The Relationship between Self-determination, Career Motivation, and Conscientiousness in Teacher Education

Ali Kurt[1],
Istanbul Esenyurt University
Corresponding author: alikurt@esenyurt.edu.tr,

Ece Zehir Topkaya[2],
Izmir Demokrasi University

Abstract

Teacher quality is determined by several internal and external factors such as motivation, personality, teacher education programs, and policymaking. Developing insights into how and to what extent these factors interact with one another informs stakeholders in teacher education helping them evaluate and shape the conditions, approaches, content, and practices. This study examined the interplay between autonomy, competence, relatedness, conscientiousness, and career motivation within the framework of Self-Determination Theory (SDT), a macro-motivational theory, among pre-service English language teachers (PSTs) at a university. Utilizing a sequential mixed-method approach, quantitative data from 271 participants were analyzed, supplemented by semi-structured interviews with 17 students. The findings revealed low to moderate correlations among constructs, with notable moderate correlations between competence and conscientiousness (r=.42, p<.01), along with competence and relatedness (r=.38; p<.01). Qualitative insights corroborated these findings, highlighting that relatedness is the weakest factor with a negative connection to career motivation due to poor lecturer-student relationships. The study emphasizes the critical role of faculty-driven education in enhancing PSTs' competence and underscores the need for fostering a supportive educational environment that promotes autonomy and conscientiousness. Recommendations include enhancing teacher education practices to support self-determined motivation and addressing the negative impacts of inadequate lecturer-student relationships on educational outcomes.

Keywords: *Career Motivation, Conscientiousness, ELT, Pre-service Teacher Education, Selfdetermination Theory,*

INTRODUCTION

Student learning is intricately tied to teacher quality, which in turn is determined heavily by teacher motivation. Therefore, in order to build successful teachers, this motivation should be closely monitored throughout pre-service teacher education. There is a lot of value in examining pre-service teachers (PSTs) since they are at a point in their careers where they are ideally suited for interventions that can improve their motivation, idealistically enable them to become better selves and teachers. Thus, any improvement in their motivation and quality, making them particularly receptive to interventions, can significantly enhance their readiness for the challenges of teaching and have a remarkable impact on their future professional lives (Hernández et al., 2022; Perlman, 2015).

In light of the foregoing, Self-Determination Theory (SDT), developed by Deci and Ryan, suggests a comprehensive paradigm for studying human motivation and personality,

which is particularly applicable in the dynamic and demanding context of teacher education, specifying intrinsic and extrinsic driving factors and their roles in cognitive and social development, as well as in individual growth (Deci & Ryan, 2017, 2022; Vansteenkiste et al., 2023). SDT also investigates how individual perceptions and sociocultural factors both support and thwart people's sense of volition to move further in their private, academic, and professional lives, as well as their well-being and performance quality (Deci & Ryan, 1991, 2017; Wang & Wang, 2024). From this perspective, self-determined acts that promote a sense of intention derive from an individual's motivation for and engagement in activities and their pursuit. In investigating the process of internalizing such objectives and values, SD places a greater emphasis on instinctive regulation through the sense of volition, interests, curiosity, and care than on controlled behaviors managed and driven by external factors (Deci & Ryan, 1991, 2022; Shelton-Strong, 2020). The territory of SDT is formed by the interaction between extrinsic forces, which are driven mostly by rewards, fear, or anxiety, and intrinsic impulses and needs within us. Within this framework, SDT proposes the importance of three basic needs: autonomy, competence, and relatedness, also known as human basic needs, all of which must be constantly addressed to preserve, first and foremost, ambition, creativity, consistent efforts, and, finally, optimal performance and well-being (Wang et al., 2019). These three preliminary SDT constructs form the key components for attaining and maintaining this willingness (Ryan & Deci, 2000). While *autonomy* refers to an individual's sense of control over their own behaviors and objectives in order to take direct action that will result in genuine change and self-determination, *competence* relates to the mastery and skills acquired for any task in order to accomplish one's goals. *Relatedness*, on the other hand, is significantly concerned with developing strong bonds and a sense of belonging through high-quality interactions (Ertürk, 2023).

As teaching is a complicated activity requiring a high level of cognitive load and energy, as well as the ability to respond to students' expected and unexpected actions (Feldon, 2007), SDT highlights the critical role of teachers' support for students' needs (Deci & Ryan, 2000, 2017), thereby assisting teachers, students, and even educational policymakers in providing a framework that ignites critical and refreshing perspectives in educational policies and practices (Ryan & Deci, 2017, 2022). According to SDT-driven research, self-determined or intrinsically motivated teachers produce positive outcomes, improved engagement, and increased effort in their jobs (Ryan & Deci, 2022), whereas those with a lower level of SD may be less engaged in school activities and teaching (Zhang et al., 2021). Thus, this study applies SDT to examine how autonomy, competence, and relatedness impact the motivation and career aspirations of PSTs, aiming to identify interventions that can enhance their educational experiences and future professional engagement.

Despite a slight increase in the number of SDT-based teacher education studies, thus pre-service teachers, the number of studies addressing the academic engagement of PSTs (Jungert et al., 2014) and promoting the characteristics and effects of autonomy-supportive teaching behaviors among PSTs, such as providing choices, increasing relevance, and functioning better in a non-controlling environment (Kebebe, 2020; Perlman, 2015), is sparse. It is worth noting that PSTs are at a crossroads in their careers, where they should be equipped with the skills necessary to create and lead learning cultures in order to constantly stay self-determined rather than feeling controlled, stressed, pressured, and alienated. Thus, increasing their motivation and providing high-quality instruction may have a profound impact on their future employment. Teacher education-driven research stresses the critical role of autonomy-supportive behaviors in the formation of PST behaviors, such as providing feedback, rationale, and relevance. By integrating SDT with insights from personality psychology, this study

pioneers a comprehensive approach to understanding and enhancing the motivational dynamics of PSTs, offering new perspectives on effective teacher education strategies.

