

How Positive Affect Is Linked to the Doctoral Experience

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Abstract

Depending on the country, the university and the discipline, the rate of doctoral drop out can climb as high as 50%, making this a critical challenge in higher education. It affects individuals and institutions alike, making a deeper understanding of its causes necessary. This study aims to shed new light on the influence of positive affect on the doctoral experience by examining the impact of personality traits, self-efficacy, and emotional well-being on doctoral students' decisions to persist or drop out. A survey was sent to doctoral students in the social sciences and humanities at two schools of doctoral studies in Montpellier, France. Two hundred and twenty doctoral students responded to seven questionnaires measuring anxiety and depression, flourishing, pride, satisfaction and interest experienced during the doctoral program, self-efficacy, and students' intentions to drop out. The results showed that students who intended to persist had a significantly more positive subjective experience of the doctoral program than students who intended to drop out. Pride, interest, satisfaction and flourishing were significantly higher for students who intended to persist. Pride showed the strongest association with the intention to persist. These results highlight the importance of maintaining positive affect while working on a thesis.

Keywords

Education, Doctoral Students, Positive Affect, Drop Out Intention

1. Introduction

Many works have focused on the reasons students decide to stay or leave their academic pathway. This body of work has been less prominent about the doctoral degree (Tinto, 2012). In France, where the present study takes place, drop out rates

can be as low as 2% and as high as 36%, affecting more the students enrolled in humanities and social sciences doctoral program (Giudicelli et al., 2024; Thibault, 2019). The academic works conducted about the doctoral persistence rates, have rarely focused on affective and dispositional variables. Featuring those variables is however important to generalized knowledge about the students' experience of the doctoral program.

Generalized knowledge is crucial to develop and implement interventions in universities that could appeal to the greatest number of doctoral students in order to improve their doctoral experience. For example, emotionally sensitive people present more difficulties to regulate and cope with their negative emotions like anxiety, resulting in inhibited skills to adapt in anxiety inducing situations that they could encounter (Thompson, 2008). Coping with disappointing results in their research work, being rejected by a publisher during the publication process of a manuscript, or writing the thesis dissertation have been reported in the literature as some examples of such situations (Juniper et al., 2012; Marais et al., 2018). Even if those situations do not necessarily mean that the students will leave their program, it is suggested that a doctoral program filled with positive experiences will motivate the doctoral student to persist in their program.

This research work aims to contribute to the existing literature available on doctoral persistence or drop out intention by focusing on emotional and dispositional variables to answer the following research question: is a positive experience of the doctoral program crucial for a doctoral student in achieving their degree?

1.1. The Doctoral Experience

It seems logical that a positive experience can help students to stay motivated during their doctoral program. But what kind of positive experience are we talking about? Recent evidence synthesis highlights the complex nature of the variables influencing the well-being of doctoral students. A systematic review (Martinez-Garcia et al., 2024) focusing on this topic suggested that the doctoral experience comprises different components, individual characteristics, job-related aspects, social aspects, and the consequences of these components on students' behaviors and attitudes over time. This implies that doctoral students' well-being is a multi-layered experience that changes throughout their studies. A meta-analysis confirmed that doctoral well-being should be considered at several levels, including individual, interpersonal, institutional, community, and policy levels (Mahsood et al., 2025).

Some surveys show that doctoral students from different countries seem to be satisfied with their PhD program (Woolston, 2015, 2017, 2019). Indeed, 80% of the respondents were satisfied or very satisfied about their doctoral program (Woolston, 2017), 78% intended to pursue a career in academia (Woolston, 2015), suggesting a satisfying judgment of their academia environment and 75% were satisfied with their level of independence in their work (Woolston, 2019), suggesting an overall positive doctoral experience.

Following these findings, the positive experience of the doctoral degree seems to be gaining more and more attention in scholarly works nowadays (Berney et al., 2022; Giudicelli et al., 2022) changing the old mindset that a doctoral degree has to be done through pain in order to be successful.

This research aims to understand the role of positive experience of the doctoral program, and its role in maintaining or not the students' intention to persist in their doctoral program.

