

## THE PREDICTIVE ROLE OF ACADEMIC IDENTIFICATION AND TRAIT ANXIETY FOR EARLY ACADEMIC DROPOUT INTENTIONS

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### Abstract

In this study, we test the association of academic identification (AI) and trait anxiety (TA) with early academic dropout intentions (EADI). Additionally, we test the impact of the interaction between AI and TA, while controlling for socio-demographic covariates specific to the participants, over EADI (i.e., gender, parents' education background, and educational expectancies). Our sample consisted of 439 first-year university students. We used the social identification theoretical background and results show that AI is associated with low scores of EADI. Still, the high trait anxiety context in which students find themselves in their first year is a risk factor, when AI is low or average. Results also show gender differences (i.e., men have a higher risk of EADI, compared to women). Results highlight the need to invest more in the development of AI to counter and thwart the risk of emphasizing AT for young people.

**Keywords:** trait anxiety, academic identification, early academic dropout intentions, gender, parent's education background, education expectancies.

### Résumé

Dans cette étude, nous testons l'association de l'identification académique (IA) et de l'anxiété de trait (AT) avec les intentions précoces d'abandon académique (IPA). De plus, nous évaluons l'impact de l'interaction entre l'IA et l'AT, tout en contrôlant les covariables sociodémographiques spécifiques aux participants sur les IPA (c'est-à-dire le genre, le niveau d'éducation des parents et les attentes éducatives). Notre échantillon était composé

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de 439 étudiants de première année d'université. Nous avons utilisé le contexte théorique de l'identification sociale et les résultats montrent que l'IA est associée à des scores faibles d'IPA. Néanmoins, le contexte élevé d'anxiété de trait dans lequel les étudiants se trouvent au cours de leur première année est un facteur de risque lorsque l'IA est faible ou moyenne. Les résultats montrent également des différences de genre (c'est-à-dire que les hommes ont un risque plus élevé d'IPA par rapport aux femmes). Les résultats soulignent la nécessité d'investir davantage dans le développement de l'IA pour contrer et contrecarrer le risque d'accentuation de l'AT chez les jeunes.

**Mots-clés :** anxiété de trait, identification académique, intentions précoces d'abandon académique, genre, niveau d'éducation des parents, attentes éducatives.

### **Rezumat**

În această cercetare testăm asocierea dintre identificarea academică (IA) și anxietatea de trăsătură (AT) cu intențiile timpurii de abandon academic (ITAA). În plus, evaluăm impactul interacțiunii dintre IA și AT, controlând covariabilele socio-demografice specifice participanților asupra ITAA (spre exemplu, genul, nivelul de educație al părinților și așteptările educaționale). Eșantionul nostru a inclus 439 de studenți de la universitatea din primul an. Rezultatele arată că IA este asociată cu scoruri scăzute ale ITAA. Cu toate acestea, contextul ridicat de anxietate de trăsătură în care se află studenții în primul an este un factor de risc atunci când IA este scăzută sau medie. Rezultatele arată, de asemenea, diferențe de gen (spre exemplu, bărbații au un risc mai mare de ITAA în comparație cu femeile). Rezultatele subliniază necesitatea de a investi mai mult în dezvoltarea IA pentru a contracara și a împiedica riscul accentuării AT la tineri.

**Cuvinte-cheie:** anxietate de trăsătură, identificare academică, intenții timpurii de abandon academic, gen, nivel de educație al părinților, așteptări educaționale.

## **1. Introduction**

Academic dropout has become a field of interest in the last half-century, within the context of older theoretical approaches (i.e., Tinto's theory of student departure (1975) and Astin's theory of student involvement (1975) or more recent (i.e., Bean & Eaton's explanatory theory of student retention, 2000; or Kuh & Love's cultural perspective on student departure, 2000). Based on these theories, a multitude of studies have been conducted, which show that students' adjustment to university explains the increased rate of dropout in first-year university students (Blair, 2017; Wilcox & Nordstokke, 2019). Academic dropout is perceived today as a dynamic process of student disengagement with all educational factors (i.e., the courses, teachers, colleagues, and institutions, Heublein, 2014). Dropout intention is the strongest predictor of dropout and causes the decision to drop out (Casanova et al., 2021). This intention is voluntary and consists of forming thoughts about the possibility of changing or leaving higher education. It is affected directly or indirectly by self-efficacy, engagement, and perceived control (Gillet et al., 2017; Respondek et al., 2017), academic results (Gillet et al., 2017; Jenő et al., 2018; Respondek et al., 2017) or study methods and habits (Biasi et al., 2018).

According to Sarra et al. (2019), a key role in the process of students' disengagement is expressed by low levels of resilience traits which revolve around

students' self-efficacy, control, persistence, planning, and anxiety. Anxiety and depression are key predictors of academic failure, often peaking in early adulthood (Khubchandani et al., 2016; Worfel et al., 2016). These conditions can escalate to suicidal thoughts and impairments. Insufficient personal or institutional support can exacerbate negative emotions in students (Araújo et al., 2019; Tinto, 2010).

This study examines dropout intentions among young adults in post-compulsory education in Romania, highlighting its unique educational system where one-third of students leave college after the first year due to limited university financial autonomy. Previous research primarily emphasized stable individual and institutional factors (Eicher et al. 2014). The roles of academic identification (AI) and anxiety trait (AT) in early academic dropout intentions (EADI) remain understudied but crucial for understanding student challenges.

TA and AI have been formerly investigated through similar or related variables in the past, about EADI. For example, a former empirical study relating traits and intention for dropout shows that personality traits account for a high percentage of the variance for dropout intentions (Lounsbury et al., 2004). Specifically, EADI were explained by emotional stability, sense of identity and work drive, meaning that overall level of adjustment and knowing oneself can be used as incremental factors for understanding the early risk of dropout in the academic setting. Identification is a core key in valuing social roles, like academic roles.

