

Student's Personal Coping with University Studies while Facing Drop Out

George S. Androulakis, Dimitra A. Georgiou, Pantelis Kiprianos,
George Nikolaou, and Georgios Stamelos

ABSTRACT

Drop out is a phenomenon imparted of complexity, factorial polysynthesis, and diversity of consequences unfortunately negative in nature. Thus, a thorough comprehension and analysis of the factors affecting drop out and the tendency to it, are crucial. In this paper, the latter is examined in an effort to enlighten the causes behind the manifestation of drop out so as appropriate interventions are applied. In this respect, the present work focused on those factors that exert direct or indirect influence of positive or negative nature on the way students cope with university studies, overcome obstacles and value the university experience. The research was conducted at the University of Patras on a student sample with 696 valid questionnaires. The findings indicate that the principal factors behind the tendency to drop out are the students' frustration, the absence from their obligatory academic duties, and dissatisfaction with their cognitive subject. On the contrary, the primary factors decreasing the students' tendency to drop out are the sense of effectiveness in their studies, the perception of gaining valuable things from studying at university, and the creation of good relationships with their fellow students and university teachers.

Keywords: drop out, higher education studies, tendency to drop out, university.

Published Online: November 28, 2022

ISSN: 2736-4534

DOI: 10.24018/ejedu.2022.3.6.493

G. S. Androulakis *

Department of Business Administration,
University of Patras, Greece.

(e-mail: gandroul@upatras.gr)

D. A. Georgiou

Department of Education and Social
Work, University of Patras, Greece.

(e-mail: dgeorgioy@upatras.gr)

P. Kiprianos

Department of Educational Sciences and
Early Childhood Education, University of
Patras, Greece.

(e-mail: kiprian@upatras.gr)

G. Nikolaou

Department of Education and Social
Work, University of Patras, Greece.

(e-mail: gnikolaou@upatras.gr)

G. Stamelos

Department of Education and Social
Work, University of Patras, Greece.

(e-mail: stamelos@upatras.gr)

**Corresponding Author*

I. INTRODUCTION

While it exists continuous pressure of student's obligations and the pursuit of accomplishing the degree, it comes a wide range of emotional and social changes to complete the "picture" of student life (Brooks & DuBois, 1995; Pancer *et al.*, 2000; Perry *et al.*, 2001). Every area of student's life is thus affected, requiring academic, social, and psychological adjustments to the new standards (Robotham & Julian, 2006).

It is crucial to investigate what happens when an imbalance in this adjustment process occurs. At the same time, the gap in this imbalance is a challenge for universities. The student's permanent abandonment of university or somewhat better the transfer to another (Tinto, 1993), constitutes a potentially unfruitful result. In particular, the "institutional departure" expresses the student's transfer from one higher education institution to another while the departure from the "system" (system departure) indicates the definite abandonment of higher education (Tinto, 1993; Ulriksen *et al.*, 2010).

Drop out has unfavorable consequences for the student, the university, and the society as a whole. Specifically, in regard to the student, it constitutes a personal failure while under the social prism, the problem concerns families and also the relationship of the individual with society. Approached from

a political perspective, it calls into question some policies to extend access to higher education, while from an economic scope, it implies wasting resources on an individual, family, and collective basis; this latter in terms of public funding (Stamelos *et al.*, 2021; Stamelos & Paivandi, 2015).

Consequently, the problem of student drop out is crucial for higher education (Roso-Bas *et al.*, 2016; Tinto, 2006, 2017) setting the "bar" of effective and in-time response, strategically high (Alban & Mauricio, 2019; Hillmert *et al.*, 2017; Mujica *et al.*, 2019).

Meanwhile, the research on drop out focuses on one factor's effect or the interaction of more (Astin, 1975; Austin *et al.*, 2005; Kehm *et al.*, 2019; McKenzie & Schweitzer, 2001; Pike & Saupe, 2002; Roso-Bas *et al.*, 2016; Van Bragt *et al.*, 2007, 2011; Van der Hulst & Jansen, 2002).

Along with that, constructs related to drop out such as burnout, emotional intelligence, and engagement, are further examined (Astin, 1975; Kehm *et al.*, 2019; Van Bragt *et al.*, 2007, 2011).

Meanwhile, the tendency to drop out is understood as the estimated probability of suspension of studies, either in the form of a change of cognitive subject or of a permanent withdrawal from the university (Bean, 1982). Indeed, the student's tendency to drop out is an early warning sign of a

real drop out and this connection is emerging steadily (A. F. Cabrera *et al.*, 1993; Respondek *et al.*, 2017).

Regarding the above, the critical approach towards the students' tendency to drop out and the thorough examination of the factors affecting it, is indeed of significance.

In the present work, the tendency to drop out from university studies is examined towards revealing the students' "profile" and the causes accordingly, that due to their nature can be found throughout the paper under the term "personal" factor reflecting the way the students experience, evaluate and confront main aspects of the university life.

In particular, the focus is placed on how students encounter their studies, assess their personal strengths and weaknesses, organize their program, evaluate, and perceive their role, and manage their relationships with their fellow students and university teachers. In this direction, students' way of coping with their university life and academic studies is analyzed under the scope to enlighten further the factors related to students' tendency to drop out.

II. THEORETICAL BACKGROUND

From the very beginning of the formal education system's establishment, drop out has been a critical concern for universities (Aljohani, 2016; Habley *et al.*, 2012; Seidman, 2005; Tinto, 1993). Nevertheless, the theoretical models for the systematic study of the phenomenon were not developed until the early 1970s (Aljohani, 2016; Berger *et al.*, 2012).