1.2. The Doctoral Students' Intention to Persist or Drop Out

One methodological way to study student motivation is to identify the intention to drop out or persist among doctoral students (Muchaku et al., 2024; Han et al., 2026; Litalien et al., 2024). Intention can be defined as the motivation of students to stop or continue their doctoral studies before obtaining the doctoral degree (Sheeran, 2002). Drop out intention is a form of goal disengagement. Goal disengagement has been associated with reduced performance and negative affect (Brandstätter et al., 2013), whereas the intention to persist has been associated with positive affect (Kiani et al., 2021; Stubb et al., 2011, 2012). Positive dispositions such as mindfulness can reduce the occurrence and intensity of goal attrition processes (Marion-Jetten et al., 2022) and academic motivation can be strengthened by positive emotions (Low et al., 2016). Although intentions do not predict actual behavior, they do provide information about individuals' attitude towards their original goal (Keller et al., 2020; Litalien & Guay, 2015).

Studies showed that the students who intended to persist had a different conception of the doctoral experience than the students who intended to drop out (Stubb et al., 2012): students who intended to pursue their doctoral program were less stressed, less tired, less anxious and more interested in their research than those who intended to drop out. They also considered their thesis to be more useful to society and science and saw the doctorate more as a way to learn how to be a good scientist, whereas the students who intended to drop out, saw the doctorate as a way to develop their career and achieve a new social status (Stubb et al., 2012).

1.3. The Emergence of Positive Affect during the Doctoral Program

For more than two decades, the "broaden-and-build theory" has become a reference model for understanding the consequences of positive affect (Stanley & Shutte, 2023; Stubb et al., 2011, 2012). Positive affect is defined as discrete high valence emotional states that impact thought and behaviors (Shiota et al., 2021). The Broaden-and-build theory explains how positive emotions have the potential to broaden people's thinking and behaviors possibilities and build their enduring personal resources (Fredrickson, 2004, 2013). Academic motivation has previously been viewed as a resource (Low et al., 2016). This theory posits that recurrent positive emotions felt during an experience increase awareness of positive aspects of the environment and create an upward spiral that increases positive

feelings, which in turn increases well-being (Fredrickson & Joiner, 2002). In addition, it suggests that positive emotions inhibit the effects of negative emotions (Fredrickson, 2004). Therefore, positive emotions such as pride and satisfaction could enhance students' ability to adapt to the challenges of doctoral work and motivate them to persevere during difficult periods. Several discrete positive emotions can emerge from the doctoral experience.

Interest in the research work is important so that students do not drop out of the doctoral program (Devos et al., 2017). It has been reported that in order to be interested in their research work, doctoral students need to feel that their research work brings something new to their field, but can also contribute positively to social change (Meyer et al., 2007; Stubb et al., 2012). Lack of interest has been identified as a predictor of drop out intentions (Cornér et al., 2021), as students who are not interested in their research topic, take on less responsibility in their laboratory and perceive themselves as having a low level of self-efficacy (Stubb et al., 2011).

Pride of being a PhD student is motivated by a sense of belonging to the academic community and a socially valued professional status (Griskevicius et al., 2010; Mercadante et al., 2021). According to Morrisson-Saunders et al. (2005), pride, like self-efficacy, emerges gradually and increases towards the end, when the research is nearing completion. It appears that no work has yet demonstrated the relationship between pride and the doctoral experience and intention to drop out. However, a study conducted on first-year students in different disciplines showed that proud students have less drop out intention (Truta et al., 2018).

Satisfaction with the work done so far has shown to have an impact on the doctoral experience. In particular, a lack of satisfaction with the research has been linked to the intention to drop out in several empirical works (Barnes & Randall, 2012; Golde, 1998). Some directly refer to the satisfaction with the collaboration with the supervisor, which, if perceived as insufficient by the students, may facilitate the intention to drop out (Ives & Rowley, 2005) and PhD candidates' well-being (see also Tikkanen et al., 2025). Hardré et al. (2019) conducted a study on 886 doctoral students from different disciplines to create a predictive model of the PhD student's intention to drop out. They found that the more students were satisfied about all the aspects of the doctoral program, the more likely they intended to persist in their doctorate.

