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Academic motivations and the risk of not in employment, education or training: university and vocational college undergraduates comparison

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Abstract

Purpose – This study aims to investigate the relationship between academic motivations and the risk of Not in Employment, Education or Training (NEET) among university undergraduates and Vocational Education and Training (VET) undergraduates.

Design/methodology/approach – The sample included 402 Vietnamese university undergraduates and 250 VET undergraduates in the southern region of Vietnam. Students took part in a survey, with all participants being informed about the study's purpose and assured that their involvement was entirely voluntary. In addition to descriptive statistics, the study employed linear regression in SPSS to examine hypotheses.

Findings – The findings indicate that, for university students, intrinsic motivation and mastery approach motivation are associated with reduced NEET risk, while performance avoidance motivation is positively linked to this tendency. In contrast, for VET students, extrinsic motivation and performance approach motivation are negatively associated with NEET risk, but mastery approach motivation may exacerbate the risk.

Originality/value – Grounded in the principles of Self-Determination Theory (SDT) and Achievement Goal Theory (AGT), the study proposes that university students may prioritize competence improvement, knowledge acquisition and the satisfaction of their learning interests, which they believe will help them acquire valuable knowledge beneficial for their future careers. Conversely, VET students emphasize performance and external achievement, which may enhance their outcome and reduce NEET risk. These findings offer significant theoretical and practical insights into the adoption of SDT and AGT and also provide educators or policymakers with more detailed information regarding university and VET students' learning and development.

Keywords NEET risk, VET, Undergraduates, Self-determination motivations, Achievement goal motivations

Paper type Research paper

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1. Introduction

Education is considered a manifestation of human capital that accumulates gradually over years. A student's educational journey is generally envisaged to culminate in a respectable and prospective career. To obtain the utmost level of education, students who finish their high school or secondary studies are steered toward enrolling in advanced educational institutions like colleges, universities or Vocational Education and Training (VET) programs. Boosting student motivation and identifying, as well as addressing, obstacles in educational settings are crucial during these learning processes. These ensure that students can effectively apply the skills and knowledge they acquire in their future careers. It is particularly essential in light of the increased vulnerability to employment challenges, exemplified by the emergence of phenomena like "Not in Employment, Education, or Training (NEET)." Such challenges are especially pertinent among students aged 18–24, underscoring the need for effective educational interventions.

In 2021, nearly 15% of individuals aged 18–24, on average, were classified as NEET according to the Organization for Economic Co-operation and Development (OECD, 2022). Entering a NEET situation could result in a reduced connection with the labor market, harm employment opportunities, and, in the long run, impact a nation's economic and social progress (Rodríguez-Modroño, 2019; Abayasekara and Gunasekara, 2019; OECD, 2022). It has also been revealed that NEET status is associated with various adverse outcomes in individuals, such as poor mental health (Rahmani and Groot, 2023), lower credibility, reduced confidence, unfavorable labor market experiences, engagement in risky physical and mental behaviors (Bălan, 2015) as well as low health and life satisfaction (Klug *et al.*, 2019). NEET status is not just a transient phase in young individuals' transition to the labor market; instead, some youth experience prolonged periods of being NEET (Carcillo *et al.*, 2015).

To preemptively counteract the potential adverse outcomes associated with becoming NEET, it is vital to explore and develop strategies that can effectively prevent this status. This research aims to provide scientific evidence to guide educators and stakeholders in designing and implementing supportive programs targeted at reducing the NEET risk among university and VET students.

Exploring the learning motivations of target participants offers valuable insights into predictors of NEET risk. Motivation, encompassing individual objectives, emotional states, beliefs and values related to specific tasks (D'Lima *et al.*, 2014), is crucial in this context. The Self-Determination Theory (SDT) and Achievement Goal Theory (AGT) shed light on how individual differences in self-regulatory processes and achievement goals influence behavior (Ames, 1992; Deci and Ryan, 2008; Elliot and McGregor, 2001; Rawsthorne and Elliot, 1999; Ryan and Deci, 2000a, b). Research shows that student motivation in the classroom is shaped by not only intrinsic and extrinsic but also achievement-oriented factors. Studies by Karlen *et al.* (2019) and Lee *et al.* (2010) highlight the interplay between extrinsic/intrinsic motivation and achievement goals. This underscores the relevance of SDT and AGT as key predictors in reducing the risk of NEET status. Within this research, academic motivations are represented for extrinsic/intrinsic motivation and achievement goal motivations (mastery approach, mastery avoidance, performance approach and performance avoidance motivations).

