey their passion effectively. This might include the development of digital content, interactive lectures, or collaborative projects that allow for intellectual engagement without necessitating a change in personal teaching style. It is also essential to assess the long-term effects of different manifestations of teacher passion on student outcomes. This includes not only students' own passion for the subject, but also their continued engagement with the field, and their overall satisfaction with their educational experience. Such research could utilize longitudinal studies to track changes over time, providing deeper insights into how the initial exposure to passionate teaching can influence career choices and professional growth.

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Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethical approval The present study was led according to the 2022 Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans guidelines and received institutional ethical approval before the data collection.

Informed consent Informed consent was obtained from all individual participants included in the study.

Conflict of interest The authors declare no competing interests.

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Current themes of research and most relevant publications:

- Chichekian, T., Sverdlik, A., Maheux, C., & Bêlisle, M. (under review). The balancing act of passion for teaching and for the subject matter in higher education. *Teaching and Teacher Education*.
- Chichekian, T., Rahimi, S., Vallerand, R. J. (2023). Investigating emotions as a mediator in the transmission of passion in education. *Current Psychology*, 43, 13428–13442. <https://doi.org/10.1007/s12144-023-05335-0>.
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- Chichekian, T., Vallerand, R. J. (2022). Passion for science and the pursuit of scientific studies: The mediating role of rigid and flexible persistence and activity involvement. *Learning and Individual Differences*, 93, 102104. <https://doi.org/10.1016/j.lindif.2021.102104>.
- Vallerand, R. J., Chichekian, T., Paquette, V. (2020). *Passion in education: Theory, research and applications*. D. L. Gregory Arief, D. McInerney. Promoting motivation and learning in contexts: Sociocultural perspectives on educational interventions (115–141). USA. Information Age Publishing.

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Current themes of research and most relevant publications:

- Sverdlik, A., Rahimi, S., & Vallerand, R. J. (2022). Examining the role of passion in university students' academic emotions, self-regulated learning and well-being. *Journal of Adult and Continuing Education*, 28(2), 426–448. <https://doi.org/10.1177/14779714211037359>.

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- Chichekian, T., Sverdlik, A., Maheux, C., & Bêlisle, M. (under review). The balancing act of passion for teaching and for the subject matter in higher education. *Teaching and Teacher Education*.
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