Furthermore, during the doctoral program, positive experience can emerge from several parallel phenomena such as Flourishing. Flourishing has been defined as an individuals' ability to accept themselves, to form positive relationships with others, to be autonomous, to have control over the environment, and to live a fulfilling and meaningful life (Diener et al., 2009; Ryff, 1989). Flourishing is usually described in terms of subjective well-being, as it requires high levels of both hedonic (i.e., experiencing positive affect) and eudemonic (i.e., living a life of meaning and virtue) well-being (Jankowski et al., 2020). One study found that students with higher levels of flourishing were more confident about their career

prospects, progressed in their research careers, felt that they belonged to an academic community and had better relationships with their supervisors (Zhang et al., 2022).

Two negative emotions, anxiety and depression, were added to the present study in order to compare the consequences of positive emotions with negative emotions on students' intentions. Although a number of studies show that a large proportion of doctoral students suffer from anxiety and depression symptoms (Cornér et al., 2021; Gérard & Negels, 2017; Satinsky et al., 2021), there are conflicting findings on the impact of anxiety and depression on the doctoral experience and their role on students' intentions to persist or drop out (González-Betancor & Dorta-González, 2020; Zhang et al., 2022).

At a dispositional level, personality traits interacting with fitting situational features, results in positive affect (Bouckenooghe et al., 2013). A trait is fitting to a situation when the situation offers opportunities for being expressed, (e.g., social situation will fit with the extraversion trait), and therefore increase an individual's positive feelings towards the situation (Tett et al., 2021). Personality has been defined as the enduring traits that individuals exhibit and make them differ from other individuals and explain some of their behaviors (Bergner, 2020). To some extent, each of the Big five model's dimensions (Thompson, 2008) has been shown to have influence on the student's intentions. For example, two studies conducted on first-year psychology students in the United States revealed that students who were more conscientious, agreeable, emotionally stable and extroverted were more likely to persist with their studies (Lounsbury et al., 2004; Okun & Finch, 1998). However, to the best of our knowledge, no work has investigated the links between personality dimensions and doctoral students' intentions.

The second dispositional variable considered in the present work is the student's self-efficacy. Self-efficacy is the individual's belief in their own capabilities to act to attain designated types of performances (Artino Jr. et al., 2012). If academic self-efficacy level can increase in response to positive affect (Buric & Moè, 2020), this suggests that positive emotions can lead to a better mastering of academic competencies. Another work showed that self-efficacy could lead to positive affect, strengthening the variables' beneficial effects on academic performances (Hayat et al., 2020). In a Canadian study, a predictive model of the drop out intention showed that the students are more motivated to drop out when they are not confident in their own research capabilities (Litalien & Guay, 2015).

1.4. The Present Study

This study examines the role of positive emotion variables on the student's motivation. It is proposed that the students who will associate their doctoral experience with positive emotions will have the desire to persist in their studies. To test this prediction, it is intended to separate the data obtained according to the student's intention. This method makes it possible to systematically compare the students who intend to drop out to the students who intend to persist on all the variables

tested in this work. This research work is part of a two-year study conducted in university of Montpellier Paul-Valéry, France, specifically to understand the predictors of the drop out intention (Giudicelli et al., 2024). In France, the PhD program lasts generally three years. Several funding opportunities exist, the doctorates in life and natural sciences are usually more funded than the ones in humanities and social sciences. It is common for thesis works to last longer but PhD students need to find ways to support their economic needs on their own. Drop out rates are usually more important in humans and social sciences disciplines (Thibault, 2019).

Therefore, we make the following hypothesis, concerning the comparisons between the students who intend to persist and the ones who intent to drop out: the students who intend to persist will have significantly higher levels of positive affect (i.e., pride, interest, contentment, flourishing) self-efficacy level, personality dimensions (i.e., conscientiousness, agreeability, emotional stability, openness to experience and extroversion) and lower levels of negative affect (i.e., anxiety and depression) than the students who intend to drop out.