2. Literature review

2.1 NEET risk among university students and VET students

Since the early 2000s, the NEET phenomenon has been systematically addressed at the European level using data from institutions such as the European Commission and OECD, resulting in the collection of substantial data on this issue in recent times (Batini *et al.*, 2017). The educational systems aim to provide individuals with the skill sets required by the labor market to prevent them from becoming NEET (OECD, 2022). Moreover, career identity and

outcome expectations can be differentiated between general education and vocational education due to distinct learning environments, varied educational achievement standards and specific content profiles (Jüttler *et al.*, 2021; Lehmann, 2009; Zhang *et al.*, 2022; Smarandache *et al.*, 2022; Asikainen *et al.*, 2020; Kromydas, 2017; Brennan, 2008; Tuononen and Parpala, 2021). These variations among different learners may influence their goal-setting and lead to the formulation of distinct plans for achieving those goals. Hence, the NEET risk may differ between the two populations.

Higher education should enhance its practical contributions to both the economy and society while also increasing its efficiency and effectiveness (Brennan, 2008). However, tertiary education did not significantly reduce NEET risks due to an oversupply of highly educated individuals in the labor force, which has become a global issue (Zudina, 2021; Carcillo *et al.*, 2015; OECD, 2022). Moreover, university students who struggle with fragmented knowledge and have difficulty mastering central concepts often experience increased exhaustion, reduced self-assurance and heightened cynicism in their studies (Asikainen *et al.*, 2020). In essence, possessing a university degree does not necessarily confer an advantage to students in job-seeking endeavors (Le *et al.*, 2018; Zudina, 2021). Possessing a bachelor's degree does not guarantee that university graduates will secure a job; conversely, they may face challenges related to NEET risk.

In addition to attending universities, the VET program serves as an alternative pathway for individuals who have completed their high school education. Vocational education prepares individuals for skilled trades or technician roles, enabling gainful employment or self-employment with the necessary skills (Tadesse *et al.*, 2022; Tuan and Cuong, 2019; Dymock and Tyler, 2018; Eichhorst *et al.*, 2015).

In general, students in VET face challenges upon entering the workforce. These challenges include comparing their opportunities to those of peers with university degrees, securing jobs with comparable salaries, finding suitable job types and experiencing the urgent need to obtain employment (Tadesse *et al.*, 2022; Dymock and Tyler, 2018; Tuan and Cuong, 2019). Consequently, VET students tend to focus on career planning and employ strategies to avoid unemployment after graduation (Pylväs *et al.*, 2022). For example, in 2016, over 70% of graduates from Technical and Vocational Education and Training (TVET) programs in Vietnam secured employment in their respective industries upon completing their courses (Tuan and Cuong, 2019). Research has also shown that, compared to university students, Vietnamese VET students expressed more positive attitudes toward their experience working (e.g. Le *et al.*, 2018). Evidently, VET undergraduates become aware early on of the potential disadvantages associated with their degree and proactively adopt strategies to mitigate the risk of NEET status.

In summary, given the unique approaches and characteristics of university and VET students, it is expected that the risk of becoming NEET would differ between these two groups. Consequently, the factors that predict and mitigate NEET risk, such as academic motivations, may not be universally applicable to both populations.

Furthermore, motivations serve as internal drivers that propel individuals towards particular activities or objectives, shaping learning standards, academic performance and overall satisfaction with educational pursuits (D'Lima *et al.*, 2014; Deci and Ryan, 2008; Elliot and McGregor, 2001). These internal factors guide students either to master their subjects out of genuine interest or to seek validation and recognition from teachers and peers. Within the framework of learning motivation theories, we posit that SDT and AGT provide valuable lenses for understanding the behavioral orientations of these distinct student groups, particularly in relation to their tendencies toward NEET statuses. Both theories, by addressing human behavior from diverse angles, may shed light on the nuanced motivations driving students either toward or away from academic engagement and future career paths.