In the case of Greece, most drop out research focuses on two key "paths": before admission to higher education and after graduation (Κυπριανός & Κονιόρδος, 2003). The study itself is an intermediate period that intervenes between the two above, indeed of special significance for life (Κυπριανός & Κονιόρδος, 2003; Σταμέλος, 2016).

The problem of drop outs is characterized by a high degree of complexity. This complexity is also reflected in the definitions of the concept, with the central ones documenting a transfer to another university or school (Aina, 2013; Casanova *et al.*, 2018; Heublein, 2014) or the permanent drop out (Casanova *et al.*, 2018; Gury, 2011).

The above complexity is further enhanced considering that drop out is neither a short-term and impulsive decision nor a single factor's influence result. On the contrary, it is a process of various factors' cumulative influence initiating the "departure" from studies (Heublein, 2014).

The first year of studies is the risk period as drop out occurs mostly then (Belloc *et al.*, 2011; Bernardo *et al.*, 2016; Castaño *et al.*, 2004; Willcoxson, 2010). The regular attendance of freshmen facilitates the adaptation and development of their skills so as to harmonize with the requirements of the curriculum (Bernardo *et al.*, 2016; Sabiote & Torres, 2009).

In addition, the importance of students' motivation is highlighted in order to create a favorable perception of the educational quality and to upgrade the cognitive outcomes' level (Duque *et al.*, 2013). Students' commitment to their studies and the consequential ability to meet their academic obligations are interpretive variables of their academic performance (Azevedo *et al.*, 2010; Bernardo *et al.*, 2016; Broadbent & Poon, 2015), related directly to the decision to leave or stay in university (Arco-Tirado *et al.*, 2011; Bernardo

et al., 2016).

How the student copes with his/her studies are an issue of significance towards this decision as there are factors that complicate, hinder, or even frustrate the purpose of the degree accomplishment. Typically, the lack of student satisfaction (Kadar *et al.*, 2018; Sneyers & De Witte, 2017; Suhre *et al.*, 2007) is crucial; a high level of satisfaction is related to a weak tendency to drop out (Duque, 2011), while strong persistence in studies (Lee *et al.*, 2000).

Drop out is encouraged by additional factors such as student's negative self-esteem, anxiety about the academic performance, interpersonal problems, time inefficiency, compulsory course attendance, assignments, and financial resources inadequacy, leading to stress and even burnout (Lin & Huang, 2014; Ribeiro *et al.*, 2018; Salanova *et al.*, 2010).

New demands and growing academic pressure are likely to elicit a patchwork of emotions that may act on students' academic success (Respondek *et al.*, 2017), while the need for feedback on student academic life satisfaction is intensively noted (Douglas *et al.*, 2006).

When satisfaction with the student life has a positive sign then drop out weakens. Indeed, the problems caused by the student's academic and personal life trigger the tendency to drop out (Stamelos *et al.*, 2021).

Of particular interest is the shift of students' interaction with their teachers from the social system to the academic one, under the view that academic integration is not simply identified with good performance but also with the interaction with teachers. However, the two systems that are the academic and the social, are considered separate but interconnected (Tinto, 1993; Ulriksen *et al.*, 2010). In fact, according to Pierre Bourdieu (1984, 1986), we bring with us a series of moods when we engage in social contacts and these lead to how we interpret and make sense of what we experience (Bourdieu, 1984; Bourdieu & Richardson, 1986; Ulriksen *et al.*, 2010).

Accordingly, regular attendance facilitates social interactions and strengthens the links between students, faculty, and the rest of the university staff (Bernardo *et al.*, 2016; Gilardi & Guglielmetti, 2011; McPartland & Jordan, 2001; Willcoxson, 2010). At this point, the concept of "relatedness" is recalled, which represents the student's need to feel connected to fellow students and to experience friendships (Sulea *et al.*, 2015).

Indeed, according to Tinto (1993), the central issue in dropping out of studies is the student's experience within the university based on the academic and social adjustment (Tinto, 1993, 1997). The irregular attendance of the courses and the absence constitute indeed risk factors for drop out (Magen-Nagar & Shachar, 2017; Prevatt & Kelly, 2003).

The quality of education is related to students' perceptions of their teachers' ability, the way they make the lessons interesting, and the structure of the curriculum (Duque *et al.*, 2013).

Meanwhile, the university learning tactics are strongly connected with academic performance (Antoni, 2003; Bernardo *et al.*, 2016; L. Cabrera *et al.*, 2006), while the wrong subject choice is related to the students' withdrawal from their studies (R. Davies & Elias, 2003; Yorke, 1999, 2000; Zajac & Komendant-Brodowska, 2019).

Overall, the way students perceive their learning outcomes, the total university experience, and learning attitudes exert a strong influence on student's satisfaction linked to the tendency to drop out (Duque, 2011).

A reasonable question that arises is whether the problem is related to a specific "category" of students with common characteristics "prone" to drop out. Based on the research by Stamelos (2021) different groups of students are formed at university, some of which are thinking of leaving their studies, regardless of their different backgrounds and motivations (Stamelos *et al.*, 2021).

The influence of the various factors on drop out along with their diverse causal backgrounds verify both the theoretical and practical complexity of the problem. Nevertheless, according to Bernardo *et al.* (2016), the drop out problem is illuminated via the support of models developed and interpretive variables and factors analyzed. In regard to the latter, certain are not related at least directly to the control of the university, i.e., the student's economic and social status, the so-called background variables. Still, both the student and the university need to adapt socially and academically, toward the completion of the degree (Bernardo *et al.*, 2016).