We also predict that the tested positive emotions (i.e., flourishing, pride, contentment and interest), high levels of self-efficacy and personality traits (i.e., conscientiousness, openness to experience, emotional stability, agreeability, and extroversion) should positively predict the intention to persist.

On the contrary, the negative emotions examined in this study (i.e., anxiety and depression) should predict the intention to drop out.

2. Method

2.1. Participants

220 doctoral students in humanities and social sciences from the university of Montpellier Paul-Valéry in France took part in the study (27.43% response rate). They came from two doctoral schools -Doctoral school 58 (i.e., art history, history, language, education, philosophy, theology, literature) and Doctoral school 60 (i.e., archeology, geography, psychology, communication, ecology, sociology). Those two doctoral schools come from the same university (University of Montpellier Paul-Valéry). Montpellier counts in total five doctoral schools divided between two universities. After deleting the missing data from the students' responses, 191 respondents ($M_{age} = 35.8$, $ET_{age} = 10.36$) were kept in the final statistical analysis. They were constituted by 119 women ($M_{age} = 34.36$, $ET_{age} = 8.93$) and 72 men ($M_{age} = 34.42$, $ET_{age} = 12.11$). Out of the 191 respondents, 124 were French and 67 were international students, 40.9% ($n = 78$) were enrolled in the doctoral school 60, and 59.1% ($n = 113$) were enrolled in the doctoral school 58. In this study's sample, 24.6% ($n = 47$) were enrolled in first year, 24.6% ($n = 47$) in second year, 19.37% ($n = 37$) in third year, 12.56% ($n = 24$) in fourth year, 9.94% ($n = 19$) in fifth year, 5.75% ($n = 11$) in sixth year, 2.61% ($n = 5$) in seventh year, and 0.52% ($n = 1$) was enrolled in eight years.

2.2. Material

The material consisted of seven questionnaires:

TUPI (Storme et al., 2016) is a short scale of 10 items usually used to assess the five dimensions of the Big Five model of personality ($\alpha = 0.54$). Each item is a statement that respondents have to rate on a scale of 1 to 7, where 1 is “strongly disagree” and 7 is “strongly agree”, as to whether it corresponds to their own personality.

The Hospital Anxiety and Depression Scale (HADS; Bocéréan & Dupret, 2014) was used to measure students’ anxiety and depression symptoms ($\alpha = 0.70$). The 14-item scale consists of sentences about what the individual is feeling at the moment, and respondents are asked to rate whether they are experiencing it on a scale of 1 to 4.

The Flourishing scale (Villieux et al., 2016) was used to measure the state of flourishing ($\alpha = 0.89$). The instrument uses a Likert scale from 1 to 7 to rate the extent to which students agree with the 8 items, with 1 corresponding to “strongly disagree” and 7 corresponding to “strongly agree”.

To measure students’ research self-efficacy, a subscale of the Quality in PhD processes Questionnaire (Herrmann & Wichmann-Hansen, 2017) was used ($\alpha = 0.85$). This instrument consists of 7 items. Each item asks the students if they are confident in mastering a specific research competence: being able to write a literature review, formulate a research question, design a study, collect and process data, write and send an abstract for submission to a conference, write and send a manuscript for academic publication, be autonomous in the research process, and overall be an efficient researcher. Each item must be rated by the students on a scale of 1 to 7, with 1 corresponding to “not at all confident” and 7 corresponding to “very confident”. To our knowledge, no French translation of this scale has been validated. As it seemed important to measure students’ self-efficacy, we included a French translation by a native English speaker.

Positive affect was measured by three items created for this study ($\alpha = 0.74$). The first item assessed the students’ interest in their research, the second assessed the students’ pride in having the status of a doctoral student, and the third measured their satisfaction with their work so far. Each of the items has to be answered on a Likert scale ranging from 1 to 5, with each response modality adapted according to the emotion being measured. For example, for satisfaction, 1 corresponded to “I am not at all satisfied with my work so far” and 5 corresponded to “I am very satisfied with my work so far” (See **Appendix**).

Sociodemographic information was assessed. The items measured students’ age, gender, year of study and nationality.