2.2 Academic motivations in relation to NEET risk in university students and VET students

In both educational and everyday settings, people frequently focus on motivation, reflecting on the degree of their own or others' commitment to specific tasks (Ryan and Deci, 2000a). In SDT (SDT; Deci and Ryan (1985)), the fundamental psychological needs such as autonomy, competence and relatedness serve the purpose of comprehending and predicting the variations in individual motivation (Ryan and Deci, 2000a; Chen *et al.*, 2019). On the other hand, the AGT presents a framework that includes two distinct motivational orientations within the context of mastery/performance goal orientations, focusing on individuals' pursuit of competence or their efforts to avoid incompetence (Elliot, 1999; Elliot and Harackiewicz, 1996; Elliot and McGregor, 2001).

Research on SDT and AGT has revealed that extrinsic/intrinsic motivation and achievement goal motivations are associated with learning outcomes (e.g. Jozsa *et al.*, 2019; Pintrich *et al.*, 2003; Lin *et al.*, 2003; Cheng, 2019; Liu *et al.*, 2020; Luo *et al.*, 2011). In addition, some studies have shown that poor educational attainment may be among the key factors in NEET status (Sadler *et al.*, 2014; Eurofound, 2012; Carcillo *et al.*, 2015). Therefore, in the current study, academic motivations are proposed to have significant roles in decreasing NEET risk among tertiary and VET students.

2.2.1 Self-determination motivations and achievement goal motivations. According to SDT, it is crucial for individuals to conduct themselves in alignment with their own personal interests and values (Cheng, 2019; Ryan and Deci, 2000a). Extrinsic motivation pertains to engaging in an activity with the objective of achieving a distinct outcome, thereby differing from intrinsic motivation, which involves engaging in an activity for the inherent gratification derived from the activity itself (Ryan and Deci, 2000a, b).

On the other hand, AGT emphasizes mastery and performance goals, where mastery orientations aim for skill development and understanding, while performance orientations prioritize outperforming others (Elliot and McGregor, 2001; Ames, 1992). Mastery approach orientation emphasizes skill development, understanding learning materials and striving for success, while mastery avoidance motivation is linked to anxiety and the effort to evade feelings of inadequacy compared to peers (Elliot and McGregor, 2001; Ames, 1992). Performance approach orientations involve self-regulation strategies focused on anticipated positive outcomes, while performance avoidance motivations are conceptualized as avoidance orientations in self-regulation concerning potential negative outcomes (Elliot and Harackiewicz, 1996; Elliot, 1999).

Additionally, studies have shown that mastery-oriented students exhibit intrinsic characteristics, while performance-oriented students show more extrinsic traits (Lin *et al.*, 2003; Strunk, 2014; Biddle *et al.*, 2003; Hyde and Kling, 2003). Higher levels of mastery motivation correlate with greater intrinsic motivation (Karlen *et al.*, 2019; Lee *et al.*, 2010; D'Lima *et al.*, 2014), whereas performance goals align more with extrinsic motivation (e.g. Lee *et al.*, 2010; Nien and Duda, 2008).

Although there is a relationship between achievement goal motivations and extrinsic/intrinsic motivations in driving learning activities, these academic motivations are distinct in nature and governed by different theoretical frameworks. Additionally, the complexities of what motivates students' learning activities cannot be entirely captured by any single motivational theory. Consequently, the impacts of extrinsic/intrinsic motivation and achievement goals on NEET risk should be assessed simultaneously for university and VET undergraduates.

2.2.2 Academic motivations among university students and VET students. Successful university enrollment itself is indicative of students' self-reliance and ability to navigate academic challenges (Chen *et al.*, 2018). Throughout their academic journey, students who are driven by active engagement, curiosity and a desire for mastery often exhibit intrinsic motivation (Cho and Chiu, 2021; Hsieh, 2014, 2022). The alignment between intrinsic motivation and mastery-oriented goals reflects their congruence with university students' educational ambitions. Therefore, it is hypothesized that intrinsic and mastery motivations

are likely to enhance learning outcomes and, subsequently, diminish the risk of NEET status among university undergraduates.