Theoretical Background

Self-Determination's Human Basic Needs and Pre-Service Teachers

According to SDT, in order for a person to function properly, the three basic human needs for autonomy (acting with choice), competence (abilities to do things), and relatedness (sense of belonging) must all be met. Autonomy is a psychological construct that refers to how individuals should have complete control over their objectives and actions, as well as the sense of volition that enables autonomous and individual decision-making (Ryan & Deci, 2017, 2022). Student-led initiatives can support the development of autonomy in teacher education by encouraging PSTs to experience their learning voluntarily through self-endorsement. In this level of higher education, the ability to make independent decisions in activities that result in positive behavioral change is associated with increased intrinsic motivation (Azhariah et al., 2023; Ryan et al., 2009), just as it would be in an ideal world in which PSTs are given choices and the chance to self-initiate behaviors.

In the same vein, competence is strengthened by an organized and integrated learning context that promotes authenticity, mastery, appropriate challenge, and feedback (Deci & Ryan, 2002). For PSTs, competence is promoted through the acquisition of information and the development of the essential skills to accomplish a variety of tasks. After acquiring the requisite teaching skills, they are expected to be more driven to realize and achieve their objectives. Additionally, competence generates unexpected positive feedback as a result of the acquisition and practice of teaching skills, thereby satisfying the drive for improved performance (Khotimah et al., 2023; Niemiec & Ryan, 2009). In summary, competence enhances intrinsic motivation and SD; as a result, PSTs become more motivated to undertake these acts in their teacher education, which in turn provides them with the incentive to prepare for their future career.

Relatedness, also known as connection, refers to the desire to be connected with others and exhibit some level of care and concern for others. In PST, teacher educators' constructive instructional approach and friendly demeanor outside the classroom help students feel connected to one another. These teaching qualities are crucial for building stronger interpersonal relationships and even for making and maintaining the decision to pursue teaching as a future career (Kurt, 2021).

These needs are interchangeably satisfying, linked, and complementary in the sense that each one demands the support of the other, which naturally results in improved autonomous motivation and enhanced learning and engagement in personal and professional activities. As demonstrated by Reeve (1998) in his investigation that addressed the question 'Is the autonomy-supportive style teachable to PSTs?', PSTs may be taught such a style either by exposure to such a methodology or through training sessions. This would enable autonomy-oriented PSTs to inspire their own students as well. Additionally, these findings urge educators to design their teacher education programs in a way that allows PSTs to take charge of their own development and is autonomously supported (Rocha-Erkaya & Ergünay, 2021).

Self-Determination, Conscientiousness, and Pre-Service Teachers

Conscientiousness, a key personality trait within the five-factor model, refers to being organized, self-disciplined, logical, and achievement-oriented (Goldberg, 1990). Research suggests conscientiousness is a strong predictor of life satisfaction and academic performance. directs and maintains an individual's overall abilities, performance, and involvement (Costa & McCrae, 1992; Izquierdo et al., 2023). In the context of PSTs, conscientiousness is highly associated with self-regulation (Gao & Liu, 2013) and learning discipline. Interestingly, studies suggest a connection between conscientiousness and SDT, as it is a strong predictor of learning motivation (Müller et al., 2006). Individuals with a high level of conscientiousness may have a greater sense of motivation to learn and exhibit superior professional performance (Cochran-Smith, 2005; Kim et al., 2018). This aligns with SDT's emphasis on internal motivation and the need for control (La Guardia & Ryan, 2007). In the context of teacher education, conscientious PSTs might be more likely to seek out opportunities to develop mastery in teaching skills or actively engage with feedback to improve their practice (competence). Additionally, their organized nature and desire for achievement could translate into creating well-structured lessons and staying on top of student progress. Ultimately, conscientiousness could contribute to PST's professional growth and work success (Göncz et al., 2014; Izquierdo et al., 2023). Understanding the interplay between conscientiousness and the components of SD could provide valuable insights into designing teacher education programs that foster these traits, thereby enhancing PSTs' professional capabilities and satisfaction.

Self-Determination, Career Motivation, and Pre-Service Teachers

Pre-service teaching is the first formal phase of education for those seeking to become certified teachers. Teacher educators equip these prospective teachers with pedagogical knowledge and practical skills, as well as a foundation for lifelong learning (Roberts et al., 2018). In line with the SDT assumptions, such teacher education methodology should strive to develop more autonomous, competent, and connected PSTs (Jungert et al., 2014). On the other hand, career-choice motivation is an important component, as motivation toward teaching as a vocation enables us to gain a better understanding of the motives that attract individuals to teaching (Heinz, 2015; Macalisang & Bonghawan, 2024), potentially revealing the nature and extent of their future commitment. Interestingly, research suggests a connection between SDT and career motivation. When the three core needs of SDT are supported in PSTs, it can positively influence their career motivation. For instance, feeling autonomous in their learning experiences might make PSTs view teaching as a profession that allows for creativity and decision-making within the classroom, ultimately increasing their long-term career satisfaction.

Problem Situation

This study investigates the three SDT psychological constructs—autonomy, competence, and relatedness—and their potential connection with conscientiousness and career motivation in pre-service English language teachers.
There is a lack of knowledge and awareness of how student-teachers regulate their behavior during the course of the four-year curriculum since not enough study has been done on the topic globally. This is especially noticeable in the field of teacher education, which suffers from a lack of research base globally that needs to be addressed in the teaching and learning process. Notable among these is the need to understand and evaluate the motivational levels and outcomes of ELT pre-service teachers. Thus, the present research is unique in that it brings

together SDT, with its trinity of requirements, personality trait (conscientiousness), and career motivation, all under one roof to examine their mutual effects and connections.