The various theoretical models examine the influence of economic factors on drop out (Bernardo *et al.*, 2016; Donoso & Schiefelbein, 2007; Jensen, 1981), psychological characteristics of students who drop out (Belloc *et al.*, 2011; Bernardo *et al.*, 2016; Fishbein & Ajzen, 1977), sociological variables (Bernardo *et al.*, 2016; Pincus, 1980), the role of the university (Kamens, 1971) and the interactions developed within it (Bernardo *et al.*, 2016; Tinto, 1975). However, the research points out a gap in the differentiation of drop out's interpretive variables, necessary if we take into consideration the different types of drop outs (Aparicio-Chueca *et al.*, 2021).

Drop out in higher education is an issue of high value for both researchers and policymakers; once the exact causes have been identified, the formulation of solutions is the ultimate goal (Aljohani, 2016). In this sense, it would be beneficial when educational organizations intervene via the implementation of targeted strategies on social and economic axes as well as on matters of personal coping with the studies; this in respect to both direct and indirect influences these exert on drop out. The accomplishment of the present work's research purpose illuminates the causal spectrum behind the students' tendency to drop out, with a particular focus on students' personal coping with their studies (personal axis). Towards this goal, the intercorrelations of the latter with the academic, social, institutional, and economic axes are mapped in order to capture the diversity of the effects of the tendency to drop out.

Therefore, in the present work, the composition of the drop out rate is structured mainly by the personal axis supplemented by the academic, institutional, social, and economic axes (Androulakis *et al.*, 2020, 2021). The investigation and configuration of the above correlations contribute to a further understanding of the pathway leading to drop out via a particular focus on "how" the student deals with obstacles met during the university studies, in respect to their academic, social, economic, and institutional nature.

As a result of the above reasoning, the following research questions are configured:

- 1) What is the hierarchical sequence behind the tendency to drop out in regard to students' personal axis?
- 2) What is the hierarchical sequence behind the student's tendency to drop out in regard to the academic and the institutional axis?
- 3) What is the hierarchical sequence behind the tendency to drop out in regard to students' economic axis?
- 4) What is the hierarchical sequence behind the student's tendency to drop out in regard to the social axis?

III. METHODOLOGY

The population of the present work is representative of the Greek geographical distribution consisting of students at the University of Patras that during the research period of May 2019 included 24 Departments belonging to 5 Faculties, with more than 18000 enrolled students.

The questionnaire was answered by 954 students, and after the reliability and validity checks, 696 valid questionnaires emerged. The research was conducted under the auspices of the Laboratory of Management Information Systems and Business Intelligence at the Department of Business Administration of the University of Patras.

The drop out rate adopted in this paper was based on Diaz *et al.* (2016) categorization and Alban & Mauricio (2019), with variables that the literature links to drop out (Alban & Mauricio, 2019; Díaz & De León, 2016). The use of the above variables can be applied to questionnaires investigating the tendency to drop out by certain enrolled students since according to the literature these variables are predictors of student drop out (Duque *et al.*, 2013).

Therefore, the drop out rate consists of 69 elements divided into five-factor axes that are personal, academic, economic, social, and institutional (Androulakis *et al.*, 2020, 2021). The personal axis where the present research focuses consists of 27 items of which 12 were inverted. In addition, all aggregate indicators were calibrated using the item response theory, towards the achievement of the scales' uniformity (Zanon *et al.*, 2016).

For the calculation of the drop out and each subfactor index, the meaning of the items of each category was applied. All indices were normalized. In regard to the reliability of data, Cronbach's alpha is 0.88 for the drop out, 0.80 for the personal factor, 0.76 for the academic, 0.70 for the institutional, 0.72 for the social and 0.87 for the economic factor (Androulakis *et al.*, 2020).

The assessment of the examined factors through self-assessment by the student could be considered a limitation of the research and therefore could be supplemented with more objective measurement tools (Rupp & Zumbo, 2004). However, there is also the approach that the subjective ways of measuring are safe predictors of performance and behavioral intentions, especially in the educational context (Duque, 2011; Lizzio *et al.*, 2002).

IV. NUMERICAL RESULTS

The statistical package R (R Core Team, 2022) was used for data processing, psych and summary tools libraries were used for multivariate analysis (Comtois, 2022; Revelle, 2021), while the reader, ggplot2, and knitr libraries were used

to display the data (Wickham, Chang, *et al.*, 2022; Wickham, Hester, *et al.*, 2022; Xie, 2022). For the hierarchical regression trees, the rpart library was adopted (Milborrow, 2022; Therneau *et al.*, 2018) and for clustering the mclust library (Scrucca *et al.*, 2016).

The analysis of the personal factor is based on the following:

- 1) The effect of the personal factor on the tendency to drop out along with the intercorrelations of its items is analyzed. Hierarchical trees were applied in order to map both the factors that increase as well as decrease the tendency to drop out.
- 2) The effect exerted by the rest factors that apart the drop out index separately that is the academic, the economic, the social, and the institutional items in order to capture the indirect influences that they exert via the personal factor on the tendency to drop out.

The effect of the personal factor items on the tendency to drop out is analyzed in Fig. 1. The variables appeared to have values 1-Strongly Disagree, 2-Strongly Disagree, 3-Disagree, 4-Neutral, 5-Strongly Agree, 6-Agree, 7-Strongly Agree.