On the other hand, VET students' motivations are closely aligned with their practical learning objectives, as emphasized in VET's hands-on approach (Eichhorst *et al.*, 2015; Keller *et al.*, 2021; Tuan and Cuong, 2019). Tadesse *et al.* (2022) underscore the urgent necessity for employment among VET graduates. Yet, Tuan and Cuong (2019) point out that these graduates face significant challenges compared to their peers with bachelor's degrees, particularly in terms of job competition and salary expectations. Complementing this view, Billett (2014) suggests that the voices of VET students are often marginalized. These challenges may indeed motivate VET students to seek a competitive edge in the future job market relative to their university-educated counterparts. Husman and Lens (1999) argued that future goals often foster extrinsic rather than intrinsic motivation. Consequently, the VET learning environment tends to promote performance-oriented behavior and extrinsic motivation, focusing on external rewards such as higher salaries and improved job prospects. This type of motivation may be advantageous for VET students by reducing NEET risks. However, the emphasis on mastery goals and intrinsic motivation might be less prominent in shaping VET students' learning behaviors, as these may not align closely with the practical, career-focused nature of VET education.

In summary, both university students and VET students may encounter challenges related to the risk of NEET. Academic motivations, specifically achievement goal motivations, were found to have associations with NEET risk among university undergraduates (Cheng and Nguyen, 2022). Thus, the current study suggests that, when considering both university and VET cohorts, achievement goal motivations, along with extrinsic and intrinsic motivations, should be considered pivotal factors in reducing NEET risk. However, the strategies to address NEET may differ between the two groups: it is postulated that university students often draw on intrinsic and mastery motivations, while VET students focus on extrinsic and performance motivations, reflecting the distinct educational objectives and environments of each group.

2.3 Overview of the current study

Young individuals aged 18–24 may encounter amplified obstacles when entering the labor market, as indicated by the high NEET rates reported by the OECD (2022). Thus, it is important to address the factors that influence NEET status and enhance the employability of university students and VET students. This study draws on two motivational theories, SDT and AGT, to examine how different types of academic motivation affect NEET risk among these two groups of students. Based on these theories and the different educational purposes of university and VET students, the study proposes the following hypotheses.

H1. In AGT, mastery goal motivations may negatively associate with NEET risk among university students, while performance goal motivations may reduce this tendency across VET undergraduates.

H2. In SDT, intrinsic motivation may negatively link to NEET risk among university students, whereas, among VET students, extrinsic motivation plays a crucial role in diminishing the risk.

3. Method

3.1 Participants and procedure

Participants consisted of 402 Vietnamese junior and senior undergraduates from southern universities (37.10% females) with an average age of 21.6 years ($SD = 0.7$) as well as 250 Vietnamese VET students (58.00% females) with an average age of 20.9 years ($SD = 1.0$).

Details regarding the study's aims were disseminated via the department's social media announcements and informed to students during class breaks. Participants voluntarily visited their respective department offices to undertake the survey using a traditional paper-and-pencil method, requiring approximately 15 min to complete. Compensation in the form of vouchers or incentives was provided.

3.2 Measures

The survey instrument utilized in this research encompassed a composite of three scales, collectively comprising 49 items. The questionnaire was translated from English to Vietnamese, following translation standards. The specifics of the three scales are outlined below:

NEET risk. The NEET/Hikikomori Risk Scale (Uchida and Norasakkunkit, 2015) was employed for assessment. The scale comprises a total of 27 items (e.g. "I can not find meaning in work."), with nine of these items being reversed. The items were measured using five-point Likert-type scales ranging from "strongly disagree" to "strongly agree," with higher scores indicating a greater risk of being NEET. The Cronbach's alpha coefficient demonstrated satisfactory reliability (Table 1).