We used the social identity theory (Tajfel & Turner, 1979) as background because it helps explain how people overcome difficulties (i.e., anxiety) because people engage easily in their tasks and responsibilities due to an overall affective and cognitive engagement with the new social role (i.e., academic identification). Still, identification and anxiety as a trait are a process conditioned by both educational and environmental conditions, but also expectations, so we believe that some of the most important factors should be controlled to have a better understanding of the process of EADI (i.e., gender, family educational background and personal educational expectations).

Summarizing, in the current study we test the associations between TA, AI and EADI while controlling for gender, family educational background and personal educational expectations. Because interpersonal differences exist when investigating traits, we also test the impact of the interaction of TA and AI over EADI, while controlling for family and personal background variables.

## **2. Trait Anxiety and Early Academic Dropout Intentions**

In the academic setting, TA is supported and stimulated through frequent anxiety state situations (i.e., exams, papers, and continuous evaluations) and is often described as the most common type of anxiety in education (Brodersen, 2017; von der Embse et al., 2017). Esch et al. (2014) directly link TA and academic dropout intentions, arguing for a bidirectional relation between them. As Carsley et al. (2017) suggested in their results of a three-year longitudinal study, the risk of dropout is strongly linked with TA since adolescence, higher academic dropout intentions are associated with higher scores of anxiety.

From an emotional perspective, anxious traits are directly related to EADI due to poor performance and lack of competencies development (Roso-Bas et al., 2016). As results show, anxious traits (i.e., lack of emotional clarity, rumination, and dispositional pessimism) are directly linked to forming students' intentions of leaving the university. This study emphasizes that the academic setting is an anxious factor that can stimulate students' intentions to leave the university and a sign that personality traits are nurtured and accentuated over time in this setting.

Testing AT as a risk factor for EADI is relevant to identify also because anxiety is an emotionally vulnerable factor for how students set their goals, including their long-term goals, like for example, finishing academic studies. For example, Respondek et al. (2017) conducted a cross-sectional study that comprised two different cohorts of participants, 597 first-year students and 286 second-year students. The authors have analysed, among other research topics, the relation between anxiety and dropout intentions. In this regard, Respondek et al. (2017) found that anxiety, perceived as a latent variable and component of academic emotions, is strongly correlated with dropout intention. Also, among first-year university students, high levels of anxiety are followed by strong degrees of dropout intentions, even though the Pearson correlation coefficient is slightly lower than the one which analyses the same relation between variables among second-year university students.

### **3. Academic Identification, Sense of Belonging to University and Dropout**

AI is an extended concept from social identification. The theoretical background of this concept is the social identity approach (SIA), based on the twin theories (Greenaway et al, 2015; Postmes et al., 2018), the social identity theory (Tajfel & Turner, 1979) and self-categorization theory (Turner et al., 1987). Concordant with this background, AI is a psychological resource for valuing academic identity and helping students overcome EADI. Moreover, identifying academically can help students to be aware of their roles, and tasks, and to value this role.

Drawing from the theoretical background of SIA as argued by Tajfel (1978), Postmes and colleagues (2013) define identification as a positive emotional valuation of the relationship between self and ingroup. Postmes et al. (2018) argue that this approach is subtly but importantly different than the initial one regarding social identity in arguing that the individual's knowledge that they belong to certain social groups together with some emotional and value significance to them of the group membership is what social identity reflects (Tajfel, 1972). The difference between the two is that social identity refers to the group as a perceived entity and identification refers to the individual member's relationship to that entity. This is more individually determined (Leach et al., 2008).

SIA is a leading model explaining group phenomena like prejudice and discrimination, influencing studies on topics from leadership to health (Postmes & Branscombe, 2010). In academia, the concept of learner identity relates to academic

performance and identity threats (Sherman et al., 2013). Group identification aids mental health by offering psychological resources and countering issues like anxiety and depression (Greenaway et al., 2015; Sani, 2012). Cruwys et al. (2015) highlight identification's benefits, including shared perceptions, social support, influence, and belongingness, emphasizing its role in providing a sense of social belonging.

To prevent dropout, educational units must find proper strategies for developing and stimulating a sense of AI among students. As Finn (1989) argued, dropping out is strongly related to disidentification with academics, making them identify with other domains of interest (Osborne & Jones, 2011). According to Fourie's (2020) study results, among the potential risk factors related to first-year students' intention to drop out of university is maintaining a sense of belonging. By conducting cross-sectional quantitative research on 4596 first-year university students, the study results revealed that a high level of academic belongingness could decrease the intention to drop out.

Theoretical background specific to goal setting and attainment also supports the association between AI and EADI and how students pursue their academic goals. By compiling decision-theoretical models, Bäumle et al. (2022) have recently proposed a theoretical model of the process of EADI. This process consisted of five assumed phases of intentions to quit studies completely or intentions to change a major – non-fit perceptions, thoughts of quitting/ changing, deliberation, information search and decision made. To measure how strongly are intentions to quit studies completely correlated with each of the previously mentioned stages, Bäumle et al. (2022) conducted an online survey on a sample consisting of 1206 student participants. The results showed that the EADI among students is significantly correlated with all five phases, (i.e.,  $r$  coefficient varying between .42 and .17). Thus, the intention to quit studies is stronger in the early stages – non-fit perceptions, thoughts of quitting/changing and deliberation, while the intensity of correlations is decreasing substantially in last two phases: information search, respectively decision made. These findings emphasize the need to investigate personality traits and EADI from its early stages (i.e., in the first university years and related to their anxious traits).

Also, to describe the relationship between EADI and a sense of belonging to the university, Suhlmann et al. (2018), tested a student-university fit model, following a cross-sectional online survey conducted on a sample of 367 German undergraduate students. The recorded results showed that an increasing sense of belonging to the university is reducing the dropout intention. Still, studies directly testing the association between AI and EADI are scarce and indirect. Our study tests directly the incremental power of AI for EADI by using operational measures of AI related to their social role.