The novelty of this study lies in its specific focus and examination of the interplay between key psychological factors that drive teachers' professional motivation and commitment, whether they are pre-service or in-service teachers, novice or experienced teachers. Whereas previous studies have explored self-determination, conscientiousness, and career motivation in various contexts, this study uniquely looks into their interactions among PSTs and examines how gender and years of study moderate these constructs. Rather than simply looking into correlations, the study adds valuable nuances about the potential moderating influences of these constructs. By presenting actionable recommendations, the study offers tangible improvements in teacher education to create long-term motivation and engagement. In an effort to fill in some of the gaps in the relevant literature, the current study sought to investigate the extent to which preservice English language teachers are self-determined, the degree to which their perceived self-determination correlates with their conscientiousness and career motivation, and the ways in which these three constructs interact with gender and year of study. By integrating SDT principles, teacher education programs can more effectively inspire and sustain PSTs' career motivations, contributing to a more dedicated and fulfilled teaching workforce.

Purpose and Significance of the Study

Inquiries into learning and teaching and SDT separately have been the focal point of a substantially large body of educational research. Yet, despite a plethora of studies on the application of SDT to education, little is known about the extent to which PSTs are self-determined, as well as how SD, and conscientiousness, and career motivation interact among PSTs.

Another goal of the research is to illuminate any potential differences between males and females by determining the extent to which they exist. The possible influence of the year of study on the study's research constructs is also investigated. Analyzed through this lens, the study sheds light on the likely interaction between SD and conscientiousness, gender, the year of study in teacher education, and the most significant factors of all within this interplay.
Given the paucity of research to date, this study looks into the link between SD and four factors, guided by the following research questions:

RQ1. What is the relationship between the psychological constructs of relatedness, competence, autonomy, conscientiousness, and career motivation among English Language Teaching pre-service teachers (PSTs)?

RQ2. Are there gender differences in perceptions and experiences related to relatedness, autonomy, competence, conscientiousness, and career motivation among PSTs?

RQ3. Do perceptions of relatedness, autonomy, competence, conscientiousness, and career motivation among PSTs change across different years of their educational study?
This research aims to shed light on how these variables interact and influence one another, providing a more nuanced understanding of the factors that promote or hinder PST development in teacher preparation programs.

METHODS

Research design

The study adopted an explanatory sequential design, a mixed-method research design, which involved collecting and analyzing quantitative data initially, followed by qualitative data to explain and interpret the numerical findings. This approach was chosen because it enabled us to first reveal correlations between constructs and identify differences between genders and years of study within the faculty, using quantitative survey data. The quantitative phase formed the priority as it needed to be the main focus based on the research questions, including the administration of five survey scales.

Upon analyzing the survey results, interview questions were developed to delve deeper into the lived experiences and perspectives of selected participants through the qualitative interviews. The qualitative phase encompassed semi-structured interviews, which provided a richer understanding of the 'why' behind quantitative relationships. This two-phased approach enabled us to not only identify potential associations between variables but also gain a better understanding of the underlying factors. Finally, the results of both quantitative and qualitative analyses were integrated into the discussion to provide comprehensive answers to the research question and complement each other.

Research participants and Sampling Procedures

The study was carried out within the ELT undergraduate program at the Faculty of Education at a public university in Northwestern Turkey. To be admitted to this 4-year-long ELT department, all candidates must get a passing score on a national university-level standardized test. Additionally, the department requires an English foundation preparation year; those who fail the English proficiency test during the admission process must study English in the very first term or year prior to their freshman year to be proficient in the language.

Sample size, Power and Precision

Participants included 271 PSTs from the quantitative phase (age range= 19-23), with a gender distribution of 94 males and 177 females across all academic years: 80 freshmen, 26.9 sophomores, 60 juniors, and 58 seniors. For the qualitative phase, a sub-group of 17 PSTs who stated their willingness to participate in interviews in the questionnaire participated in one-on-one interviews, maintaining a gender balance similar to the larger group (70% female, 30% male). This distribution across year levels (first-year: 17.7%, second/third-year: 23.5%, fourth-year: 35.3%) ensured a comprehensive perspective from the program.

Data Collection

Data collection in this study was achieved through two primary methods: surveys and semi-structured interviews. The survey component employed a series of 5-point Likert scales

to quantitatively assess PSTs' self-determination, conscientiousness, and career motivation since it is practical and cost-effective when dealing with a large sample size (McCawley, 2009). It captured demographic details and measured perceptions of autonomy, competence, and relatedness, using scales adapted from validated instruments to ensure contextual relevance as shown below:

Table 1. Measurement Scales and Adaptations for Key Constructs

Construct	Measurement Scale	Original Authors	Turkish Adaptation
Autonomy	Teaching Autonomy Scale	Pearson & Moomaw (2006)	Ulaş & Aksu (2015)
Competence	Teachers' Sense of Efficacy Scale	Tschannen-Moran & Hoy (2001)	Çapa et al. (2005)
Relatedness	Learning Climate Questionnaire	Williams & Deci (1996)	Kurt (2021)
Conscientiousness	Big Five-Factor Model	Costa & McCrea (1992)	Çelik (2017)
Career Motivation	Motivation Scale on Teaching Profession and Field Choice	Mayr (1998)	Atay & Altınoğlu (2013)

Participants were approached during their lessons, practically at the conclusion of the first semester, and fully covered. The qualitative insights were gleaned from semi-structured interviews (with a mean time length of 22 minutes) that enriched the quantitative data by exploring individual PST experiences and perspectives (Taylor & Trumbull, 2005).

Measures and Covariates

To ensure instrument reliability, the survey underwent a pilot test with 97 PSTs (separate from the main study). This pilot test led to revisions in the autonomy scale, ultimately achieving satisfactory Cronbach's alpha coefficients for all scales:

- Autonomy: .83
- Competence: .94
- Relatedness: .90
- Conscientiousness: .91
- Career Motivation: .84

For the quantitative measures, the validity of the research was further supported through a semi-structured interview protocol developed and refined with input from an expert in ELT. The protocol was piloted with three PSTs to finalize the questions, ensuring they were clear and effective at eliciting in-depth responses.