Achievement goal motivations. The study utilized the Achievement Goal Questionnaire-Revised Scale (Elliot and Murayama, 2008). This scale consists of a total of 12 items, with three items allocated to each goal category, encompassing mastery approach motivation (e.g. "My goal is to learn as much as possible."), mastery avoidance motivation (e.g. "My aim is to avoid learning less than I possibly could."), performance approach motivation (e.g. "I am striving to do well compared to other students."), and performance avoidance motivation (e.g. "I am striving to avoid performing worse than others."). The five-point Likert-type scales ranged from "strongly disagree" to "strongly agree," with higher scores indicating greater levels of mastery approach, mastery avoidance, performance approach and performance avoidance motivations, respectively. The Cronbach's alpha coefficients for all four subscales demonstrated satisfactory reliability (Table 1).

Extrinsic/intrinsic motivations. The Work Preference Inventory (Robinson *et al.*, 2014) was used. The scale consists of two subfactors: intrinsic motivation (five items in total, e.g. "What matters most to me is enjoying what I do") and extrinsic motivation (five items in total, e.g. "I am keenly aware of the income goals I have for myself"). The items are measured using five-point Likert-type scales that range from "strongly disagree" to "strongly agree," with higher scores indicating greater levels of intrinsic/extrinsic motivation. The Cronbach's alpha coefficients of two sub-scales were satisfactory (Table 1).

3.3 Data analysis

Descriptive statistics, Cronbach's alpha coefficients and Pearson's correlations were analyzed. Additionally, linear regression analyses were conducted to examine the predictive effects of achievement goal motivations and extrinsic/intrinsic motivation on

	University sample	VET sample
(1) NEET risk	0.79	0.72
(2) Mastery approach motivation	0.71	0.65
(3) Mastery avoidance motivation	0.62	0.63
(4) Performance approach motivation	0.72	0.70
(5) Performance avoidance motivation	0.73	0.65
(6) Extrinsic motivation	0.74	0.75
(7) Intrinsic motivation	0.85	0.81

Source(s): Table created by authors

Table 1. Cronbach's alpha coefficient of variables

NEET risk among both university and VET undergraduates. Multigroup analyses were performed to validate distinctions between the models of university and VET as well as to examine the pathways within each respective model.

4. Result

4.1 Descriptive statistics

The descriptive statistics of the variables are illustrated in Table 2.

Table 3 illustrates Pearson's correlations among university and VET samples.

For the university sample, NEET risk was significantly and negatively associated with mastery approach motivation and intrinsic motivation, while it was significantly and positively correlated with performance avoidance motivation.

For the VET sample, NEET risk was significantly and negatively correlated with performance approach motivation and extrinsic motivation, while it was significantly and positively correlated with mastery approach, mastery avoidance, performance avoidance and intrinsic motivations.

4.2 Testing the relationship between achievement goal motivations and NEET risk among university sample and VET sample

The linear regression for achievement goal motivations model among university students was significant: $R^2 = 6.50\%$; adjusted $R^2 = 5.60\%$; $F(4, 397) = 6.91$, $p < 0.001$. The results indicate that 5.60% of the variance in NEET risk could be explained by mastery approach motivation and performance avoidance motivation (Table 4).

The linear regression model for achievement goal motivations among VET students revealed significant results: $R^2 = 12.20\%$; adjusted $R^2 = 10.70\%$; $F(4, 245) = 8.48$, $p < 0.001$. The results indicate that 10.70% of the variance in NEET risk could be explained by mastery approach motivation and performance approach motivation (Table 4).

Variable	Level	*M*	*SD*	Range	*N*	Percentage (%)
Univerisity sample (N = 402)						
College level	Junior				255	63.40
	Senior				147	36.60
NEET risk		2.7	0.5	1.52–3.70	402	
Mastery approach motivation		3.9	0.7	1.67–5.00	402	
Mastery avoidance motivation		3.9	0.7	1.33–5.00	402	
Performance approach motivation		3.7	0.8	1.33–5.00	402	
Performance avoidance motivation		3.6	0.8	1.00–5.00	402	
Extrinsic motivation		3.6	0.7	1.00–5.00	402	
Intrinsic motivation		3.9	0.7	1.00–5.00	402	
VET sample (N = 250)						
College level	Senior				250	100.00
NEET risk		3.0	0.4	1.81–4.26	250	
Mastery approach motivation		3.2	0.9	1.00–5.00	250	
Mastery avoidance motivation		3.3	0.8	1.00–5.00	250	
Performance approach motivation		2.7	0.9	1.00–5.00	250	
Performance avoidance motivation		3.3	0.9	1.00–5.00	250	
Extrinsic motivation		2.9	0.9	1.00–4.80	250	
Intrinsic motivation		3.6	0.9	1.00–5.00	250	

