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MEASURING DROPOUT INTENTION IN FIRST YEAR UNIVERSITY STUDENTS

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Abstract: *University dropout has become an increasingly critical research topic, particularly in the wake of the COVID-19 pandemic, which has seen a global rise in dropout rates. This phenomenon, defined as the discontinuation of higher education before degree completion, is multifaceted, with psychological, sociological, institutional, and interactionist perspectives offering diverse insights into its causes. Despite extensive research dating back to the 1980s, there is a notable lack of standardized instruments for measuring dropout intentions, particularly in the Romanian context. This study addresses this gap by proposing and evaluating the psychometric properties of a concise, five-item scale designed to assess dropout intentions among university students. The scale demonstrated strong internal consistency and construct validity through exploratory and confirmatory factor analyses. Additionally, measurement invariance across gender was confirmed, though the results highlight the importance of a more diverse sample in future research. The findings underscore the need for robust, theoretically grounded instruments to facilitate early detection of dropout intentions and inform targeted interventions.*

Key words: *dropout intention, first year university students, academic performance, construct validity.*

1. Introduction

University dropout has emerged as a critical research topic, especially considering its significant implications for individuals, educational institutions, and society as a whole. Recent post-pandemic studies have underscored the rise in dropout rates globally (European Commission, 2022), prompting discussions on the far-reaching consequences

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of this phenomenon.

University dropout, defined as the discontinuation of higher education studies before degree completion, is a complex issue that has been explored through various definitions and theoretical frameworks, including first-year adjustment difficulties. University dropout has been a topic of research since the 1980s, with scholars across the globe exploring its various dimensions. There are different analyses perspectives for the dropout phenomenon. The psychological perspective focuses on dropout as an individual decision, emphasizing internal factors that influence student persistence (Bean & Eaton, 2020). From a sociological standpoint, dropout is linked to social attributes, suggesting that a student's family's social status can significantly impact their educational and employment outcomes (Herţeliu et al., 2022). The institutional perspective examines how the academic environment, including its structure, resources, and climate, influences student behavior and retention (Berger & Braxton, 1998). Finally, the interactionist perspective integrates these views, considering dropout as the result of ongoing interactions between a student's psychological and socio-economic traits and the educational institution, with retention and dropout being the outcomes of continuous exchanges between the individual and the institutional system (Herţeliu et al., 2022; Tinto, 1997).

Several models and theories explain the factors contributing to academic dropout, each offering a unique perspective. Tinto's Model of Student Integration (Tinto, 1975) emphasizes the importance of both academic and social integration, suggesting that students are more likely to persist if they feel connected to their academic and social environments. Bean's Student Attrition Model (Bean & Metzner, 1985) and Astin's Theory of Student Involvement (Astin, 1999) also highlight the roles of external factors, personal attitudes, and the level of student engagement. Kuh's Student Engagement Model (Kuh, 2001) and Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1976) offer more holistic approaches, considering a combination of cognitive, social, and institutional factors, as well as broader environmental influences. Additionally, Self-Determination Theory (Ryan & Deci, 2020) focuses on internal motivation and the perceived value of education as key factors in student persistence. Together, these theories underscore the complex interplay of individual, social, and institutional factors in understanding and addressing student dropout.

The largest study on dropout and completion in higher education at the European level, conducted for the European Commission (CHEPS, 2015 cit. in Herţeliu et al., 2022), explored the indicators used across 36 European countries. This extensive research identified the top three most commonly used indicators for assessing dropout and completion rates across these countries: completion rate, retention rate and time-to-degree. However, measuring academic dropout remains an insufficiently explored topic. No literature reviews have been found that specifically focus on instruments designed to measure dropout intention. Although ad hoc instruments are frequently created to investigate university abandonment, these tools often overlook important factors, limiting their effectiveness and failing to provide a comprehensive understanding of the