Data Analysis and Saturation

The frequencies, mean values, and standard deviations were all determined usingthe SPSS.20 version. Skewness and Kurtosis were also run on the data to ensure it was normal. In the normalty test of five variables (N=271), data sets with Skewness (all values being close to zero) and Kurtosis values between -1 and +1 are considered normally distributed (Hair et al., 2010). Having found the distribution moderately skewed, Pearson's correlation analysis was performed. As for the qualitative analysis, interviews were recorded with permission and later transcribed into an electronic word-processing program. Once the researcher had completed their thorough content analysis and discovered the themes and codes, they sought the assistance of a colleague with similar expertise. Six interviews were analyzed in this way, making up 30% of the transcribed texts. This cooperation helped to improve internal validity while also eliminating bias and familiarization. Finally, the researchers' codes and themes were compared to those of the inter-rater to determine the degree of congruence between the two parties. The Kappa value for inter-rater reliability is =.802 (p<0.001), an outstanding measure of agreement (McHugh, 2012). With these confirmed results, the content analysis for the rest of the 17 PSTs was resumed by the researchers. The particular sample provided information rich in valuable data; however, the study achieved its thematic saturation by 12 people at most, or even fewer for some constructs, suggesting no further data collection was needed. This is consistent with the literature, which concludes saturation occurs most in the range between 12 and 15, often at 12 (Creswell, 2018; Guest et al., 2006).

This comprehensive dual-method approach (triangulation) enabled a thorough analysis of the relevant psychological constructs, leveraging both the breadth of the survey and the depth of the interviews, effectively integrating these robust, culturally adapted tools into the overall research framework. Both data collection procedures were conducted face-to-face in a cross-sectional manner.

RESULTS & DISCUSSION

The study attempted to find out the relationship between these psychological constructs and the extent to which PSTs exhibit autonomy, competence, relatedness, conscientiousness, and career motivation in their future careers. The mean values of the perceived level of their SD, conscientiousness, and career motivation are presented in Table 1 below:

Table 2. Mean Values of the Constructs

	Variables	N	$\overline{\mathrm{X}}$	SD
	Relatedness		53.47	11.05
	Autonomy		57.32	7.31
Scales	Competence	271	97.69	1.10
	Conscientiousness		42.29	7.27
	Career motivation		75.04	13.21

The findings indicate that PSTs are moderately self-determined overall, with a specifically strong sense of competence (mean value: 97.69) in their field. This positive outcome may have resulted from the comprehensive faculty education that they obtained through the 4-year-long instruction. The means of the other constructs are at a moderate level, ranging from 42.29 to 75.04. With competence standing out with an exceptionally high score, students, including freshmen, might feel a sense of mastery, having created an illusion of having "learned enough" and not faced the full range of challenges in the faculty. Even though this perception of competence might be inflated, the faculty might still be providing a quality education that makes PSTs feel capable and empowered, as the low standard deviation (1.10) indicates a high degree of agreement about their perceived competence.

To identify whether there is a link between the variables and, if so, to show the degree and direction that exist, the correlation test is a convenient statistical approach (Cohen, 1988). The results of the Pearson correlation coefficient's analysis, detailing the relationships between the variables, are displayed in Table 2.

Table 3. Correlation Coefficients between the Factors

Scales	1	2	3	4	5
1. Relatedness	-				
2. Autonomy	.30*	-			
3. Competence	.38*	.24*	-		
4. Conscientiousness	.32*	.18*	.42*	-	
5. Career Motivation	.16*	.22*	.33*	.29*	-

*p<.01

The correlation coefficients ranged between .16 and .42, all showing positive associations from low to moderate across the constructs, suggesting an overall modest interrelationship among them. Below, the factors of conscientiousness and career motivation are analyzed individually, both quantitatively and qualitatively. Their connection with the SDT components is discussed in a descending order of correlation strength, from the most to the least correlated:

One striking result is that relatedness is notably correlated with conscientiousness, which, despite being modest-to-low (r=.32, p<.01) reveals a meaningful relationship. Relatedness also shows a meaningful but varying associations with competence (r=.38, p<.01) and autonomy (r= .30, p<.01), with its weakest correlation observed with career motivation (r=.16, p<.01). Despite its weaker correlation, relatedness remains a crucial factor influencing PSTs' career decisions and educational experiences. Autonomy also demonstrates low but meaningful correlations with competence (r=.24, p<.01), conscientiousness (r=.18, p<.01), and career motivation (r=.22, p<.01). Competence, on the other hand, is moderately related to conscientiousness (r=.42, p<.01) and career motivation (r=.33, p<.01), indicating its remarkable impact. Additionally, conscientiousness and career motivation share a weak yet significant connection (r=.29, p<.01).

These empirical data above laid a statistical ground for positive associations, yet, the implications of these relationship invite a comprehensive exploration. It is within this context

that we now turn to a broader discussion of the role of these constructs in shaping academic and professional identities. This discussion is structured in a descending order of correlation, forming a theory-driven analysis of each construct's impact.

The study fills a significant gap in existing literature, by exploring the dynamic intersection of conscientiousness and career motivation and the principles of SDT. With an overall goal to better explain the impacts of constructs on individuals' motivation and behaviors in professional setting, the study aligns with already established findings. The literature corroborates that highly conscientious individuals in academic or professional settings are more likely to be driven in a self-determined fashion (Batia, 2007; Ingarianti et al., 2023; Ingledew et al., 2004). Conscientiousness, characterized by self-discipline and orderliness, serves as a central factor for self-determined acts (Andreassen et al., 2010). This reflects their natural tendency to pursue intellectual challenges and achieve proficiency as they exhibit their perseverance (Costa & McCrae, 1992), self-discipline, and goal-orientation (McCrae & Costa, 2003).