#### **4. Early Academic Dropout Intentions about Personal and Family Background**

Spady (1971) ignited interest in dropout phenomena, introducing a model still relevant today for analysing higher education dropout. He emphasized the interaction between students and their academic environment, influenced by various sources and shaped by family background and high school experiences. Tinto (1975) built upon Spady's framework, linking family background, educational expectations, social integration, and dropout decisions. Tinto (1975) indicated that background characteristics, which also encompass parents' education and individual attributes (i.e., gender) are influencing the educational expectations and commitments the individual brings with him into the academic environment. Following Tinto's conceptual framework, Pascarella and Terenzini (1980) conducted a longitudinal study which unveiled the importance of institutional integration measurement related to first-year university students' persistence and voluntary dropout.

Therefore, by the 1970s, the attempts to properly conceptualize student dropout (attrition) failed due to the limitation of research almost exclusively on descriptive analysis, without being based on solid theoretical considerations, along with the contributions of researchers like Spady, Tinto, Pascarella and others, the research field of student attrition has grown and developed significantly in recent decades. Tinto has reported since 1982 that empirical studies focused on dropout and various policies, programs or workshops oriented on the prevention of student attrition have all become commonplace.

#### **5. Gender and Early Academic Dropout Intentions**

Gender is an important socio-demographic factor by which the risk of academic dropout can be predicted. According to national reports, in many countries, female students perform better where one gender group is a minority (Vossensteyn et al., 2015). Also, many surveys which encompass such analyses consider the interaction of dropout intention variable with the field of study, so, in this regard, differences were found between males and females. In a mixed-method empirical approach conducted between 2009 and 2012 on 20,159 students from four universities in Finland, Korhonen & Rautopuro (2019) found that female students from the Information Technology field of study are supposed to be at a higher risk of non-completion studies than male students. In contrast, in the education field of study, male students found themselves at a higher risk of dropout than female students.

By studying datasets of a longitudinal national survey which comprised 5383 participants who matriculated at university in various fields of study, Gury (2011) emphasized gender effect on academic dropout. As results suggest, female students are more likely to drop out during the first year of higher education, while attrition among male students is more observable among those in later years of study.

## **6. Parents' Education and Early Academic Dropout Intentions**

Several studies emphasized the empirical relationship between the risk or even the intention of academic dropout and parents' level of education (Ghignoni, 2017; Aina, 2013; Lundetræ, 2011; Lassibille & Navarro-Gómez, 2008). By putting their analyses in various cultural and social contexts, researchers pointed out that parental background and mothers' and fathers' having lower than tertiary educational level predict a higher risk of dropout among upper secondary students or undergraduates.

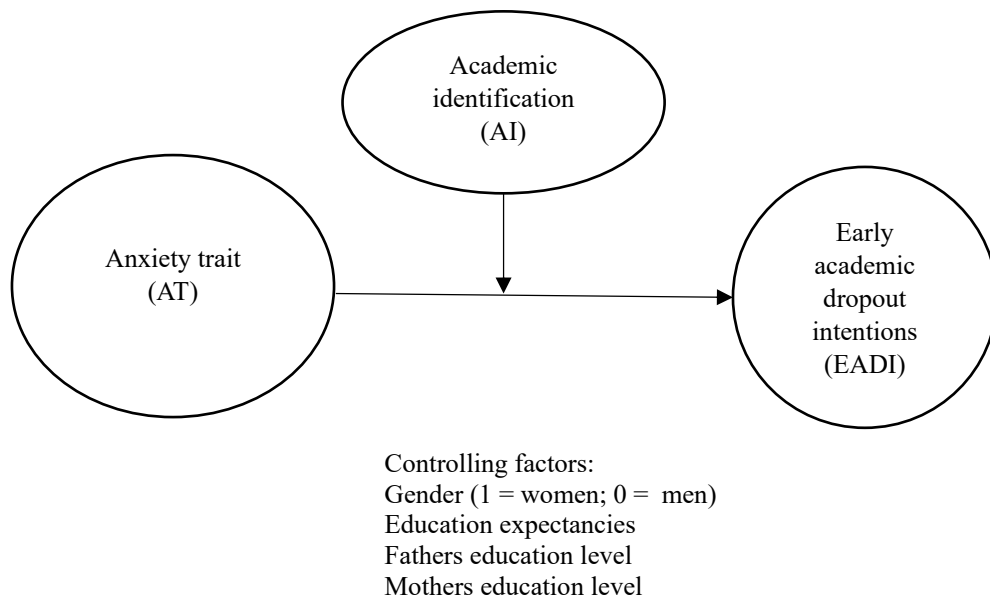
## **7. Educational Expectations and Early Academic Dropout Intentions**

Heublein (2014) showed that among the main at-risk groups of dropout, we can find the higher-education students who are starting their studies with wrong or false expectations, a fact which might lead to dropout decision caused by motivational reasons or change in vocational direction. Therefore, their decision is marked by uncertainty or possibly even by the certainty that they are not studying in their preferred subject.

Moreover, Kori et al. (2015) conducted research between 2013 and 2014, on a sample of 301 students, which showed that the expectations regarding the curriculum, the lecturers and teaching methods of first-year university students who dropped out were not met in a proper way comparatively with their peers who decided to continue academic studies. Kori et al. (2015) concluded that education expectations are a main factor which supports dropout at the higher education level.

## **8. Current Study**

The current cross-sectional study aimed to test the predictive role of TA and AI over EADI. Furthermore, the moderating role of AI is consistent with previous empirical data and theoretical guidelines that show that AI explains improvements in stimulating people to persist over time in their plans because they are attached and experience positive emotions by exercising their specific academic identity. Consistent with previous analysis strategies and theoretical guidelines, we anticipated that a) TA and EADI are related significantly and b) TA interacts with AI to decrease EADI. We identified several psychosocial factors that determine the difference between students regarding EADI, therefore we controlled for the following factors: gender, education expectancies, fathers' education level and mothers' education level.



**Figure 1.** A conceptual model for early academic dropout intentions, explained by trait anxiety and academic identification.