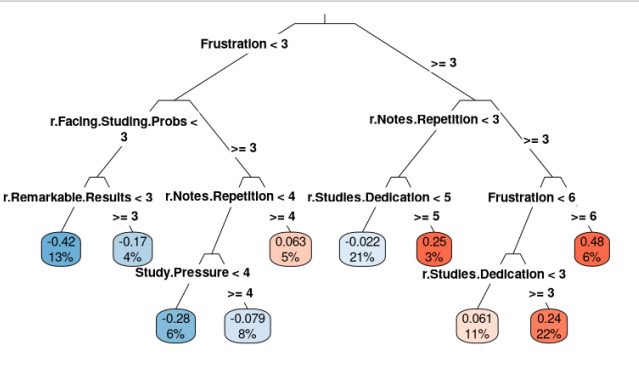


Fig. 1. Hierarchical tree of influence of the factors that make up the personal factor in drop out.

In the hierarchical tree the right direction expresses factors and conditions that increase the tendency to drop out, while the left direction indicates pathways to decrease the tendency on drop out. Therefore, in Fig. 1 it is observed:

- 1) The most crucial element of the personal factor that most affects the tendency to drop out is the frustration (Frustration) of the student.
- 2) The second crucial factor that increases the tendency to drop out is the lack of repetition of the notes for the next lecture leading to further frustration with the studies. On the contrary, the student's effectiveness in facing the problems in the context of his/her studies (Facing Studying Probs) decreases the frustration and the tendency to drop out.
- 3) The third crucial factor in the direction of increasing the tendency to drop out is the lack of student dedication to the Department where his/her studies are contacted (Studies Dedication). On the contrary, the student's sense that he/she gains a lot of valuable things during his/her studies (Remarkable Results) operates against the tendency to drop out.
- 4) It follows the level of the student's interest in learning the course material (Interest Course Material) and the lack of feeling pressure during the daily study (Study Pressure), both opposed to the tendency to drop out.

TABLE I: THE IMPORTANCE OF THE PERSONAL FACTOR ITEMS ON THE DROP OUT TENDENCY

Variable	Items	Importance
Frustration	I feel frustrated with my studies.	29.84
Less interest in studies	I have been less interested in my studies since my studies began.	9.61
Doubt	I doubt the importance of my studies.	9.17
Drop out thought	I have been thinking about giving up my studies because I feel that my strengths are running out.	8.59
Mental exhaustion	I feel mentally exhausted with my studies.	7.88
Emotional drainage	I feel emotionally drained from my studies.	7.41
r. Notes repetition	How often do you repeat notes for the next lecture?	7.29
r. Facing studying probs	I deal with my studies problems effectively.	5.32
r. Studies dedication	The university department I attend deserves my dedication.	3.99
r. Remarkable results	I feel that I have gained a lot of remarkable things during my studies.	2.06
r. Interest course material	How interested are you in learning the course material?	1.33
Study pressure	Everyday study is really a pressure for me	1.28
r. Academic culture agreement	My personal values are in line with the general culture of the department	1.23
r. Repetitive lesson participation	How often have you attended a repetition course or auxiliary course to strengthen comprehension in the course consolidation?	0.88
r. Manage my emotions	I think I can manage my emotions	0.86
r. Study time	How many hours do you spend in a typical week preparing for class (studying, reading, writing, homework, lab work, data analysis, and other academic activities)?	0.71
Understanding emotion	Many times, I find it difficult to understand exactly what I am feeling.	0.48
Exhaustion	I often feel tired, exhausted, and without energy.	0.45
Expressing emotion	I find it difficult to express my feelings in words	0.40
r. Keeping notes frequency	How often do you take or take notes in class.	0.37
r. Parents educ. level	What is the highest level of education of your parents or those who raised you?	0.26
Leisure restriction	The time that my student takes in daily life does not allow me to make personal, family, social demands.	0.22
High school urbanity	The urbanity of the High School area where you graduated was	0.20
r. Self-awareness	I am aware of my strengths and weaknesses	0.18

In Table I clustering was applied for the variables' importance (Scrucca *et al.*, 2016). Two groups of factors are formulated: in the first, the factors with values from 2.06%

up to 29%, and in the second, the factors with weaker importance, less than 1.33%. Comparing the order of factors' importance values in Table I with the factors that appeared in the hierarchical tree of Fig. 1, it emerged that there exist factors showing great importance which do not appear though in the hierarchical tree.

These factors are the reduced interest in studies, doubts about the importance of the studies, thoughts of drop out, and mental exhaustion. The reason for this is that the most important factor “frustration,” is strongly correlated with the above factors and therefore its effect automatically leads them to high values. Therefore, these factors derive from the existence of frustration and do not operate autonomously in order to increase the tendency to drop out.

In Fig. 2 is illustrated the hierarchical tree of the academic factors' effect on the personal axis. It is observed that:

- 1) The most important factor affecting the personal factor is the student's absence from academic duties (Absenteeism from University).
- 2) The second significant factor is the lack of students' satisfaction with the level of studies (Study Level Satisfaction) that negatively influences the personal factor, while the student's satisfaction with the subject of study (Subject Study Satisfaction) works positively on that.
- 3) In the third important level of influence on the personal factor can be found the student's attendance in the classroom without having first completed the reading or the assignments (Incomplete Preparation) which works negatively on the personal factor. Simultaneously, the clarity of the objectives and requirements of the courses (Clarity Goals) can be found at the same level working though positively to the personal factor.