Building on this, conscientiousness plays a key role in people's need for competence to make meaning in activities (Ingledew et al., 2004; Li & Lee, 2023) and achievement. One possible explanation for this connection is that conscientious people take great pleasure in harnessing their competence, and abilities and therefore look for other places where they can feel more satisfied (Müllensiefen et al., 2015). Batia (2007) refers to these new future experiences as 'intellectual challenges' that entail being more competent and developing conscious acts with proficiency. In conclusion, conscientiousness is a strong quality in both personal and professional life, as well as in teacher education. According to these mentioned studies, conscientiousness is a malleable trait, meaning, individuals can go through adaptation programs to raise awareness of and improve conscientious acts and other skills and traits related to effective teaching. Therefore, to develop a training program that ignites a desire to become more responsive, orderly, and diligent in order to be professionally competent, we should value personality traits, specifically conscientiousness, which drives natural curiosity. We can even include personality in the teacher education admission criteria in addition to exam-based matriculation.

As for the interplay between conscientiousness and relatedness, the study's findings on the positive correlation between these constructs are consistent with previous research indicating the learning environment helps harmonize to boost motivation and achievement (Black & Deci, 2000; La Guardia & Ryan, 2007; Prokesova et al., 2019). This supportive atmosphere may foster friendships, and conscientious people can easily make friends and be accepted by their peers and teachers. Research suggests that a welcoming learning environment that supports the notion of "one for all, all for one" and appreciation by others are great concerns for adolescents and young adults (Ryan et al., 2016), definitely including PSTs at this age-blank, as well. This resonates with the intuitive feelings to keep good relationships and belong to a social setting, which may explain the observed link between relatedness and conscientiousness. This leads us to the conclusion that a mutually fulfilling, secure, and caring learning environment in teacher education should be designated. Furthermore, promoting specific facets of conscientiousness, such as hard work and self-discipline, achievement-orientation, and dutifulness, can further enhance PST development.

The positive correlation between conscientiousness and autonomy in this study aligns with research suggesting that conscientiousness acts as a tool for achieving an excessive level of success through purposeful planning and independent decision-making with free will and choices (Black & Deci, 2000; Ryan & Deci, 2017). Past studies are in line with the study in that both conscientiousness and autonomous motivation mediate performance, predicting academic and job motivation (Barrick & Mount, 2005; Judge et al., 1999). The connection between these

two constructs may be justified by our inherent desire for autonomy (that people are born active and autonomous by nature), and a sense of volition (that helps people sustain their motivation and self-discipline over time). Therefore, providing opportunities for autonomy during teacher training and in their professional lives afterward can be beneficial for maintaining motivation both in the program and in future careers.

Having established the relationship between conscientiousness and SDT's basic needs, let's now examine career motivation and its correlation with these three needs. The correlation analysis revealed a gradient, with career motivation being most strongly linked with competence, followed by autonomy, and then relatedness.

This strongest correlation between career motivation and competence is consistent with the literature (Niles & Harris-Bowlsbey, 2021) and may be attributed to the fact that competent people feel more motivated in their careers. Additionally, competence has been proven to predict self-efficacy (Hascher & Hagenauer, 2016), which mediates the acquisition of teaching competencies and serves as an intrinsic factor in career choice. Content analysis further supports this notion, as PST competence has an impact on future careers and well-being (Chesnut & Burley, 2015).

The correlation between career motivation and autonomy was found to be moderate, with the implication that motivated PSTs might be more effective and self-directed. Deci & Ryan (2000, 2021) and Sawan (2016) explain that when individuals have an internal locus of control (feeling in charge) and are motivated (thus likely autonomous), they are more likely to take on responsibilities at work. As will be discussed below, the qualitative analysis complements these findings by presenting the PSTs' initial career-choice reasons prior to entering the faculty.

On the question of the correlation between career motivation and relatedness, the analysis revealed a low level of relationship, thereby leaving relatedness a less significant variable. Interestingly, qualitative data uncovered mostly unfavorable traits among lecturers, suggesting a non-caring and negative learning environment in the faculty. The finding is compatible with the literature that emphasizes the favorable influence of an autonomy-supportive environment for fostering a positive connection between PSTs and lecturers (Martinek et al., 2020).

Next, we explored potential differences across these constructs. Table 3 displays the independent sample T-test results. Following the normality test, an independent sample T-test was done (Armitage, 1994) to see if there were any significant gender differences in relatedness, autonomy, competence, conscientiousness, and career motivation.

Table 4. Independent Sample t-test Results by Gender

Scales	Female		Male		t	p
	X	SD	X	SD		
1. Relatedness	53.46	11.33	53.47	1.94	-.01	.99
2. Autonomy	56.02	6.79	58.02	7.49	-2.15	.03*
3. Competence	97.12	9.89	97.99	1.23	-.68	.50
4. Conscientiousness	39.85	7.80	43.59	6.65	-4.14	.00*
5. Career Motivation	73.23	13.77	76.01	12.84	-1.65	.10

*p<.05; ** p<.001

Males scored significantly higher on both autonomy ($t(269)=-2.15$, p= .03) and conscientiousness ($t(269)=-4.14$, p= .001) compared to females. On the other hand, no significant gender differences were found in relatedness ($t(269)= -.01$, p> .05), competence ($t(269)= -.68$, p> .05), or career motivation ($t(269)= -1.65$, p> .05).

In order to determine whether PSTs' perceptions of these constructs vary across their years of study, we calculated descriptive statistics, including means and standard deviations. A one-way ANOVA was employed to determine significant differences.