To test our data, we used IBM SPSS Statistics version 21 and the Process macro v.3.1 for a simple moderation model. First, we tested the partial correlation between the main variables of the study by considering gender, education expectancies, the father's education level and the mother's education level. Finally, we tested the interaction model of TA and AI as moderation for EADI and described the effects for each level of AI. To avoid potentially problematic high multicollinearity with the interaction term, the variables were centred and an interaction term between TA and AI was automatically created. We used the following levels for the moderator: the mean of the moderator and one standard deviation above and below the mean.

## 9. Method

### 9.1. Participants and procedure

Our sample consisted of 439 first-year university students recruited from a public university, in the north-east part of Romania. All the participants were contacted through their teaching coordinator at several courses and voluntarily offered to participate in the study after finding out the details about the study. All the students received the following types of instruments to evaluate: EADI, academic TA inventory, and AI with their student role and their social and demographic information. Students did not receive compensation for participation. The students completed the questionnaires during the first semester of the academic year, most of them during the third and fourth months of the semester.



Out of all participants, 83% were women 17% were males and aged between 18 years old and 47 years old ( $M = 19$ ,  $SD = 5.004$ ), 60,9% were aged 18 and 19, 33,8% were aged between 20 and 29, and 5,1% are between 30 and 47. Moreover, when reporting the level of education from parents, students reported that 77% of their mothers finished high school 77.7% of their fathers finished high school, 11% of their mothers finished university studies and 11,3% of their fathers finished university studies and almost 1% of their mothers finished master and doctoral studies and almost 3% of their fathers finished master and doctoral studies. When asked about their expected finished educational level, 14,3% of students reported wanting to finish their bachelor studies, 61% reported wanting to have a master's degree and 21,8% reported wanting to finish doctoral studies. All of the students were enrolled in social sciences studies in both studies with intense frequency and reduced frequency (i.e. social work, sociology, psychology, educational sciences).

### 9.2. Measures

Trait anxiety was assessed using the 10-item subscale from The Academic Anxiety Inventory (Pizzie & Kraemer, 2019) reflecting the broader patterns of anxiety and uneasiness, as well as general and constant feelings of being anxious and discouraged. Participants were asked to choose the rating that best reflects their attitude in general regarding each statement while considering that statements describe different feelings and situations usually encountered in school. A five-point Likert scale (from 1 = strongly disagree to 5 = strongly agree) was used to assess the answers of the participants. The internal consistency for this scale reflects good internal consistency indicators (Cronbach's Alpha = .83).

Academic identification was assessed using the adapted version of the scale by Doosje et al. (1995), used to measure general social identification. The scale consists of 4 items and reflects the way students find themselves attached and identified with their academic role of being students by considering the environment (i.e. the faculty and specific domain of study) they are in and also their enjoyment when considering their specific academic role (i.e. „*I identify myself with the faculty that I enrolled*”, „*I am dedicated to my academic studies*”, „*I am glad to be a part of this faculty*” and „*Being a part of this faculty is an important part of how I see myself*”). A five-point Likert scale (from 1 = very low degree to 5 = very high degree) was used to assess each statement. The internal consistency computed reflects good internal consistency (Cronbach's Alpha = .88).

Early academic dropout intentions were evaluated using five items focused on the present academic aspirations following Hardre and Reeve's (2003) model for evaluation to assess future EADI and early persistence for academic schooling intentions (e.g., „*I sometimes think to dropout studies*”). Cronbach's alpha = .82 and indicates good reliability.

## 10. Results

We used IBM SPSS Statistics version 21 and the Process macro v.3.1. Table 1 shows the partial correlation that we analysed. The direction and magnitude of

the four-order correlation of EADI with the other main measures showed that TA is positively and significantly associated ( $r = .32, p < .001$ ), while AI is negatively and significantly associated ( $r = -.41, p < .001$ ; see Table 1). TA is associated negatively and significantly with AI ( $r = -.22, p < .001$ ).

**Table 1.** Partial correlation among measures accounting for gender, education expectancies, fathers' education level and mothers' education level and descriptive data

	M	SD	1	2
1. Anxiety trait	2.76	.76		
2. Early academic drop-out intentions	1.40	.67	.32**	
3. Academic identification	3.77	.81	-.22**	-.41**

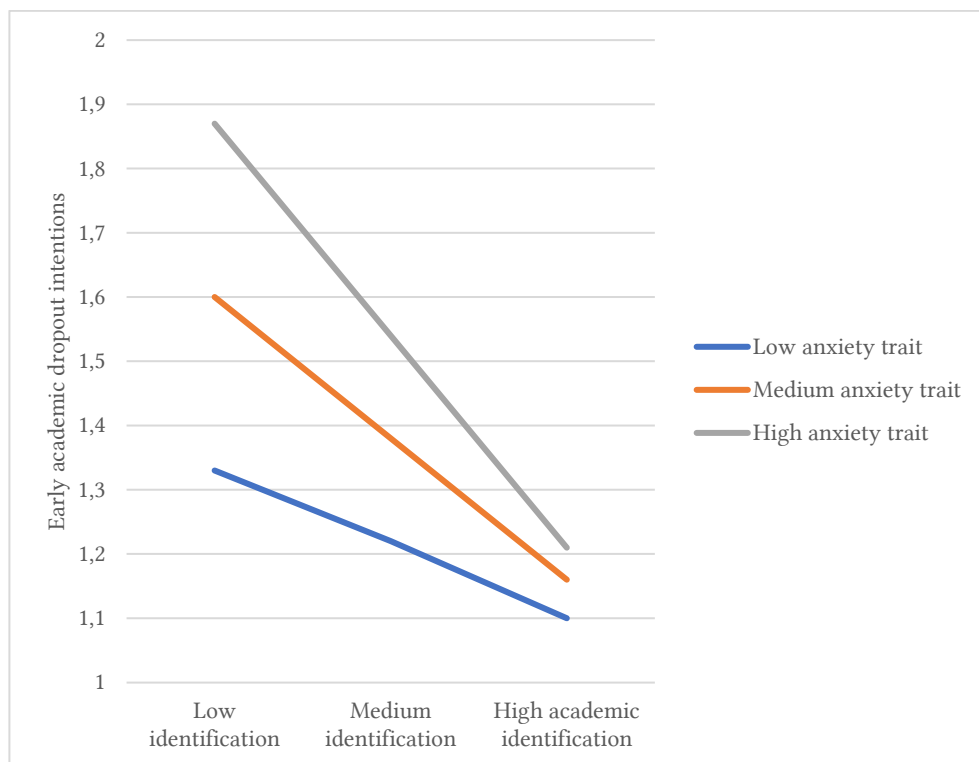
\*\*  $p < 0.001$

To test whether AI has an impact on the relationship between TA and EADI, we tested AI as a moderator using the Process macro v.3.1. (Hayes) to explore the interaction effects and explore the decrease/increase of the outcome when conditioned at the levels of the moderator. We mean-centred the main independent variables, including the interaction term and used the following levels for the moderator: the mean of the moderator and one standard deviation above and below the mean.