The Drop out Intention was assessed using a single item method formulated in the past tense “Did you intend to abandon your thesis during this academic year?”. The students had to answer this question with the binary answer option “yes” or “no”. This single item is frequently used in scientific literature to measure doctoral students’ intention to drop out or persist (Castello et al., 2017; Cornér et al., 2018, 2021; González-Betancor & Dorta-González, 2020; Peltonen et al., 2017; Stubb et

al., 2011, 2012).

2.3. Procedure

The survey was sent to the student's university email address. The study was available online from 12 July to 29 October 2021, it was constructed with the software specialized in the creation of surveys, namely *Le Sphinx* (2023). In the email, students could read the main objective of the research. It was specified that the survey would ask the students about their experience of the doctorate, their health and some socio-demographic information. It was also mentioned that the study was voluntary and that there would be no consequences if students chose not to respond. After reading the instructions, the students could give their informed consent to participate in the study and start answering the questionnaires. At the end of the study, each respondent was given an anonymity code. Students were informed that they could contact the Student Life Observatory, the university department responsible for assessing the quality of student life: If students decided to stop participating in the survey and wanted their data to be deleted, they only had to provide their anonymity code. Five reminder emails were sent to students between July and October, with one email sent in mid-October specifically to students who had not started to complete the survey. In addition, the study followed the European Union's General Data Protection Regulation (GDPR), introduced in 2016, which guarantees anonymity, data protection and storage, and respondent consent, among many other principles. Because anonymity was rigorously respected in all steps of the research, because participants provided informed consent, because data from the questionnaire are collected and analyzed anonymously, no ethical review was required. On average, students took 27.7 minutes to complete the survey. There was no payment for participation.

2.4. Statistical Analysis

All statistical treatments were performed on R (R Core Team, 2017). We performed two data pre-processing treatments by 1) deleting all the missing data from the data matrix, 2) standardizing the data. All the studies' *p* values were FDR corrected.

Then, for each of the explicative variable (i.e., conscientiousness, agreeability, emotional stability, openness to experiences, extraversion, self-efficacy, anxiety, depression, flourishing, interest, pride and contentment), we performed two-sample Welch *t*-test to investigate the differences between the students who intended to drop out versus the students who did not. The results' *p*-values were corrected using the False discovery rate (FDR) multiple comparisons. Cohen's *d*, *BF*₁₀, and $1 - \beta$ power were also specified. A stepwise logistic regression was conducted to find the predictors of the drop out intention. The model was evaluated using the Akaike information criterion (AIC), Bayesian information criterion (BIC), the *R*², the adjusted *R*², the Hosmer-Lemeshow test of goodness of fit, and the model's classification and sensitivity analysis.

3. Results

3.1. Investigating the Differences between the Students Who Intended to Drop Out and the Students Who Did Not (Hypothesis 1)

Welsh t-test were used to examine the differences between the students who intended to drop out and the students who intended to persist. Overall, 74.34% ($n = 142$) of the respondents intended to persist while 25.65% ($n = 49$) intended to drop out.

The full results are shown in **Table 1**. In terms of dispositions, students who intended to persist had higher scores on emotional stability, $t(98.18) = 2.896$, $p = 0.009$ and conscientiousness, $t(77.53) = 2.416$, $p = 0.03$, than students who intended to drop out. All the affective variables showed a significant difference between the two groups of doctoral students. In particular, the positive affect variables seemed to provide strong evidence regarding this difference, all of the four variables possessing a $1 - \beta$ power level > 0.90 : Flourishing, $t(68.28) = 3.254$, $p = 0.005$, with a moderate size effect; Interest, $t(72.13) = 3.063$, $p = 0.005$, with a moderate size effect; Pride, $t(73.18) = 5.30$, $p < 0.001$, and satisfaction, $t(72.07) = 4.60$, $p < 0.001$ with large size effects. Therefore, the results provided strong evidence that doctoral students who intended to persist had an experience that was significantly more marked by positive emotions than doctoral students who intended to drop out.