Table 5. Perceived Underlying Factors by the Year of Study from One-way ANOVA

Relatedness	Between Groups	942.90	3	2.62	.05
	Within Groups	32038.59	267		
Autonomy	Between Groups	179.21	3	1.12	.34
	Within Groups	1424.21	267		
Competence	Between Groups	541.01	3	3.988	1.78
	Within Groups	27014.95	267		
Conscientiousness	Between Groups	31.54	3	.20	.90
	Within Groups	14254.43	267		
Career Motivation	Between Groups	351.89	3	.67	.57
	Within Groups	46761.58	267		

As shown in Table 4, there were no statistically significant differences in the constructs across year-groups for relatedness ($F(3, 267)= 2.62$, p> .05), autonomy ($F(3, 267)=1.12$, p> .05), competence ($F(3, 267)=1.78$, p> .05), conscientiousness ($F(3, 267)=.20$, p> .05), or career motivation ($F(3, 267)=.67$, p> .05). This suggests a relatively stable perception of these constructs throughout their entire education.

While quantitative tools revealed no significant changes across years, qualitative results provided much richer insights for discussion. Interviews with PSTs explored self-determination perceptions and factors assisting or hindering their self-determination. Tables 5 and 6 summarize the content analysis, demonstrating here only the top key themes (one to four) related to the constructs, potential gender differences, and changes across years. These core themes will be further elaborated below, along with other identified themes precluded from the tables due to space limitations.

Table 6. Yearly Distribution of the Themes related to SDT Needs among PST by Gender

Constructs			Themes	Gender	Year 1 *(N=3)*	Year 2 *(N=4)*	Year 3 *(N=4)*	Year 4 *(N=6)*
Relatedness	Positive		The Sense of Belongingness and Connectedness	M (N=5)			●	
				F (N=12)		● ●	●	● ● ●
	Negative		Professors' Deliberate Social Distance	M	●	●	● ●	
				F			●	● ● ●
			Professors' Poor Interpersonal & Communication Skills	M	●	●		
				F			●	● ● ●
Competence	Positive		Faculty Education (Developmental nature of teaching competences)	M			● ●	
				F		● ●	● ●	● ● ● ● ●
			Achievement Motivation (Ambition and Self-Confidence)	M				
				F			●	● ● ● ●
	Negative		PSTs' Lack of Theoretical Knowledge and English Competence:	M	● ●	●	●	
				F	●	● ●		●
			PSTs' Lack of English Competence	M	● ●		● ●	
				F	●		●	●
Autonomy	Positive	Personal Traits	Risk-taking	M	● ●	●	● ●	
				F	●	● ●	●	●
			Confidence	M	● ●	●		
				F	●	●		● ● ●
			Self-efficacy	M	● ●	●	● ●	
				F	●	●	●	● ● ●
	Negative		Organizational Constraints & Work-dependence	M				
				F		●	●	● ●
			Discomfort with skills low confidence	M				
				F		●		●

The content analysis revealed several important themes on relatedness, all of which emphasized the critical role of positive relationships with lecturers/students (a sense of belongingness and connectedness) and a supportive classroom environment.

On gender-basis, female PSTs reported more positive themes related to lecturers, contrasting with males who reported to have faced challenges (by professors) related to fairness and inclusivity within the educational environment. Adverse factors caused by lecturer behavior (such as the use of insulting language and incompetence) and student responses (e.g., shyness) provide the need for understanding what/how strategies can be conducted to foster relational dynamics and create more effective learning atmospheres. Notably, female PSTs in their final year demonstrated increased engagement in professor interactions, possibly due to their nearing graduation.

After a careful examination of the themes/factors behind competence, the analysis identified the developmental nature of teaching competences as the key driver, which arises from their formal teacher education. The findings demonstrated marked differences between male and female PSTs over the study duration. For instance, this formal training seemed to enhance achievement motivation, categorized with self-confidence and ambition, particularly among female PSTs who showed a significant and consistent increase in teaching skills, with a beginning in Year 2 and a peak in Year 4. In contrast, male-students, while also showing progress, consistently reported negative references, like a lack of theoretical knowledge and English competence.

The stark contrast was evident in autonomy. Male PSTs exhibited a higher trend in risk-taking, especially in year 3, compared to more stable results among females. However, both genders showed growth in self-efficacy, with males reporting remarkable increases across years and females marking improvements by Year 4. However, negative themes, such as organizational barriers that inhibit autonomous decisions, were exclusively mentioned by females, suggesting they may face systematic challenges hindering their autonomy despite personal development strides. The contrast in other autonomy themes, such as low confidence and discomfort with skills, being cited more by females is a critical finding that warrants further exploration and intervention.

Table 7. Yearly Distribution of the Themes related to Career Motivation and Conscientiousness among PST by Gender

Constructs		Themes	Gender	Year 1 (N=3)	Year 2 (N=4)	Year 3 (N=4)	Year 4 (N=6)
Career Motivation	Internal	Self-efficacy	M (N=5)	●		● ●	
			F (N=12)	●			● ● ●
		Interest in English	M	●		●	
			F	●		●	
		Childhood Dream	M			●	
			F		● ●		●
	External	Role Model	M				
			F		●		● ● ●
		Fallback Effect	M	●	●	●	
			F		●		●
Conscientiousness	Positive	Personal Traits	Goal-oriented	M	●	●	●	
			F	●	●	● ●	● ● ●
		Communication skills	M		●	●	
			F	●	● ●	●	● ● ●
		Patience	M		●	●	
			F	●		●	● ● ●
		Empathy & Alturism	M	●	●	●	
			F				
	Negative	Introverted	M				
			F		● ● ●		●

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The content analysis of conscientiousness disclosed positive and negative personal traits, unveiling evident gender differences. While male students reported a consistent engagement in goal-oriented behaviors without significant change, females had a notable increase in goal orientation, particularly in later years, indicative of growing focus and motivation. Besides, females constantly improved in communication skills and patience, both present from the beginning and intensifying throughout the later years. Surprisingly, empathy and altruism were the traits consistently reported by male students throughout the four years, in contrast to their female counterparts. These traits were not reported by female students, possibly due to differing developmental focuses. Regarding negative traits, introversion, was significantly reported among females, indicating a negative reaction to the pressures within academic and social environments.