**Table 2.** Moderation effects of academic identification and anxiety trait on early academic dropout intentions

	B (SD)	t	p
Model 1			
Constant	1.67 (.20)**	8.08	< .001
Anxiety trait	.21 (.05)**	4.15	< .001
Academic identification	-.21 (.04)**	-5.73	< .001
Anxiety trait X Academic identification	-.17 (.05)*	-3.06	.002
Gender	.48 (.10)**	4.49	< .001
Education expectancies	.005 (.008)	.05	.95
Fathers education level	-.03 (.09)	-.35	.72
Mothers education level	-.10 (.06)	-1.70	.08

\*  $p < 0.05$  \*\*  $p < 0.001$



**Figure 2.** Prediction of early academic dropout intentions as an interaction between academic identification and anxiety trait

All the main variables and covariates accounted for a significant amount of variance in EADI ( $R^2 = .57$ ,  $F(7, 431) = 15.70$ ,  $p < .001$ ; see Table 2) and almost all predictors showed significant explanatory power, except the level of education of parents and a marginal effect of educational expectancies. The interaction term accounted for a significant proportion of the variance in EADI ( $R^2 = .03$ ,  $F(1, 431) = 9.42$ ,  $p = .002$ ). The conditional effect of the focal predictor at the values of the moderator revealed an enhanced significant effect on the lower level of AI ( $b = .35$ ,  $se = .06$ ,  $p < .001$ ) and on the average levels of AI ( $b = .21$ ,  $se = .05$ ,  $p < .001$ ), compared to the nonsignificant results on the high levels of identification ( $b = .07$ ,  $se = .06$ ,  $p = .31$ ; see Figure 1). Results also show that gender significantly determines EADI ( $b = .48$ ,  $se = .10$ ,  $p < .001$ ), indicating that men are more prone to EADI ( $M = 1.81$ ,  $SD = .92$ ), compared to women ( $M = 1.5$ ,  $SD = .72$ ). Education expectancies and parents' education background does not determine EADI significantly.

## 11. Discussions

Besides the low rate of enrolment in tertiary education, the phenomenon of academic dropout is one of the top topics on the educational policy agenda in Romania and in the European Union. In a study using the U-Multirank self-

assessment exercise, different authors show that Romanian universities face a high dropout rate, with the highest dropout rate recorded in the year I, with almost half of the students enrolled in the year I not completing their studies, and almost 40% enrolled in tertiary education not completing their degree (Sava et. al 2017; Verdes, 2021, World Bank Project, 2015, Statista, 2022). The literature explicitly considered the intention to drop out of education as „the strongest single predictor of dropout” and this link was confirmed by various studies (Eicher, et. al. 2014), but we believe that trait anxiety and academic identification are relevant for the early formation of intentions. Although EADIs do not necessarily lead to quitting studies, they constitute a clear sign of disengagement and an increased risk of dropping out. The current study confirms that EADI is determined by TA and by how strongly they identify with their new academic role.

Prior research links dropout risk to anxiety since adolescence, with higher anxiety scores correlating with increased dropout intentions (Carsley, 2017; Respondek, 2017). Our findings align with literature showing significant personality differences between college persisters and dropouts (Tinto, 2017). This research also highlights an interaction between anxiety (TA) and academic identification (AI), suggesting potential student profiles. Dropouts often display impulsivity, lack emotional commitment, and struggle with flexibility and stability, contrasting with their persisting peers (Tinto, 2017). Rootman (1972) suggests dropout is a response to a misfit between an individual and institutional norm, especially concerning intellectual and social climates.

Furthermore, we also identify gender as being important for this process of understanding EADI Concordant to previous empirical results (Vossensteyn et al., 2015) men are more at risk of forming EADI. Gender plays a crucial role in understanding EADI; men, particularly in social sciences, show a higher inclination toward academic dropout than women (Vossensteyn et al., 2015; Korhonen & Rautopuro, 2019). Girls often report more depressive symptoms, while boys exhibit more conduct problems (Vossensteyn et al., 2015). While personality traits like anxiety significantly influence dropout intentions, other factors like socioeconomic status and parents' education didn't show a significant impact in our study (Desforges & Abouchaar, 2003). These factors are interconnected, affecting academic performance holistically. Notably, about one in ten young students have a diagnosable mental disorder, highlighting prevalent psychological challenges (Parviainen et al., 2020).

## **12. Limits of the study**

The first limitation of the study is that all the participants are enrolled in social sciences and the general representativity of results is limited. The unbalanced distribution of gender (83% women, 17% men) is also a limitation of the study since the analyses include gender comparisons. Still, this discrepancy is generally representative of the social sciences domain. Another factor limiting the generality of our results is that we used a conventional population. Further studies should consider sampling ways for participants. Another limitation of the study is that

measurement invariance has not been shown before conducting group comparisons. We also did not provide a power analysis to control for sample size and for sufficient statistical power to detect a real significant association. It is important to note some practical limitations of this study and potential future developments within the departments that handle counselling and guide students during their enrolment. This study has practical limitations, focusing on first-year social sciences students at a Romanian university. Future research should examine AI and TA's predictive impact on EADI, accessing dropout records from Academic Services across universities and diverse fields. Including student interviews can validate quantitative findings. Other factors like dissatisfaction and academic exhaustion are linked to dropout intentions (Cvetkovski et al., 2018; Holdsworth et al., 2018; Solberg Nes et al., 2009). Casanova et al. (2021) emphasize the role of autonomy, resilience, and academic achievement in academic challenges. While this study delves into stable psychological traits like trait anxiety and academic identification influencing early dropout intentions, early screening tools are crucial for at-risk students.