Table 1. Comparisons between PhD students who intended to drop out and PhD students who did not based on Welsh t-test results.

	t	df	<i>p</i> -UNC	<i>p</i>	Cohen's d	BF ₁₀	1 - β Power	Students who intended to drop out means (SD)	Students who did not intend to drop out Means (SD)
Pride	5.30	73.18	<0.001	<0.001	0.95	307844.4	0.99	3.28 (1.20)	4.25 (0.92)
Satisfaction	4.60	72.07	<0.001	<0.001	0.83	13357	0.99	3.10 (1.19)	3.96 (0.94)
Anxiety	-3.327	86.85	0.001	0.005	-0.53	21.31	0.88	11 (4.12)	8.78 (3.98)
Flourishing	3.254	68.28	0.001	0.005	0.61	85.22	0.95	37.51 (10.73)	43.12 (7.29)
Interest	3.063	72.13	0.003	0.007	0.55	28.37	0.91	4.10 (1.06)	4.58 (0.72)
Emotional stability	2.896	98.18	0.004	0.009	0.44	4.46	0.75	3.84 (1.28)	4.45 (1.44)
Conscientiousness	2.416	77.53	0.01	0.03	0.41	3.21	0.69	5.11 (1.13)	5.65 (1.13)
Depression	-1.996	76.12	0.04	0.07	-0.34	1.35	0.53	6.97 (3.99)	5.52 (3.26)
Agreeability	1.332	90.24	0.18	0.24	0.21	0.37	0.24	5.15 (1.11)	5.38 (1.16)
Self-efficacy	0.887	77.70	0.37	0.45	0.15	0.26	0.14	2.28 (0.78)	2.41 (0.87)
Openness to experience	-0.598	88.70	0.55	0.60	0.09	0.20	0.08	5.44 (0.99)	5.32 (1.08)
Extraversion	0.205	74.77	0.83	0.83	0.03	0.18	0.05	3.85 (1.43)	3.91 (1.19)

3.2. Predicting the Students' Persistence (Hypothesis 2)

To understand which variables predicted PhD students' intention to drop out, a logistic regression analysis was carried out. For the statistical analysis, answers of "no" were coded as 0 and answers of "yes" were coded as 1. Consequently, a positive β value indicates the extent to which an explanatory variable predicts drop out intention, while a negative β value indicates the extent to which an explanatory variable predicts persistence.

A logistic regression model including personality traits, self-efficacy, flourishing and affect variables was conducted. The complete model is shown in **Table 2**. The present stepwise model AIC = 189.20 is favorably lower than the null model's AIC = 219.51, and the model's BIC = 205.45 is also favorably lower than model's null BIC = 222.76. The diagnostics for the logistic model met the required criteria. The final stepwise model was significant and retained four predictors, $\chi^2(4) = 38.31$, $p < 0.001$. The achieved Pseudo- $R^2 = 0.21$ demonstrates a moderate level of explanatory power. Furthermore, the p -value for the model, assessing its fit to the data ($p = 0.62$), significantly exceeds 0.05, confirming the model's adequacy.

Then, to ensure the model's validity, we employed two verification methods: the first entailed analyzing classification accuracy and sensitivity and the second method assessed goodness of fit using the Hosmer-Lemeshow test. The model's optimal classification cutoff point, which balances sensitivity and specificity, was determined at 0.58. When using this threshold, the model achieved an accuracy value of 0.827, indicating an 82.7% probability of correctly classifying the two categories it is modeling, resulting in a misclassification rate of 17.3%. The model demonstrated a sensitivity of 0.448, meaning that it correctly identified 44.8% of students with the intention to drop out (true positive rate). It suggests that the model may underestimate the number of students considering dropping out. Finally, to assess the goodness of fit of the model, the Hosmer-Lemeshow test was employed. This test confirmed that the model is appropriately fitted to the data $\chi^2(8) = 4.361$, $p = 0.823$, as the p -value exceeds the threshold of 0.05.

Table 2. Multiple logistic regression results for the drop out intention.

Variable	β	Std Error	CI	z	p	OR
Openness to experience	1.34	0.69	[1.02, 15.55]	1.94	0.05	3.84
Conscientiousness	-1.13	0.70	[0.07, 1.26]	-1.61	0.10	0.32
Satisfaction	-1.35	0.71	[0.06, 1.05]	-1.88	0.05	0.25
Pride	-2.42	0.72	[0.02, 0.35]	-3.33	<0.001	0.08

Note. OR: Odd ratio. The solid line separates the positive and negative β .