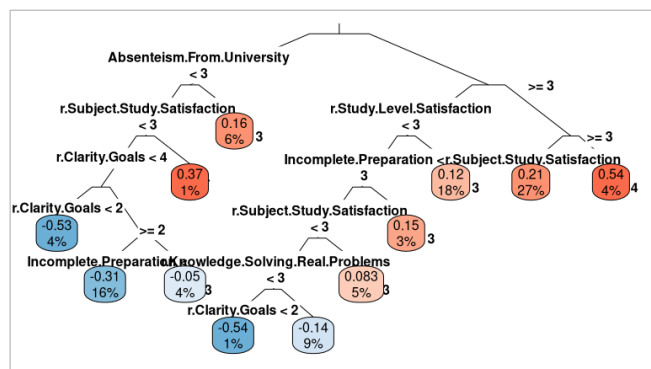


Fig. 2. Hierarchical tree of the influence of the academic axis factors on the personal axis.

In Table II the factors that constitute the academic axis appear in descending order of importance in terms of their effect on the personal factor. It is observed that five groups of factors are created where in the first one the most important factors that appear in the hierarchical tree of Fig. 2 are categorized.

Fig. 3 illustrates the hierarchical tree of the economic axis' effect on the personal factor:

- 1) The most important factor of influence is the student's satisfaction with basic needs (Needs Basic).
- 2) The second most important factor exerting negative influence is the lack of satisfaction with the needs for

education and training (Needs Education), while the satisfaction of entertainment needs (Needs Entertainment) works positively on personal factor.

TABLE II: THE IMPORTANCE OF THE FACTORS THAT STRUCTURE THE ACADEMIC AXIS EXERTING INFLUENCE ON THE PERSONAL AXIS

Variable	Items	Importance
Absenteeism from. University	I am often absent from my duties at university	28.20
r. Subject study satisfaction	Are you satisfied with the subject of your studies?	21.68
r. Clarity goals	During the academic year, to what extent did your professors clearly explain the objectives and requirements of the courses?	11.58
r. Study level satisfaction	What is the degree of your satisfaction with the level of your studies?	10.28
Incomplete preparation	During the current academic year, how often did you come to class without completing your reading or assignments?	7.63
r. Satisfaction dept educ. level	What is your degree of satisfaction with the level of study offered by your department	4.59
Semester absenteeism	How many times have you been absent from class so far this semester?	4.48
r. Knowledge solving real problems	To what extent has your university experience contributed to your knowledge skills and personal development in solving complex real-world problems?	4.43
r. Fair evaluation	My professors' judgment is fair	1.54
r. Workload increase	The workload has increased.	1.32
r. Reward from tutors	My teachers reward my achievements and efforts	0.90
r. Study intensification	I work intensively to meet my student duties.	0.82
r. Grade average	What is the average grade point average of the courses you have taken so far?	0.82
r. Teaching staff level satisfaction	How satisfied are you with the work of the teaching staff and their contribution to the completion of your studies?	0.53
Attempt Univ. entrance	With what effort did you succeed in your introduction?	0.36
Univ. school preference order	In what order of preference was the school you attend?	0.29
r. Tutor feedback completed	During the academic year to what extent did your professors provide feedback details on tests or assignments completed?	0.23
r. Tutor feedback in progress	During the current academic year, to what extent did your trainers give feedback on a project or work in progress?	0.23
r. Success course percentage	What is the percentage of courses you have passed up to now compared to the courses you had to take in the semester you are in?	0.10

In Table III the factors that constitute the economic axis appear in descending order of importance in terms of the impact on the personal axis. It can be observed that four

groups of factors are created where in the first two, the three most important factors are categorized, and also appear in the hierarchical tree of Fig. 3.

TABLE III: THE IMPORTANCE OF THE FACTORS THAT STRUCTURE THE ECONOMIC AXIS EXERTING INFLUENCE ON THE PERSONAL AXIS

Variable	Items	Importance
r. Needs basic	Living conditions to meet basic needs.	25.73
r. Needs education	Living conditions to meet the needs for education and training.	21.19
r. Needs entertainment	Living conditions to meet the needs for entertainment.	20.21
r. Needs housing	Living conditions to satisfy housing needs.	17.76
r. Needs cultural	Living conditions to meet the needs for cultural events.	15.11

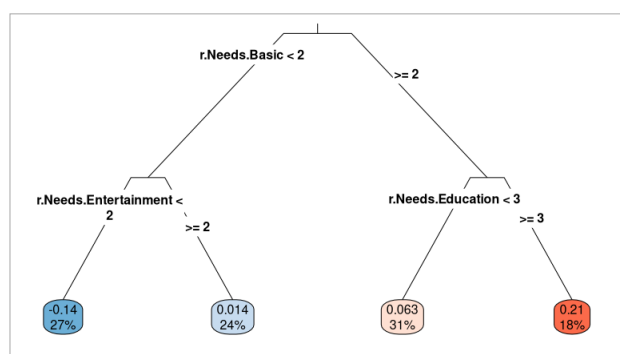


Fig. 3. Hierarchical tree of the influence of the economic axis factors on the personal axis.

Fig. 4 illustrates the hierarchical tree of the social axis' effect on the personal factor:

- 1) The most important factor is the existence of good relations between the student and fellow students (Relationship Fellow). It exerts when exists a positive influence on the personal factor.
- 2) The second important factor acting positively to the personal factor is the existence of good relations between the student and the teachers (Relationship Tutor),
- 3) The third important factor is the cooperation of the student with fellow students in the preparation for the exams or for a test (Cooperation Exams Preparation) that exerts a positive influence on the personal factor.