Note(s): *M* = mean. *SD* = standard deviations. *N* = participant
Source(s): Table created by authors

Table 2.
Descriptive statistics of variables

	(1)	(2)	(3)	(4)	(5)	(6)
University sample						
(1) NEET risk	1					
(2) Mastery approach motivation	−0.14**	1				
(3) Mastery avoidance motivation	0.00	0.55**	1			
(4) Performance approach motivation	0.01	0.58**	0.40**	1		
(5) Performance avoidance motivation	0.11*	0.51**	0.50**	0.62**	1	
(6) Extrinsic motivation	0.05	0.36**	0.29**	0.40**	0.38**	1
(7) Intrinsic motivation	−0.15**	0.46**	0.30**	0.33**	0.29**	0.56**
VET sample						
(1) NEET risk	1					
(2) Mastery approach motivation	0.30**	1				
(3) Mastery avoidance motivation	0.23**	0.49**	1			
(4) Performance approach motivation	−0.31**	−0.55**	−0.46**	1		
(5) Performance avoidance motivation	0.18**	0.45**	0.56**	−0.49**	1	
(6) Extrinsic motivation	−0.38**	−0.43**	−0.48**	0.38**	−0.47**	1
(7) Intrinsic motivation	0.28**	0.25**	0.38**	−0.28**	0.30**	−0.43**

Note(s): *$p < 0.05$ and **$p < 0.001$
Source(s): Table created by authors

Table 3.
Pearson correlation for university sample and VET sample

	University sample				VET sample				Z-score
	β	t	p	sr^2	β	t	p	sr^2	
Mastery approach motivation	−0.29	−4.37	<0.001	0.05	0.16	2.14	0.033	0.02	4.81
Mastery avoidance motivation	0.04	0.68	0.499	0.00	0.08	1.08	0.282	0.01	0.17
Performance approach motivation	0.02	0.32	0.746	0.00	−0.19	−2.51	0.013	0.03	−1.89
Performance avoidance motivation	0.22	3.35	0.001	0.03	−0.03	−0.38	0.708	0.00	−2.81
	$R^2 = 6.50\%$** adjusted $R^2 = 5.60\%$**				$R^2 = 12.20\%$** adjusted $R^2 = 10.70\%$**				

Note(s): Dependent variable: NEET risk, **$p < 0.001$
Source(s): Table created by authors

Table 4.
The relationship between achievement goal motivations and NEET risk across university sample and VET sample

Multigroup analyses were applied to examine the relationship between achievement goal motivations and NEET risk across university and VET models. The difference in the structural weights model was compared to the configural invariance model. The result revealed that the two models significantly differed from each other (ΔCFI = 0.031, larger than 0.01, Cheung and Rensvold, 2002). This result indicates that the models in which achievement goal motivations serve as predictors of NEET risk differ between the university model and the VET model.

In comparing each individual path in the two groups, mastery approach and performance avoidance predicted NEET risk differently across the university sample and VET sample ($Z = 4.81, p < 0.001$; $Z = -2.81, p = 0.005$, respectively). In essence, higher mastery approach motivation may lead to a lower NEET risk among the university sample ($\beta = -0.29$, $p < 0.001$), while it may increase the likelihood of NEET risk among the VET sample ($\beta = 0.16, p = 0.033$). As for performance avoidance motivation, while a higher level of this

motivation may result in a greater NEET risk among the university sample ($\beta = 0.22$, $p = 0.001$), it showed a nonsignificant relationship with NEET risk among the VET sample.

On the other hand, there is no significant difference between the university sample and the VET sample in the paths leading from mastery avoidance motivation to NEET risk ($Z = 0.17, p = 0.857$). Table 4 demonstrates that the relationship between this motivation and NEET risk is nonsignificant for both the university and VET samples.