The logistic regression model indicates that the strongest variable linked to the intention to continue is the pride of being a PhD student. These results suggest that students who report a higher level of pride are less likely to consider dropping out of their PhD program.

4. Discussion

The main goal of this research was to examine the affective experience of students engage in doctoral program. The general picture emerging from the analysis is that the students who intended to persist had a more positive doctoral experience than the students who intended to drop out.

The results yielded some interesting findings. The Welsh t-test results suggest that the students who intended to persist report being more conscientious and more emotionally stable than those who did not. Conscientiousness and emotional stability have both been linked to the students' intention to persist or drop out in an academic setting (Lounsbury et al., 2004; Okun & Fish, 1998). Students who wish to continue their studies tend to report having less anxiety. This finding is consistent with studies suggesting that doctoral students with mental health issues are likely to lose motivation (González-Betancor & Dorta-González, 2020).

The results showed that students who intended to persist in their doctoral program reported feeling significantly more positive affect: they felt significantly more pride in being a PhD student, more satisfaction with their completed research and more interest in their research subject. These findings align with previous studies which have shown that feelings of pride, satisfaction and interest are associated with a reduced intention to drop out (Cornér et al., 2021; Golde, 1998; Hardré et al., 2019; Stubb et al., 2012; Truta et al., 2018). Students with these characteristics report having a higher level of flourishing than those who intend to drop out. Zhang et al. (2022) also found a negative association between flourishing and dropping out.

Additionally, students intending to drop out did not differ in their responses from those intending to persist in terms of depression. It should be noted, however, that the depression scores of students intending to persist or drop out indicate an absence of symptoms, as their scores do not exceed 8. A score of 8 on the HADS scale indicates the possible presence of depressive symptoms. In the context of this study, these results suggest that the respondents were not experiencing depressive symptoms.

The first hypothesis was only partially supported, as no significant differences were found between the two categories of students for several variables (i.e. depression, openness to experience, extroversion, agreeability and self-efficacy). Nevertheless, the present study provided evidence that personality could have an influence on students' intentions. Openness to experience was found to be the strongest personality variable linked to the drop out intention. While this result may seem counterintuitive, it is not unique. Previous studies have reported an association between openness to experience and drop out intention in a work setting (Robert & Vandenberghe, 2017). According to the authors, higher levels of openness imply a greater need for flexibility in the work environment, which contrasts with the structured nature of doctoral work. While no other dimensions were found to be significant in the model, this finding aligns with trait-activation

theory. This theory suggests that a loss of motivation occurs when a personality dimension does not align with a work setting. This appears to be the case with the openness to experience dimension in an academic setting (Tett et al., 2021).

The logistic regression model shows that Pride is significantly linked to the intention to persist. In other words, the regression results suggest that pride help to offset negative experiences during the PhD, which partially validates the second hypothesis that positive emotions are associated to the doctoral students' intention to persist.

Flourishing and positive affect generally influenced the doctoral experience and intention to drop out. Dispositional flourishing has previously been found to have a negative influence on goal disengagement (Marion-Jetten et al., 2022). The authors explain that people with dispositional flourishing can de-dramatise and re-frame negative events more easily, are more resilient and have better coping skills, enabling them to achieve their goals more effectively (Marion-Jetten et al., 2022).

Previous studies have shown that students consider dropping out when they encounter difficulties in their research (Devos et al., 2017; Giudicelli et al., 2024). For example, this may occur when they have to write their dissertation manuscript (Bazrafkan et al., 2016; Kiley, 2009) or when they feel that their research does not benefit society or their discipline (Stubb et al., 2012). However, our findings show that students are motivated to continue when they report being proud of their research.