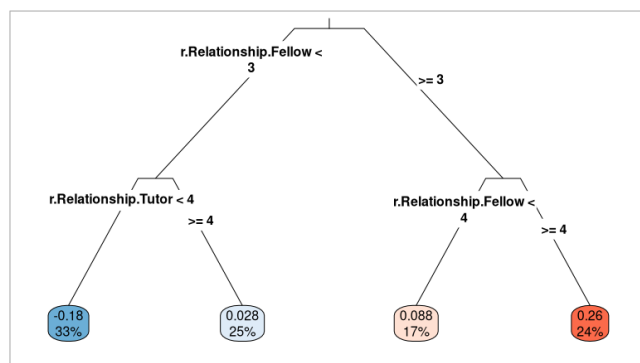


Fig. 4. Hierarchical tree of the influence of the social axis factors on the personal axis.

In Table IV the factors that structure the social axis appear in descending order of importance affecting the personal axis. It is observed that four groups of factors are created where in the first two, the three most important factors are categorized, which are those appearing in the hierarchical tree of Fig. 4.

TABLE IV: THE IMPORTANCE OF THE FACTORS THAT STRUCTURE THE SOCIAL AXIS EXERTING INFLUENCE ON THE PERSONAL AXIS

Variable	Items	Importance
r. Relationship fellow	I have a good relationship with my fellow peers	69.36
r. Relationship tutor	I have a good relationship with my professors.	25.13
r. Cooperation exams preparation	How often have you worked with a fellow student to prepare for exams or a test?	3.85
r. Career plans discussion with tutor	During the current academic year, how often did you discuss your career plans with a faculty member?	1.67

Fig. 5 illustrates the hierarchical tree of the institutional axis' effect on the personal factor:

- 1) The most important factor of influence is the contribution of the university to the academic success of the students (University Support for Success).
- 2) The second most important factor is the lack of satisfaction with the study environment (Learning Infrastructure Satisfaction) that exerts a negative influence on personal factor while the satisfaction with the equipment in the student environment (Learning Equipment Satisfaction) operates positively.

In Table V the factors that structure the social axis appear in descending order of importance in terms of their effect on the personal axis. It is observed that six groups of factors are created where in the first two, the three most important factors are categorized, which are the ones that appear in the hierarchical tree of Fig. 5.

TABLE V: THE IMPORTANCE OF THE FACTORS THAT STRUCTURE THE INSTITUTIONAL AXIS EXERTING INFLUENCE ON THE PERSONAL AXIS

Variable	Items	Importance
r. University support for success	To what extent does the University provide assistance for students' academic success?	35.88
r. Learning equipment satisfaction	The study environment - equipment - is satisfactory	16.17
r. Learning infrastructure satisfaction	The study environment -building infrastructure facilities- is satisfactory	15.92
r. Univ. learning support	The study environment -building infrastructure facilities- is satisfactory	8.46
r. Function infrastructure satisfaction	How much satisfied you are with the entire operating infrastructure of your department?	8.28
r. Support for prosperity	To what extent does the University provide support for your overall well-being (recreation, health care, counseling, etc.)?	7.22
r. Univ. encouragement in campus events	To what extent does the University favor the participation in activities on campus (sports, art, etc.)?	5.85
r. Secretarial service satisfaction	To what extent are you satisfied with your departments' secretarial services in relation to the service of the issues that concern you?	1.73
r. Bureaucracy	There is a lot of bureaucracy in my department	0.48

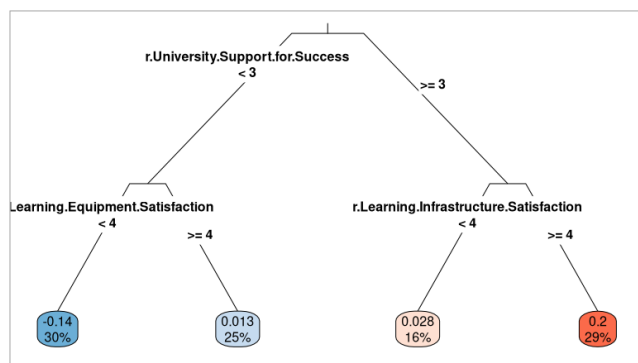


Fig. 5. Hierarchical tree of the influence of the institutional axis factors on the personal axis.

V. DISCUSSION

The complexity of drop out is addressed through the examination of different variables, phenomena, and factors and the categorization of the latter (Díaz & De León, 2016). Though, the answer to the question of how the different structures interact with each other in predicting student drop out needs further analysis (Bardach *et al.*, 2019).

In the present research, the hierarchical sequence of the personal factor's structural elements and their interactions towards the tendency to drop out were examined. That is, the personal way that the student copes with his/her academic affairs, perceives and interprets his/her studies, overcomes the obstacles, and utilizes the positive elements of the university experience, were configured. The analysis of the pathway of how the students treat university studies as a whole raises meaningful signals toward capturing the tendency to drop out.

Regarding the first Research Question concerning the influence of the personal axis on the tendency to drop out, the main findings can be summarized as follows:

- 1) The main elements of the personal factor that increase the tendency to drop out are:
 - a) the student's frustration,
 - b) the irregular repetition of the student's notes for the next lecture, and
 - c) the reduced student's commitment to the Department where his/her studies are contacted.
- 2) The main elements of the personal factor that reduce the tendency to drop out are:
 - a) the student's sense of effectiveness in his/her studies,
 - b) the student's feeling that he/she is gaining a lot of valuable things while studying,
 - c) The interest in learning the course material, and
 - d) The lack of pressure during the daily study.