The content analysis categorized career motivation into two categories: internal and external motivations. Internally, despite males exhibiting a gradual increase in self-efficacy, females experienced or perceived greater cumulative gains in skills or confidence, especially in year 4. Both genders reported an initial interest in their field in year 1, but this did not significantly increase in the following years, suggesting that initial interest does not sustain itself as a motivational factor throughout the educational journey. Females frequently mentioned a childhood dream as a motivational factor, especially notable years 2 and 4, whereas such cites were absent among males. As for external motivation factors, females were more influenced by role models in their career choices, indicating a tendency to be motivated by external factors. Conversely, males demonstrated consistent narrations on the fallback effect, and the consideration of backup options in their career planning. The lower frequency of such mentions among females could imply a more optimistic career outlook compared to their male peers. This interesting analysis highlights the complex interplay of internal and external drives that shape career motivations and personal development courses among PSTs.

The dynamic relationship between career motivation and the three needs has been comprehensively explored in this study. Firstly, the association between career motivation and competence reveals that the developmental nature of teaching competencies, encompassing internships, microteaching sessions, and their private tutoring experiences, helps PSTs maintain their career motivation by constantly developing their pedagogical skills.

In investigating the relationship between career motivation and autonomy, our findings suggest that PSTs are primarily motivated by intrinsic factors such as interest in the English language, teaching as a childhood dream, and a natural tendency towards sharing. Conversely, external factors like role models, fallback effects, and family pressures appear to have influenced their career choice processes.

Regarding the association between career motivation and relatedness, particularly the way PSTs related to their teachers, the analysis was enlightening, yet concerning. While PSTs were not inspired by their current professors, even the negative issues seem to get the most attention, including perceived deliberate social distance and poor interpersonal and communication skills of professors, and even instances of authority abuse, insulting language, and gender bias attitudes in the class. These negative interactions were prevalent, yet, they did not deter their career motivation. Interestingly, our quantitative analysis also shows a very low correlation between relatedness and career motivation (r= .16, p< .01), demonstrating that these negative experiences have minimal impact on maintaining career motivation among PSTs. This leads to the conclusion that the content analysis also backs up the correlation results. The quantitative and qualitative findings confirm that PSTs do not feel related or connected to their lecturers, and some even believe some faculty members deliberately devalued them. Research shows that a positive teacher-student relationship is a highly crucial predictor of behavioral and emotional engagement (Chui, 2021). Therefore, the negative behaviors reported could result in

reduced involvement and potentially hostile acts and attitudes from PSTs towards their professors. Despite these challenges, it is worth-noting that, PSTs still perceive a high level of competence in their teaching skills, as seen in Tables 5 and 6. This indicates that although PSTs are not related to professors in many ways, they are able to dissociate their learning and skill acquisition from their personal negative feelings about their professors, maintaining a high level of competence even in the face of relational challenges.

CONCLUSION

As a unique attempt at integrating conscientiousness and career motivation within the framework of self-determination (SD), the study revealed much more about these constructs than any other study. It underscores the importance of the dynamic and intertwined interplay between SD's autonomy, competence, relatedness, personality traits, and career motivation. In general, the study reveals the relationship between personality and career motivation with the goal of, and as a result of being self-determined, extending joy and satisfaction in oneself and one's future employment.

First, PSTs are moderately self-determined and intrinsically motivated overall, with varying perceptions of autonomy, competence, and relatedness. Both quantitative and qualitative analyses reached the same conclusion, despite minor distinctions.

Among the three needs assessed, competence stands out quantitatively as the most robust, with the greatest means, suggesting a uniformly perceived high level of competence attributed to quality education. Qualitatively, the findings reinforce that PSTs benefit from teacher training provided at the faculty, feeling competent to effectively teach soon enough. This accumulated pedagogical knowledge fosters self-confidence and ambition, notably evident among female PSTs, who showed more significant and consistent development in these areas. This seamless link between faculty education and the development of teaching competencies leads us to the conclusion that faculty education is crucial in equipping PSTs for their future careers.

In exploring autonomy among pre-service teachers (PSTs), the study revealed a moderate overall level, hindered by external factors that emerged prominently in the qualitative analysis. Notably, autonomy was found to significantly foster conscientiousness, underscoring its fundamental role in furthering self-discipline and career motivation. Gender differences were evident, with males, particularly in Year 3, manifesting a higher sense of automomy, which could be fostered among females who report feeling more contrained by organizational structure. Self-directed projects, mentorship programs, decision-making, and independent planning opportunities may create a significant change among females.

As coursework becomes more challenging and practical-based, autonomy tends to plateau. Thus, targeted intervention could help PSTs manage their workload more effectively while maintaining autonomy. This strategic assistance is essential since autonomy is not only connected to immediate educational outcomes but also to long-term career development. This is because autonomy is closely linked with faculty education and achievement motivation, both positive themes within competence. Therefore, with this solid theoretical knowledge, PSTs can demonstrate risk-taking behaviors and self-efficacy, which are other crucial components of autonomy. Such stronger internal career motivation may be initially sparked by personal interests and aspirations.

The interplay between autonomy and conscientiousness, through goal orientation and communication skills, triggers personal improvement and mastery. Interestingly, males and females may experience and react to professional development differently. While males exhibit early peaks in autonomy-related characteristics like confidence, they struggle to sustain them,

possibly due to the gradual withdrawal of their existing support system. Females, however, show a slower, yet consistent rise in autonomy-related traits, suggesting they gradually overcome initial barriers. The different gender dynamics observed imply that personalized approaches to boosting autonomy may be beneficial.