In terms of performance approach motivation, there was a marginal difference between the university and VET samples in the paths leading from this motivation to NEET risk ($Z = -1.89, p = 0.059$), indicating a trend where this motivation is negatively linked to NEET risk among VET students ($\beta = -0.19$, $p = 0.013$), but the link is nonsignificant among university undergraduates.

Hence, *Hypothesis 1* was partially supported. It suggests that within the framework of AGT, mastery approach motivation is key to reducing NEET risk for university undergraduates. In contrast, performance approach motivation plays a crucial role in mitigating this risk for VET students.

4.3 Testing the relationship between extrinsic/intrinsic motivations and NEET risk among university and VET samples

The linear regression model for extrinsic and intrinsic motivation among university students yielded significant results: $R^2 = 4.70\%$; adjusted $R^2 = 4.30\%$; $F(2, 398) = 9.92$, $p < 0.001$. These findings suggest that 4.30% of the variance in NEET risk can be accounted for by extrinsic and intrinsic motivation (Table 5).

The linear regression analysis conducted on the model of extrinsic and intrinsic motivation among VET students demonstrated statistical significance: $R^2 = 16.10\%$; adjusted $R^2 = 15.40\%$; $F(2, 247) = 23.75$, $p < 0.001$. These results signify that 15.40% of the variance in NEET risk can be attributed to the combined influence of extrinsic and intrinsic motivation (Table 5).

Multigroup analyses were conducted to explore the association between extrinsic/intrinsic motivation and NEET risk in both university and VET models. The results indicated a significant difference between the two models (ΔCFI = 0.156, larger than 0.01, Cheung and Rensvold, 2002). This result reveals that the models, where extrinsic/intrinsic motivations act as predictors of NEET risk, exhibit differences between the university and VET groups.

Particularly in analyzing path differences, extrinsic motivation and intrinsic motivation predicted NEET risk differently between university and VET samples ($Z = -5.50, p < 0.001$; $Z = 4.81, p < 0.001$, respectively). Specifically, for the university sample, intrinsic motivation was negatively related to NEET risk ($\beta = -0.26, p = 0.001$), indicating that higher levels of intrinsic motivation were associated with a lower likelihood of being NEET. Conversely, in the VET sample, intrinsic motivation positively predicted NEET risk ($\beta = 0.14$, $p = 0.032$)

	University sample				VET sample				Z-score
	β	t	p	sr^2	β	t	p	sr^2	
Extrinsic motivation	0.19	3.26	<0.001	0.03	−0.32	−4.96	<0.001	0.09	−5.50
Intrinsic motivation	−0.26	−4.34	0.001	0.05	0.14	2.16	0.032	0.02	4.81
	$R^2 = 4.70\%$** adjusted $R^2 = 4.30\%$**				$R^2 = 16.10\%$** adjusted $R^2 = 15.40\%$**				

Note(s): Dependent variable: NEET risk, **$p < 0.001$
Source(s): Table created by authors

Table 5. The relationship between extrinsic/intrinsic motivation and NEET risk across university sample and VET sample

suggesting that VET students with higher intrinsic motivation had a greater likelihood of becoming NEET.

On the other hand, in terms of extrinsic motivation, a positive correlation with NEET risk was observed among university students ($\beta = 0.19$, $p < 0.001$), meaning that those with higher extrinsic motivation were more likely to be NEET. However, extrinsic motivation was negatively associated with NEET risk in the VET sample ($\beta = -0.32$, $p < 0.001$), where higher extrinsic motivation correlated with a reduced NEET risk.

In conclusion, among university undergraduates, the significance of reducing NEET risk appeared to lie in intrinsic motivation, while extrinsic motivation was linked to increased NEET risk. Conversely, among VET students, diminishing the risk seemed to hinge on extrinsic motivation, whereas intrinsic motivation was positively linked with NEET risk. In essence, intrinsic motivation benefits the university sample with a lower NEET risk, while extrinsic motivation favors the vocational sample in reducing NEET risk. Hence, *Hypothesis 2* was supported.