In addition, considering the influence of the academic axis on how the student deals with academic issues, conclusions are drawn about the indirect effect on the personal axis. Therefore, in regard to the second Research Question regarding the influence of the academic and the institutional axis on the tendency to drop out, it emerged that the most critical factor exerting vital influence on the personal way the student treats university studies is his/her absence of the obligatory academic duties. This finding is in line with the literature according to which the student's absenteeism from the university is closely intertwined with the intention to drop

out and therefore the absence consists of an "omen" of drop out. Indeed, the importance of student participation in courses and assignments is constantly emphasized mainly via the mechanism of social and academic adjustment at university (Bernardo *et al.*, 2016; Tinto, 1997). Student presence in lectures is approached as an emotional and pedagogical process (Hovdhaugen & Aamodt, 2009; Yorke & Longden, 2004), while strengthening the student's stay at university (Berliner, 2005; Darling-Hammond & Youngs, 2002; Fenstermacher & Richardson, 2005; Joyce *et al.*, 2003; Magen-Nagar & Shachar, 2017; Wayne & Youngs, 2003). In contrast, reduced lecture attendance (class attendance) is strongly associated with drop out (Bernardo *et al.*, 2016).

A further finding of the present work is that students' dissatisfaction with the level of studies increases the tendency to drop out. On the contrary, the student's satisfaction with the subject of studies emerged to play a protective role against the tendency to drop out. This finding is in line with Georg (2009) research where the student's weak commitment to the subject of studies constitutes the primary reason for not remaining in the studies' context (Georg, 2009). In addition, according to the research of Duque *et al.* (2013) the wrong primary choice of the study subject is a principal reason in regard to the tendency to drop out, as this choice fails to meet expectations and academic motivations (Duque *et al.*, 2013).

Remaining in the context of "mapping" the correlations between the academic issues and the way the student copes with his/her studies, the course attendance after completing the reading and the assignments, as well as the clarity of the course objectives and requirements emerged as significant factors. This is in line with the literature where it is documented that when students come to class unprepared for learning and without having completed their work, their intention to drop out increases. Accordingly, the research of Zajac and Komendant-Brodowska (2019) demonstrated that insufficient course description is a critical factor that triggers students' decision to drop out (Zajac & Komendant-Brodowska, 2019).

An additional finding in the present research is that university support towards the student's academic achievement plays a critical eliminating role in the drop out tendency. This is in accordance with the literature where it is indicated that student support services exert a significant influence in terms of both social and academic adjustment (Bernardo *et al.*, 2016; Braxton *et al.*, 2000).

In regard to the third Research Question of the present work concerning the influence of the economic axis on the tendency to drop out, it emerged that students' lack of satisfaction with their basic living needs increases the tendency to drop out. This finding is in line with Bennett's (2003) research where students' financial difficulties have a strong impact on their decision to stay or drop out. In fact, in the case where the students had low grades or substantial financial problems, the characteristic of self-esteem played a critical role towards the tendency to drop out (Bennett, 2003). Similarly, according to Davies (2000) and Martinez (2001) issues related to students' financial difficulties have a greater impact on the "withdrawal" from studies compared to aspects of academic experience that belong mainly to control of the University (Bennett, 2003; P. Davies, 2000; Martinez, 2001).

In addition, in the present work emerged that the lack of students' ability to meet their needs for education increases the tendency to drop out. On the contrary, the satisfaction of the student's needs for entertainment plays a limiting role in the tendency to drop out of studies. This finding is in line with the approach that students enter into a process of comparing the financial costs of staying within their studies and the benefits deriving (Aljohani, 2016; Habley *et al.*, 2012; Tinto, 1993). Indeed, as cited by Habley *et al.* (2012) the above expenses indirectly include the costs of time and energy that students devote to external obligations along with the requirements that exist within the educational context (Aljohani, 2016; Habley *et al.*, 2012).

In terms of the fourth research question regarding the influence exerted by the social axis on students' tendency to drop out, it arises that the lack of good relationships between the students and their fellow students increases the tendency to drop out. This finding is in accordance with the literature where the student's relationship with his/her fellow students throughout the years at university is considered to be more important than the already existing friendships. Actually, they are perceived by the student as the most important source of support during particularly the first year of study (Holdsworth *et al.*, 2018). Remaining in the same context, in the present research also emerged that students' cooperation in preparing for exams or for a test weakens the tendency to drop out and encourages retention within the university.

This finding is supported by the importance of academic and social adjustment that incorporates effective personal learning strategies such as regularly reviewing lecture notes, preparing assignments, and collaborating with fellow students (Bennett, 2003). Moreover, the function of students in groups is significant because it strengthens their motivation and the development of positive academic experience translated into satisfaction, commitment, and enthusiasm, transmitted indeed to all team members (Bakker *et al.*, 2006).

An additional finding of the present work is the importance of developing apart from their fellow students, good relationships with their professors as well, acting in turn protectively towards drop out, reminding of a retaining "net" within the educational framework. This is in line with the approach of the teacher's role as crucial in terms of the quality of the teaching work, the encouragement of the student's personal integration, and his/her expectations for improvement (Magen-Nagar & Shachar, 2017). Similarly, in the research by Bernardo *et al.* (2016), it is confirmed that positive relationships between students and teachers contribute positively to academic outcomes by encouraging their learning autonomy and clarifying what exactly is required of their student role (Backović *et al.*, 2012).