### 13. Practical implications

Research links psychological issues to school dropout risk (Bask & Salmela-Aro, 2013). Internalizing symptoms include anxiety and sorrow, while externalizing symptoms involve aggression and defiance. Similarly, to other work (i.e., Respondek, 2017) that found that anxiety, perceived as a latent variable and component of academic emotions, is strongly correlated with dropout intention, we believe this component is relevant to long-term academic development and various outcomes. Students' symptoms of anxiety are associated with various academic-related problems, such as low work engagement, poor academic achievement, and truancy (Egger et al., 2003). Thus, psychological ill-being – where anxiety is one of the major components- is also linked to the intention of dropping out of university (Mills, 2017), which may, in turn, place an individual at a disadvantage later in life.

### References

- Aina, C. (2013). Parental background and university dropout in Italy. *Higher Education*, 65(4), 437-456 <https://doi.org/10.1007/s10734-012-9554-z>.
- Araújo, A. M., Gomes, C. M. A., Almeida, L. S., & Núñez, J. C. (2019). A latent profile analysis of first-year university students' academic expectations. *Anales de Psicología*, 35(1), 58-67. <https://doi.org/10.6018/analesps.35.1.299351>.
- Astin, A. (1984). Student Involvement: A Development Theory for Higher Education. *Journal of College Student Development*, 40, 518-529.
- Bask, M., & Salmela-Aro, K. (2013). Burned out to drop out: Exploring the relationship between school burnout and school dropout. *European journal of psychology of education*, 28(2), 511-528.
- Bäulke, L., Grunschel, C. & Dresel, M. (2022). Student dropout at university: a phase-orientated view on quitting studies and changing majors. *European Journal of Psychology of Education*, 37, 853-876 <https://doi.org/10.1007/s10212-021-00557-x>

- Bean, J., & Eaton, S. B. (2001). The Psychology Underlying Successful Retention Practices. *Journal of College Student Retention: Research, Theory & Practice*, 3(1), 73-89. <https://doi.org/10.2190/6R55-4B30-28XG-L8U0>.
- Biasi, V., De Vincenzo, C., & Patrizi, N. (2018). Cognitive strategies for self-regulation of learning and motivation to study. Construction of average profiles of cognitive functioning and motivational structure for the prevention of drop-out. *Journal of Educational, Cultural and Psychological Studies*, 17, 139-159. <https://doi.org/10.7358/ecps-2018-017-bias>.
- Blair, A. (2017). Understanding first-year students' transition to university: A pilot study with implications for student engagement, assessment, and feedback. *Politics*, 37(2), 215-228. <https://doi.org/10.1177/0263395716633904>.
- Brodersen, L. D. (2017). Interventions for test anxiety in undergraduate nursing students: An integrative review. *Nursing Educ. Perspect.* 38, 131-137. doi: 10.1097/01.NEP.0000000000000142.
- Carsley, D., Heath, N. L., Gomez-Garibello, C., & Mills, D. J. (2017). The importance of mindfulness in explaining the relationship between adolescents' anxiety and dropout intentions. *School Mental Health*, 9(1), 78-86. <https://doi.org/10.1007/s12310-016-9196-x>.
- Casanova, J. R., Gomes, C. M. A., Bernardo, A. B., Núñez, J. C., & Almeida, L. S. (2021). Dimensionality and reliability of a screening instrument for students at-risk of dropping out from higher education. *Studies in Educational Evaluation*, 68, 100957.
- Cruwys, T., South, E. I., Greenaway, K. H., & Haslam, S. A. (2015). Social identity reduces depression by fostering positive attributions. *Social Psychological and Personality Science*, 6(1), 65-74.
- Cvetkovski, S., Jorm, A. F., & Mackinnon, A. J. (2018). Student psychological distress and degree dropout or completion: A discrete time, competing risks survival analysis. *Higher Education Research & Development*, 37(3), 484-498. <https://doi.org/10.1080/07294360.2017.1404557>.
- Desforges, C & Abouchaar A. (2003). The Impact of Parental Involvement, Parental Support and Family Education on Pupil Achievements and Adjustment: A Literature Review. Education. 30. Retrieved from: [https://www.nationalnumeracy.org.uk/sites/default/files/documents/impact\\_of\\_parental\\_involvement/the\\_impact\\_of\\_parental\\_involvement.pdf](https://www.nationalnumeracy.org.uk/sites/default/files/documents/impact_of_parental_involvement/the_impact_of_parental_involvement.pdf)
- Doosje, Bertjan & Ellemers, Naomi & Spears, Russell. (1995). Perceived Intragroup Variability as a Function of Group Status and Identification. *Journal of Experimental Social Psychology*, 31, 410-436. 10.1006/jesp.1995.1018.
- Egger, H. & Costello, E. & Angold, A. (2003). School Refusal and Psychiatric Disorders: A Community Study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 42, 797-807. 10.1097/01.CHI.0000046865.56865.79.
- Eicher, V., Staerklé, C., & Clémence, A. (2014). I want to quit education: A longitudinal study of stress and optimism as predictors of school dropout intention. *Journal of adolescence*, 37(7), 1021-1030.
- Esch, P., Bocquet, V., Pull, C., Couffignal, S., Lehnert, T., & Graas, M. (2014). The downward spiral of mental disorders and educational attainment: a systematic review on early school leaving. *BMC Psychiatry* 14:237. doi: 10.1186/s12888-014-0237-4.
- Finn, J. D. (1989). Withdrawing from school. *Review of educational research*, 59(2), 117-142. <https://doi.org/10.3102/00346543059002117>
- Fourie, C. M. (2020). Risk factors associated with first-year students' intention to drop out from a university in South Africa. *Journal of Further and Higher Education*, 44(2), 201-215. <https://doi.org/10.1080/0309877X.2018.1527023>