phenomenon (Bernardo et al., 2022). Access to effective instruments that enable early detection of dropout intentions is crucial for understanding and adequately addressing this issue (Casanova et al., 2021). To fully comprehend university dropout and develop appropriate interventions, it is essential to recognize and utilize the available instruments, ensuring a more thorough and informed approach to tackling this problem, only one recent meta-analysis being found on the topic of measuring dropout (Muñoz-Inostroza et al., 2024). The cited study showed that most of the instruments identified do not indicate a foundational theoretical model, which could significantly affect the construct validity of the scale. However, among the instruments that do cite a theoretical model, Tinto's model (Tinto, 1975) is particularly prominent, Tinto's model being the most recognized and widely used framework for understanding university dropout worldwide. Regarding the conceptual and operational definition of dropout intention, the theoretical models employed by most of the studies reviewed generally show consistency with the instruments they designed. However, some limitations were observed in these instruments, indicating areas where future tools could improve to provide a more comprehensive understanding of dropout intention (Muñoz-Inostroza et al., 2024).

In Romania, research on university dropout remains limited, with few studies and a lack of attention in national public policy documents. The absence of a standardized approach both internationally and nationally has resulted in a variety of interpretations and methodologies when addressing the phenomenon of university dropout. This variability highlights the need for more comprehensive and coordinated research efforts to better understand and address the issue (Herţeliu et al., 2022).

Given the important of academic adjustment and the consequences of dropout in first year university students, the main aim of this study was to propose and analyse the psychometric properties of a short scale measuring dropout intentions.

2. Methods

2.1. Measures

Dropout intention was measured with a five-item scale also used in previous studies (Cazan et al., 2023)(example of items: "Sometimes, I think there are other professional fields that might suit me better than the one I am currently studying"; "I am considering giving up on this university"). The items are measured on five-point Likert scale (ranging from strongly disagree to agree strongly). Cronbach's Alpha was high, .80, high scores indicating a higher intention to dropout.

A factual questionnaire was used to collect data about demographic aspects (gender, age, and faculty), educational background (baccalaureate mean grade, number of options at the admission exam, rank of the accepted application at the university exam).

2.2. Participants

A sample of 805 Romanian university students participated in this study, females (*N* = 630) and males (*N* = 165), other or not-specified (*N* = 10), with a mean age of 20.64 years (*SD* = 4.25). The questionnaires were administered online at the beginning of the second semester of the first academic year. These students were enrolled in different academic programs, including engineering, psychology, education sciences, biology, music, arts, and mathematics. All participants gave their written consent to participate in the study.

2.3. Data analysis

Descriptive statistics analysis showed that all the variables were normally distributed with no signs of multivariate outliers, the normality assumptions were met. The sample was randomly split in two subsamples to conduct Exploratory Factor Analysis (*N* = 419) and Confirmatory factor analysis (*N* = 386). The two halves did not differ on gender [$\chi^2(3) = 1.392$, $p = .708$], type of enrolment tuition-free and tuition-paying students) [$\chi^2(1) = .266$, $p = .606$], or previous academic achievement [$t(803) = 1.161$, $p = .246$]. Exploratory factor analysis was computed using IBM SPSS 23.0, Promax with Kaiser Normalization being computed, and Confirmatory factor analysis was computed with IBM AMOS 23.0. Predictive validity was tested with linear regression, the dropout intention being the criterion. The Kaiser–Meyer–Olkin (*KMO* = .794) and Bartlett's test of sphericity ($\chi 2 = 888.824$, $p < .001$) indicated that the data were suitable for factor analysis. For the CFA, parameters were computed through the maximum likelihood estimation method. The following fit indices, chi-square, *CFI* (Comparative Fit Index), *TLI* (Tucker–Lewis index), *AIC* (Akaike information criterion), *RMSEA* (Root Mean Square Error of Approximation) were used to evaluate model fit (Wang & Wang, 2019). Invariance across gender groups was also computed, configural- (similar factor structures), metric- (similar factor loadings), and scalar (similar intercepts) models were compared. Invariance was determined through a non-significant difference in chi-square ($p < 0.01$) (Cheung & Rensvold, 2002).