Moreover, these findings appear to be consistent with the assumptions of the Broaden-and-Build Theory (Fredrickson, 1998). Firstly, the theory postulates that positive emotions make one more aware of positive aspects of the environment. In line with this, students who wanted to complete their doctorate seemed to have a better experience of the program than those who intended to drop out. The theory confirms that positive emotions can increase skills and agency. While there were no significant differences in self-efficacy levels between students who intended to drop out and those who did not, conscientiousness, which is correlated with competence (Thompson, 2008), was significantly more reported among those who intended to persist. Finally, the broaden-and-build theory suggests that positive emotions can inhibit the effects of negative emotions. Indeed, students who intended to persist had significantly better scores for flourishing, interest, pride, and satisfaction, and significantly lower scores for anxiety.

These results highlight the importance of developing interventions specifically for doctoral students that emphasize positive emotions such as pride and satisfaction. Previous studies on positive psychology interventions for doctoral students have shown promising results (Marais et al., 2018; Solms et al., 2025; Zahniser et al., 2017).

The decision to use one binary item to measure drop out intention and each positive affect item was carefully made and conformed to the following rationale: a) For replication purposes because several influential studies in the literature adopted the one-item methodology (Castello et al., 2017; Cornér et al., 2018, 2021;

Giudicelli et al., 2024; González-Betancor & Dorta-González, 2020; Peltonen et al., 2017; Stubb et al., 2011, 2012). Therefore, using this same methodology facilitates comparisons between studies and results. b) A more practical reason is that the study takes a significant amount of time to complete. The materials were chosen to be short and easy to complete, and to provide the best possible experience for students. c) One-item measures are increasingly accepted and encouraged in the scientific literature. Using multiple items to measure concrete variables is unnecessary. If a variable is measured by an item that is clearly formulated, it normally suffices to measure the variable in question. In fact, using multiple items runs the risk of measuring other dimensions besides the one being assessed (Bergkvist & Rossiter, 2007; Matthews et al., 2022).

The lack of generalization that limits the scope of the present results should not diminish the importance of the study. In France, data on doctoral students dropping out is limited and the rates are ambiguously reported, often lacking justification. At the exception of one study (Giudicelli et al., 2024), none of the academic research published on the French doctoral experience directly addresses the topic of drop out or persistence (Gérard & Nagels, 2017; Haag et al., 2018; Marais et al., 2018; Solms et al., 2025). This work provides a deeper understanding of the doctoral experience.

5. Conclusion

What positive experiences do students need in order to maintain their motivation and persist with their doctoral program? This study was carried out among doctoral students in two French doctoral schools in the humanities and social sciences to answer this question. The results indicate that students who intend to complete their studies report higher levels of pride, a greater satisfaction with their work, a higher interest in their research topic, higher fulfillment, greater conscientiousness, and higher emotional stability. Those who intended to persist differed significantly from those who intended to drop out in terms of positive affect and flourishing levels, suggesting that positive affect and flourishing are important for achieving goals.

Doctoral students are the minds of tomorrow. It is important for universities and academic laboratories to ensure that their experience is the best possible, as they lose time, money and resources every time a student drops out. This is also important for the research community, as it loses potentially valuable researchers and consequently produces less high-quality knowledge. Supporting the implementation of positive psychology interventions at the doctoral level is therefore a very serious avenue to develop in order to improve the well-being of doctoral students and reduce dropout rates as much as possible.

Author Contributions

Edouard Giudicelli conceptualized and conducted the study, cured the data and analysed the results. He wrote the original draft of this article and made some

edits. Nathalie Blanc and Arielle Syssau supervised the research project and worked on the methodology of the study. They also reviewed and edited the article.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix. Measures

Positive affect measures:

Item 1: On a scale from 1 to 5, how interested would you say you are in your thesis topic? 1 corresponds “I am not interested at all by my thesis topic”, 5 corresponds to “I am very much interested by my thesis topic”.

Item 2: On a scale from 1 to 5, how satisfied would you say you are about the research work you conducted until now? 1 corresponds “I am not satisfied at all by my research work”, 5 corresponds “I am very much satisfied by my research work”.

Item 3: On a scale from 1 to 5, how proud would you say to be a PhD student? 1 corresponds to “I am not proud at all to be a PhD student”, 5 corresponds to “I am very proud to be a PhD student”.