The integration of both quantitative and qualitative insights reveals that while relatedness has a lesser direct impact on career motivation, it holds significance in shaping the educational experiences and career aspirations of PSTs. The weak to moderate correlations between all constructs (ranging .16 to .42) underscore the need to assist PSTs by offering opportunities for personal and professional development in self-determination, personality, and career motivation through teacher education. Yet, qualitative analysis highlights a concerning lack of well-established lecturer-student relationships, often negatively impacted by lecturers' misconduct inside and outside the classroom. Therefore, relatedness must be embraced to create a motivating, caring, and supportive environment, where lecturers, as pivotal role models, become another important determinant in choosing teaching as a future career and sustaining professional commitment.

From a qualitative perspective, linking relatedness and competence, the negative aspects within relatedness, such as professors' deliberate social distancing and poor social skills, can significantly impair PST's competence, leading to diminished engagement with learning. This stagnation, particularly evident among male students, related to a lack of connectedness and motivation, highlights potential gaps in professional development and involvement in growth opportunities. On the flip side, a strong sense of belongingness with professors, fostered by good interpersonal and communication skills, generates a positive learning environment, which may ultimately bridge competence gaps, particularly, in areas of theoretical knowledge and English proficiency. In fact, such positive interactions not only enhance PST's conscientiousness, as supportive professors motivate them to be more engaged and responsible, but also nurture achievement motivation. This theme within competence, encompassing ambition and self-confidence, is essential for overcoming these gaps. These results reinforce the crucial importance of relatedness in nurturing a positive learning environment and career motivation, as the absence of effective professor-student connections, often due to lecturer misconduct, negatively impacts PST's motivation and learning.

Positive traits in conscientiousness show an interesting development pattern, where goal-oriented and patient PSTs may strongly exhibit the development nature of teaching competence provided by faculty. Such positive characteristics may relate to increasing perceived competence. As students progress, they increasingly demonstrate signs of self-confidence and ambition, paralleling the rise in their self-efficacy, which appears as a common theme in competence as well, across several years in both genders. This suggests self-efficacy plays a foundational role in academic and career contexts. The interplay between these constructs demonstrates a dynamic interplay that shapes the educational experiences and professional growth of PSTs.

Despite negativities, PSTs demonstrate surprisingly resilient career motivation, which appears to be ignited by strong intrinsic factors such as a passion for English and a desire to share knowledge. Accumulated competence through teacher education still plays a positive role in career motivation for PSTs. The relationship between career motivation and autonomy suggest that intrinsic factors and personality traits appear to impact more career choices compared to non-autonomous factors like role models or pressure. Yet, all other negative issues, such as professors' poor communication, seem to have a minimal effect on this motivation to pursue teaching careers, which also suggests a high degree of intrinsic motivation among PSTs. However, it is still essential to address these negative factors, as they can result in diminished engagement in the long run.

The following practical implications stem from the findings on the promoters and inhibitors of autonomy, competence, relatedness, and conscientiousness, as well as the different career motivations of PSTs, focusing on the potential of SDT to improve PST education. This examination emphasizes the importance of a holistic approach to teacher education that considers a supportive learning environment, personality traits, and well-being.

The findings highlight teacher educators' duty to fulfill PSTs' needs, particularly their sense of belonging and maintaining career motivation. Educators building such a positive learning environment, where relatedness plays an active role in enhancing a caring atmosphere, contributes to PSTs' autonomous choices, engagement, competence, and lifelong career motivation. To achieve this, lecturers should allow students to make their own choices, resulting in PSTs taking ownership of and self-directing their professional learning. Adopting more flexible approaches to course content, delivery, and evaluation will motivate them to constantly strive to be 'growing and learning teachers' at all times.

Education policymakers and teacher education programs should adopt a need-supportive approach to assist PSTs in cultivating their professional development, skills, and wellness. Moving away from traditional, external-factors-oriented motivational models and exam-based practices, which cause excessive stress and crowd out autonomy and intrinsic motivation, can lead to more effective and fulfilling educational experiences. By focusing on intrinsic motivation and supporting PSTs' needs, educators can foster a more engaging and self-directed learning environment, raising the overall quality of teacher preparation.

The study is beneficial since it revealed that understanding personality traits enhances academic and professional performance as individuals can better make judgments that are most suited to their personalities, particularly while choosing a career. For example, PSTs with low conscientiousness may strive to be more ordered and systematic in their studies. This insight highlights the significance of incorporating personality assessments and tailored guidance in career choice, and teacher education programs to optimize educational outcomes.

As personality, specifically conscientiousness, and relatedness, were found to be key parameters in self-determination-oriented learning settings and career motivation, pre-service teacher-candidate enrollment criteria for the faculty should include personality traits and tendencies suited to teaching. Candidates who are socially connected, responsible, patient and self-disciplined may be prioritized to ensure a high quality education. This approach helps in selecting individuals inherently suited to the teaching profession, thereby enhancing the overall effectiveness of teacher education programs.

PSTs should raise their awareness of the theoretical and practical assumptions of SDT through self-directed guidance, and adopt lifelong opportunities to efficiently teach through conscientious acts. This awareness ultimately assists them in reaching broader grounds of teaching and moving beyond its technicality.

Gender differences, specifically in autonomy and conscientiousness, suggest that personalized approaches to teacher education benefit male and female PSTs. Through self-directed projects and mentorship programs to be recruited for females, this may help bridge the autonomy gap observed.

Finally, there are limitations to the data set in this investigation, as it examined the perceptions of PSTs enrolled in a certain public university. As a result, the findings can not be claimed to represent a complete picture and cannot be generalized. To further understand the perceptions of SD and the conscientiousness and career motivation of PSTs, research that encompasses various sample groups from multiple public and private universities should be conducted, even multiple times. Even other variables may be added to the study scope, and an intervention-based study in light of SDT's practical highlights may be conducted to promote their SD and conscientiousness and increase and sustain their career motivation.

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