5. Discussion

The study examines the pivotal role of motivation in educational success and its impact on mitigating the risk of becoming NEET, focusing on two distinct educational populations: university and VET. Motivation, encompassing elements such as energization, goal orientation and sustained effort, diverges significantly between these groups due to their unique learning objectives and environments. Our study aimed to elucidate how various facets of academic motivation correlate with NEET risk, providing insights into potential interventions.

5.1 University students: intrinsic motivation and mastery approach as protective factors

For university students, intrinsic motivation and a mastery-oriented approach emerged as significant predictors of reducing NEET risk. These elements foster an engagement with learning material that transcends mere academic obligation, highlighting the importance of fostering environments that challenge students' perceptions and encourage task engagement for its own sake (Elliot and Harackiewicz, 1996). Such an environment not only aids in the acquisition of knowledge but also in the development of a stable identity and self-determination, key components for a successful transition into adulthood (Ryan and Deci, 2000a; Luyckx *et al.*, 2017).

Conversely, performance avoidance motivations and a focus on extrinsic goals were found to increase NEET risk. This aligns with the notion that while intrinsic motivation and performance avoidance can coexist, the latter may undermine intrinsic motivation by fostering a climate of anxiety and evaluative pressure, ultimately impacting students' perceptions of competence and self-worth (Covington and Müeller, 2001; Elliot and Harackiewicz, 1996).

5.2 VET students: the importance of extrinsic and performance approach motivation

Extrinsic motivation and a performance approach have been identified as crucial in mitigating the risk of becoming NEET among VET students, pointing to a preference for tangible rewards that align with the vocational nature of their programs. According to studies by Elliot and McGregor (2001), Elliot (1999) and Elliot and Harackiewicz (1996), VET students who are motivated by success tend to focus on showcasing their abilities, which can lead to financial rewards and outperforming their peers. Locke and Schattke (2019) further support this notion. However, an emphasis on reward-based performance might compromise their intrinsic motivation Deci *et al.* (1999). Our findings indicate that while VET students' extrinsic motivation and a performance approach can boost their achievement and reduce NEET risk, their intrinsic motivation might, conversely, increase it.

Additionally, VET students' mastery approach motivation and NEET risk were also positively correlated in the study. This counterintuitive finding suggests a complex balancing act for VET students, who may perceive mastery-oriented goals as overly ambitious or incompatible with their immediate objectives of skill demonstration and external achievement (Senko and Miles, 2008).

6. Implications and limitations

Regarding practical implications, our findings suggest tailored interventions to support motivational strategies for each student group. For university students, promoting intrinsic motivation and mastery approach goals could be key, while for VET students, leveraging extrinsic motivations and performance approach goals might offer a more promising career outlook.

In terms of theoretical implications, this study enriches the discourse on motivation by demonstrating that the impact of motivational orientations can vary significantly based on the educational context. According to SDT, while extrinsic motivation increases NEET risk for university students, it decreases it for VET students. In contrast, intrinsic motivation has the opposite effect. AGT indicates that mastery goals generally lower NEET risk, whereas performance avoidance goals increase it for university students. For VET students, however, mastery goals increase NEET risk, while performance goals reduce it. These insights underscore the necessity for educational strategies to be customized to specific contexts.

However, the causality of the variables remains undetermined in the current cross-sectional design. Additionally, the sample size and homogeneity may not fully capture the diversity of educational experiences. Future research should explore these dynamics through longitudinal studies and across diverse cultural contexts to better understand the mechanisms at play and to generalize findings more broadly. Additionally, while this study presented compelling evidence regarding the connection between academic motivations and NEET risk, the underline mechanism is still unclear and more studies are needed to investigate the phenomenon. Future research could explore how students' performance and their academic motivations work together to decrease the tendency to become NEET in various educational contexts and among different groups of students.

Despite these limitations, this study provides a comprehensive overview of the relationship between academic motivation and NEET risk, offering valuable insights for educational strategies that facilitate the transition from education to employment. It underscores the importance of creating learning environments that bolster academic motivation and reduce NEET risk for both university and VET students. In doing so, it aims to decrease the likelihood of youth becoming NEET – a concern that is especially pertinent for both university attendees and those in VET programs. The findings of this research could serve as essential guidance for educators and policymakers committed to addressing NEET risk early in young people's careers.

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