3. Results

3.1. Construct validity

Based on the eigenvalues, Kaiser's rule, and the scree plot, a unifactorial solution was assumed, covering 62.23% of the total variance. All items had loadings higher than .71 (Table 1).

Factor loadings, reliability, and explained variances Table 1

	Factor loadings
Sometimes I think about giving up this faculty. [Mă gândesc uneori să renunț la această facultate.]	.832
I think I made a good decision when I chose this faculty. [Cred că am luat o decizie bună când am ales această facultate.]	-.824
I intend to leave this faculty in the near future. [Intenționez să renunț la această facultate în perioada următoare.]	.811
I am very determined to finish the faculty. [Sunt foarte hotărât/ă să termin facultatea.]	-.752
Sometimes I think there are other professional fields that suit me better than the one I am currently studying. [Câteodată mă gândesc că sunt alte domenii profesionale care mi se potrivesc mai bine decât cel pe care îl studiez acum.]	.719
Number of items	5
Explained variance %	62.23
Cronbach' Alpha	.812

Note: *Rotation method: Promax with Kaiser normalization*

Based on the Exploratory factor Analysis results, we confirmed the structure of the questionnaire through Confirmatory factor Analysis. The unifactorial solution showed good fit for some indices such as the comparative fit index (CFI) and low for others, such as root mean square error of approximation (RMSEA) (Table 2). As expected, the correlated errors models had better fit indices, correlations being added for the error terms of items 4 and 5, 2 and 5, 1 and 5. The standardized estimates for the Confirmatory factor analysis (CFA) revealed factor loadings between .956 for item 2 and -.370 for item 4.

The Goodness-of-Fit Indices for the Measurement Model Table 2

Model	χ^2/df	*CFI*	*TLI*	*AIC*	*RMSEA*
M1 – Unifactorial model Uncorrelated errors	118.715/5	.841	.682	4585.268	.243
M2 – Unifactorial model – Correlated errors	19.949/2***	.975	.874	4492.502	.152

Note: *CFI = comparative fit index, TLI = Tucker–Lewis index; AIC = Akaike information criterion; RMSEA = root mean square error of approximation. ***p < .001.*

The analysis showed no gender differences for the dropout intention, $t(793) = -1.314$, $p = .189$. The correlation with academic performances (baccalaureate mean grade) was significant but very low, $r = .081$, $p = .022$. The correlation with the number of options at the admission exam was also weak $\rho = .088$, $p = .013$ and slightly higher with the rank of accepted applications at the university admission exam, $\rho = .219$, $p < .001$.

3.2. Results for invariance tests by student gender

Measurement invariance across genders (males: 74 vs. females: 306) was computed for the unifactorial model, and the results were reported in Table 3.

Measurement invariance across gender Table 3

Model fit			**Baseline test**			**Difference test**		
	AIC	*n*	χ^2	*df*	*p*	$\Delta\chi^2$	*Δdf*	*p*
Configural invariance	4.519.577	380	121.640	10	<.001			
Metric invariance	4.519.453	380	134.516	14	< .001	12.876	4	.022
Scalar invariance	4.511.123	380	136.186	19	< .001	1.670	5	.893

The results showed that configural invariance, metric and scalar invariance were obtained, configural invariance, the metric invariance, and the scalar invariance model, given the p values higher than .01 (Cheung & Rensvold, 2002), showing that the structure of the scale remains invariant across gender. Nonetheless, these results should be interpreted with caution due to the relatively small number of male participants compared to female participants. In addition, using .01 as significance level instead of .05 might also increase the risk of Type II error, but given the high importance of a mode objective measure for the dropout intention, a more conservative decision regarding invariance could be justified.

4. Discussions

This study aimed to develop and validate a short scale for measuring dropout intentions among Romanian first-year university students, addressing a critical gap in the literature concerning the early detection of dropout risks. The results demonstrated that the newly developed scale possesses strong psychometric properties and has an unifactorial structure, the construct validity of the scale being well-supported. The confirmatory factor analysis (CFA) further confirmed the model's fit, particularly after accounting for correlated errors. While some fit indices (e.g., RMSEA) did not initially meet conventional thresholds, adjustments improved the model fit, suggesting that the scale effectively captures the latent construct of dropout intention.