- Ghignoni, E. (2017). Family background and university dropouts during the crisis: the case of Italy. *Higher Education*, 73(1), 127-151 <https://doi.org/10.1007/s10734-016-0004-1>.
- Gillet, N., Huyghebaert, T., Barrault, S., Bucourt, E., Gimenes, G. & Maillot, A. (2017). Autonomous and controlled reasons underlying self-approach and self-avoidance goals and educational outcomes. *Social Psychology of Education*, 20(1), 179-193. <https://doi.org/10.1007/s11218-017-9368-z>.
- Greenaway, K. H., Haslam, S. A., Cruwys, T., Branscombe, N. R., Ysseldyk, R., & Heldreth, C. (2015). From „we” to „me”: Group identification enhances perceived personal control with consequences for health and well-being. *Journal of personality and social psychology*, 109(1), 53.
- Gury, N. (2011). Dropping out of higher education in France: a micro-economic approach using survival analysis. *Education Economics*, 19(1), 51-64. <https://doi.org/10.1080/09645290902796357>
- Hardre, P. L., & Reeve, J. (2003). A motivational model of rural students' intentions to persist in, versus drop out of, high school. *Journal of Educational Psychology*, 95(2), 347-356. <https://doi.org/10.1037/0022-0663.95.2.347>
- Heublein, U. (2014). Student drop-out from German higher education institutions. *European Journal of Education*, 49(4), 497-513. <https://doi.org/10.1111/ejed.12097>.
- Holdsworth, S., Turner, M., & Scott-Young, C. M. (2018). Not drowning, waving. Resilience and university: A student perspective. *Studies in Higher Education*, 43(11), 1837-1853. <https://doi.org/10.1080/03075079.2017.1284193>.
- Jeno, L. M., Danielsen, A. G., & Raaheim, A. (2018). A prospective investigation of students' academic achievement and dropout in higher education: A Self- Determination Theory approach. *Educational Psychology*, 38(9), 1163-1184. <https://doi.org/10.1080/01443410.2018.1502412>.
- Khubchandani, J., Brey, R., Kotecki, J., Kleinfelder, J., & Anderson, J. (2016). The psychometric properties of the PHQ-4 depression and anxiety screening scale among college students. *Archives of Psychiatric Nursing*, 30, 457-462. <https://doi.org/10.1016/j.apnu.2016.01.014>
- Korhonen, V., & Rautopuro, J. (2019). Identifying Problematic Study Progression and „At-Risk” Students in Higher Education in Finland. *Scandinavian Journal of Educational Research*, 63(7), 1056-1069. <https://doi.org/10.1080/00313831.2018.1476407>.
- Kori, K., Pedaste, M., Tõnisson, E., Palts, T., Altin, H., Rantsus, R., & Rütümann, T. (2015, March). First-year dropout in ICT studies. In *2015 IEEE Global Engineering Education Conference (EDUCON)* (pp. 437-445). IEEE DOI: 10.1109/EDUCON.2015.7096008.
- Kuh, G. D., & Love, P. G. (2000). A cultural perspective on student departure. In J. M. Braxton (Ed.), *Reworking the Student Departure Puzzle* (pp. 196-212). Nashville: Vanderbilt University Press.
- Lassibille, G., & Navarro Gómez, L. (2008). Why do higher education students drop out? Evidence from Spain. *Education Economics*, 16(1), 89-105 <https://doi.org/10.1080/09645290701523267>.
- Leach, C. W., Van Zomeren, M., Zebel, S., Vliek, M. L., Pennekamp, S. F., Doosje, B., & Spears, R. (2008). Group-level self-definition and self-investment: a hierarchical (multicomponent) model of in-group identification. *Journal of personality and social psychology*, 95(1), 144.
- Lounsbury, J. W., Saudargas, R. A., & Gibson, L. W. (2004). An investigation of personality traits in relation to intention to withdraw from college. *Journal of College Student Development*, 45(5), 517-534. <https://doi.org/10.1353/csd.2004.0059>

- Lundetræ, K. (2011). Does parental educational level predict drop-out from upper secondary school for 16-to 24-year-olds when basic skills are accounted for? A cross country comparison. *Scandinavian Journal of Educational Research*, 55(6), 625-637 <https://doi.org/10.1080/00313831.2011.555925>.
- Mills, J. F. (2017). Violence risk assessment: A brief review, current issues, and future directions. *Canadian Psychology/psychologie canadienne*, 58(1), 40.
- Osborne, J. W., & Jones, B. D. (2011). Identification with academics and motivation to achieve in school: How the structure of the self influences academic outcomes. *Educational Psychology Review*, 23(1), 131-158. <https://doi.org/10.1007/s10648-011-9151-1>
- Parviainen, M., Aunola, K., Torppa, M., Poikkeus, A., & Vasalampi, K. (2020). Symptoms of psychological ill-being and school dropout intentions among upper secondary education students: A person-centered approach. *Learning and Individual Differences*, 80, 101853.
- Pascarella, E. T., & Terenzini, P. T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *The journal of higher education*, 51(1), 60-75.
- Pizzie, R. G., & Kraemer, D. J. M. (2019). The Academic Anxiety Inventory: Evidence for dissociable patterns of anxiety related to math and other sources of academic stress. *Frontiers in Psychology*, 9, Article 2684. <https://doi.org/10.3389/fpsyg.2018.02684>
- Postmes, T., & Branscombe, N. (Eds.). (2010). *Rediscovering social identity*. New York, NY: Psychology Press.
- Postmes, T., Haslam, S. A., & Jans, L. (2013). A single-item measure of social identification: Reliability, validity, and utility. *British journal of social psychology*, 52(4), 597-617.
- Postmes, Tom & Wichmann, Lenka & van Valkengoed, Anne & van der Hoef, Hanneke. (2018). Social Identification and Depression: A Meta-Analysis. *European Journal of Social Psychology*, 49. 10.1002/ejsp.2508.
- Respondek, L., Seufert, T., Stupnisky, R., & Nett, U. E. (2017). Perceived academic control and academic emotions predict undergraduate university student success: Examining effects on dropout intention and achievement. *Frontiers in psychology*, 8, Article 243. DOI: 10.3389/fpsyg.2017.00243.
- Rootman, I. (1972). Voluntary withdrawal from a total adult socializing organization: A model. *Sociology of Education*, 258-270.
- Roso-Bas, F., Jiménez, A. P., & García-Buades, E. (2016). Emotional variables, dropout and academic performance in Spanish nursing students. *Nurse education today*, 37, 53-58.
- Sani, F., Herrera, M., Wakefield, J. R., Boroch, O., & Gulyas, C. (2012). Comparing social contact and group identification as predictors of mental health. *British Journal of Social Psychology*, 51(4), 781-790.
- Sarra, A., Fontanella, L., & Di Zio, S. (2019). Identifying students at risk of academic failure within the educational data mining framework. *Social Indicators Research*, 146(1), 41-60.
- Sava S., Bunoiu M. & Malita L. (2017), *Ways to Improve Students' Decision For Academic Studies*, Acta Didactica Napocensia, vol 10, nr 4, p111, [http://padi.psiedu.ubbcluj.ro/adn/article\\_10\\_4\\_11.pdf](http://padi.psiedu.ubbcluj.ro/adn/article_10_4_11.pdf) [accessed February 2022].
- Sherman, D. K., Hartson, K. A., Binning, K. R., Purdie-Vaughns, V., Garcia, J., Taborsky-Barba, S., & Cohen, G. L. (2013). Deflecting the trajectory and changing the narrative: how self-affirmation affects academic performance and motivation under identity threat. *Journal of Personality and Social Psychology*, 104(4), 591.
- Solberg Nes, L., Evans, D. R., & Segerstrom, S. C. (2009). Optimism and college retention: Mediation by motivation, performance, and adjustment. *Journal of Applied Social Psychology*, 39(8), 1887-1912. <https://doi.org/10.1111/j.1559-1816.2009.00508.x>.



- Spady, W. G. (1971). Dropouts from higher education: Toward an empirical model. *Interchange*, 2(3), 38-62.
- Statista Research Department (2022). *School dropout rate in Romania from 2011 to 2020* <https://www.statista.com/statistics/1103336/school-dropout-rate-romania/> [accessed February 2022].
- Suhlmann, M., Sassenberg, K., Nagengast, B., & Trautwein, U. (2018). Belonging mediates effects of student-university fit on well-being, motivation, and dropout intention. *Social Psychology*. <https://doi.org/10.1027/1864-9335/a000325>.
- Tajfel, H. (1972). Social categorization. English manuscript of 'La categorisation sociale.' In S. Moscovici (Ed.), *Introduction à la Psychologie Sociale* (Vol. 1, pp. 272-302). Paris, France: Larousse.
- Tajfel, H. (1978). Interindividual behaviour and intergroup behaviour. In H. Tajfel (Ed.), *Differentiation between groups: Studies in the social psychology of intergroup relations* (pp. 27-60). London: Academic Press.
- Tajfel, H., & Turner, J. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Monterey, CA: Brooks/Cole.
- Templeton, S. (2021). *An Evaluation of an Integrated Multidisciplinary Early Identification and Triage of College Students at Risk for Anxiety and Depression* (Electronic Thesis and Dissertations). Retrieved from: <https://digitalcommons.acu.edu/cgi/viewcontent.cgi?article=1420&context=etd>
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of educational research*, 45(1), 89-125.
- Tinto, V. (2010). From Theory to Action: Exploring the Institutional Conditions for Student Retention. In: Smart, J. (eds) *Higher Education: Handbook of Theory and Research. Higher Education: Handbook of Theory and Research*, vol 25. Springer, Dordrecht. [https://doi.org/10.1007/978-90-481-8598-6\\_2](https://doi.org/10.1007/978-90-481-8598-6_2).
- Tinto, V. (2017). Through the eyes of students. *Journal of College Student Retention Research Theory and Practice*, 19(3), 254-269. <https://doi.org/10.1177/1521025115621917>.
- Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Cambridge, MA: Basil Blackwell.
- Verdes, M. (2021). *Student în România: 2 din 5 cursanți abandonează facultatea în primul an*. <https://www.puterea.ro/student-in-romania-2-din-5-cursanti-abandoneaza-facultatea-in-primul-an-cei-care-locuiesc-in-orasul-in-care-invata-mai-putin-motivati-studiu/> [accessed January 2022]
- Vossensteyn, J. J., Kottmann, A., Jongbloed, B. W., Kaiser, F., Cremonini, L., Stensaker, B., & Wollscheid, S. (2015). Dropout and completion in higher education in Europe: Main report. Sani, F. (2012). Group identification, social relationships, and health. In J. Jetten, C. Haslam, & S. A. Haslam (Eds.), *The social cure: Identity, health, and well-being* (pp. 21-38). New York, NY: Psychology Press.
- Von der Embse, N., Jester, D., Roy, D. & Post, J. (2017). Test anxiety effects, predictors, and correlates: A 30-year meta-analytic review. *Journal of Affective Disorders*. 227. 10.1016/j.jad.2017.11.048.
- Wilcox, G., & Nordstokke, D. (2019). Predictors of university student satisfaction with life, academic self-efficacy, and achievement in the first year. *Canadian Journal of Higher Education*, 49(1), 104-124.

Worfel, F., Gusy, B., Lohmann, K., Topritz, K., & Kleiber, D. (2016). Mental health problems among university students and the impact of structural conditions. *Journal of Public Health*, 24, 125–133. <https://doi.org/10.1007/s10389-015-00703-6>

\*\*\* World Bank Project to Help Romania Reverse Increasing High School Dropout Rates and Declining University Enrolment; <https://www.worldbank.org/en/news/press-release/2015/03/16/world-bank-project-to-help-romania-reverse-increasing-high-school-dropout-rates-and-declining-university-enrollment> [accessed February, 2022]