The exploratory factor analysis revealed a unifactorial structure explaining 62.23% of the variance, with all items displaying strong loadings above 0.71. This finding underscores that dropout intention can be conceptualized as a single latent construct. In contrast, most existing instruments measuring dropout have three to five factors, such as satisfaction, integration or social adaptation, and support structure or services (Muñoz-Inostroza et al., 2024). But these factors seem to overlap with the dimensions of academic adjustment (Clinciu & Cazan, 2014; Cazan et al., 2024). Furthermore, Muñoz-Inostroza and colleagues (2024) note that existing instruments tend to explore the causes or

antecedents of dropout intention (e.g., dissatisfaction or insecurities) rather than the intention itself. The scale presented in this study addresses this shortcoming by offering a concise and valid measure specifically targeting dropout intention as a singular construct. A unifactorial model has increased usability in applied settings, in particularly in contexts where time and resources are limited, such as in developing countries or large-scale institutional surveys. Additionally, this unifactorial structure aligns with theoretical frameworks like Tinto's Model of Student Integration (Tinto, 1975), which posits dropout as a final decision arising from a complex interplay of factors but expressed through a singular intention.

The study also examined the associations between dropout intention and academic performance indicators (e.g., baccalaureate mean grade, number of admission exam options). The observed weak corrrelations point to the multiple determinants of dropout, which is shaped by both individual and institutional factors. These findings are consistent with previous research showing that engagement plays a pivotal role in dropout intention. Engagement levels are negatively associated with dropout intentions, with students considering dropout showing lower engagement scores (Álvarez-Pérez et al., 2021; Truța et al., 2018). Other factors, such as satisfaction, learning outcome (Duque et al., 2014), lack of university commitment, ineffective time management have a significant effect of dropout as well.

Furthermore, the lack of significant gender differences in dropout intention is consistent with previous studies (Herţeliu et al., 2022), suggesting that dropout risk factors might be less influenced by gender and more by individual and contextual factors. This supports the need for tailored interventions that address specific determinants of disengagement, rather than relying on generalized assumptions about demographic groups.

These findings contribute significantly to the growing body of literature on academic dropout by providing a validated instrument for assessing dropout intention. Measuring dropout intention is crucial as it serves as an early indicator of potential disengagement, allowing teachers and Higher Education institutions to identify at-risk students before they leave the academic programs. The scarcity of standardized tools specifically designed for this purpose (Bernardo et al., 2022) underscores the value of the current scale in filling a critical gap. Future research should explore the scale's applicability across diverse educational settings and its ability to predict actual dropout behavior, while also considering additional contextual and institutional factors that may influence student retention.

5. Limitations, future research directions and implications

This study has several strengths but also recognizes certain limitations. The unbalanced sample size regarding gender, the low number of male students being problematic also for the multigroup analysis. A more diverse student population is also needed to confirm the structure of the scale, the current study including only first year students. Given the fact that academic dropout is higher during the first year of study

(Clinciu & Cazan, 2014), a sample including more advanced students would allow the identification of a more stable factorial solution for this scale. The data were collected from a single national context (Romania), where research on university dropout remains scarce (Herţeliu et al., 2022). The cultural and institutional specificities of this context may limit the generalizability of the findings to other educational systems. Future research should replicate these findings in diverse settings to enhance the scale's cross-cultural applicability.

The predictive validity of the scale was not determined; future studies could focus on finding relevant criteria, such as academic performances, number of passed exams, or other indicators of academic success, in order to prove the predictive validity of the scale.

In conclusion, this study contributes to the literature by developing and validating a short, reliable scale for measuring dropout intention among university students. The scale's strong psychometric properties and theoretical grounding make it a valuable tool for research and practice, paving the way for more effective strategies to address university dropout. Future efforts should focus on refining and expanding this work, testing the scale's predictive validity, examining its applicability across diverse student populations, and exploring its use in broader cross-cultural contexts.

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