The importance of good relationships between students with their teachers in the context of the desired completion of the degree is included in the theoretical models of Spady (1970, 1971) and Tinto (1975) where student's interaction with teachers is a significant element of the student's social and academic integration in the educational organization (Spady, 1970, 1971; Tinto, 1975). Indeed, the interaction between students and teachers even outside the classroom can increase the student's level of commitment to the educational organization, minimizing meanwhile the risk of dropping out (Aljohani, 2016; Pascarella, 1980).

VI. CONCLUSIONS AND FURTHER RESEARCH

The phenomenon of drop out is not simple; instead, it is dominated by theoretical and practical diversity (Casanova *et al.*, 2018; Zajac & Komendant-Brodowska, 2019). Therefore, a thorough understanding of the problem imposes the need to configure the "paths" leading to either student's "departure" or "stay" at university (Casanova *et al.*, 2018; Dias *et al.*, 2011; Esteban García *et al.*, 2016). Therefore, focus needs to be placed on the effects exerted by the diverse factors that push students in one direction or another, allowing in turn targeted interventions to occur toward eliminating the risk factors (Casanova *et al.*, 2018).

In this respect, the present work focused on central factors that directly or indirectly influence positively or negatively the way the student copes with his/her university studies. This "mechanism" revealed testifies in turn, its impact on the tendency to drop out, strongly related to the final decision to stay or leave the university.

Therefore, the present work outlines that the main factors increasing the student's tendency to drop out are the following: student's frustration, absence from the obligatory academic duties, dissatisfaction with the subject and the level of studies, non-regular repetition of the notes for the next lecture and a reduced sense of commitment to the university department. On the contrary, the factors that emerged to decrease students' tendency to drop out are the sense of effectiveness in the studies, the feeling that valuable things are gained from studying in university, the existence of good relationships with fellow students and university teachers, the interest in the material of the course and the lack of feeling pressure during the daily study.

The present research contributes to the theoretical understanding of the "mosaic" made up from various influences of various factors that significantly affect the way the student copes with the university studies, perceives them, overcomes obstacles, and values the university experience. The way of coping with the studies emerged as a significant factor towards the tendency to drop out; in the case of effective coping, the tendency to drop out weakens while in the opposite circumstance where the risk factors dominate the "safety net" that tends to retain the students in their studies, is eroded.

Accordingly, the practical interventions could consider the above effects on university drop out prioritizing the academic, social, economic, and institutional matters that exert influence of direct or indirect nature, on the way the students treat their studies, preventing thus the tendency to drop out. Therefore, the university regarding student retention could intervene in issues that at first glance appear directly unrelated to its competency.

To conclude, it is important further emphasis is placed on strategies to strengthen the mechanism students need in order to cope effectively with the various aspects of their studies and become part of a positive university experience. The ultimate goal is that students dismiss the thought of dropping out, a thought so closely linked to the actual drop out.

In future research, the tendency to drop out could be compared with the actual drop out rate via a mixed research methodology, utilizing a sample of students who have already dropped out.

REFERENCES

- Aina, C. (2013). Parental background and university drop out in Italy. *Higher Education*, 65(4), 437–456. <https://doi.org/10.1007/s10734-012-9554-z>.
- Alban, M., & Mauricio, D. (2019). Predicting university drop out through data mining: a systematic literature. *Indian Journal of Science and Technology*, 12(4), 1–12. <https://doi.org/10.17485/ijst/2019/v12i4/139729>.
- Aljohani, O. (2016). A comprehensive review of the major studies and theoretical models of student retention in higher education. *Higher Education Studies*, 6(2), 1–18. <https://doi.org/10.5539/hes.v6n2p1>.
- Androulakis, G. S., Georgiou, D. A., Kiprianos, P., & Stamelos, G. (2020). Examining the sequence of factors affecting student's tendency to drop out: a case study in Greece. *International Journal of Education*, 12(4), 107–131. <https://doi.org/10.5296/ije.v12i4.17835>.
- Androulakis, G. S., Georgiou, D. A., Kiprianos, P., & Stamelos, G. (2021). The role of the academic factor in student's tendency to university drop out. *Journal of Education and Human Development*, 10(1), 1–18. <http://dx.doi.org/10.15640/jehd.v10n1a5>.
- Antoni, E. J. (2003). *Alumnos universitarios: el por qué de sus éxitos y fracasos: investigación que fundamenta una tesis doctoral*. Miño y Dávila [University students: the reason for their successes and failures: research that bases a doctoral thesis].
- Aparicio-Chueca, P., Domínguez-Amorós, M., & Maestro-Yarza, I. (2021). Beyond university drop out. An approach to university transfer. *Studies in Higher Education*, 46(3), 473–484. <https://doi.org/10.1080/03075079.2019.1640671>.
- Arco-Tirado, J. L., Fernández-Martin, F. D., & Fernández-Balboa, J.-M. (2011). The impact of a peer-tutoring program on quality standards in higher education. *Higher Education*, 62(6), 773–788. <https://doi.org/10.1007/s10734-011-9419-x>.
- Astin, A. W. (1975). *Preventing Students from Dropping Out*. Jossey-Bass. <http://lib.ugent.be/catalog/rug01:001365957>.
- Austin, E. J., Evans, P., Goldwater, R., & Potter, V. (2005). A preliminary study of emotional intelligence, empathy, and exam performance in first year medical students. *Personality and Individual Differences*, 39(8), 1395–1405. <https://doi.org/10.1016/j.paid.2005.04.014>.
- Azevedo, R., Johnson, A., Chauncey, A., & Burkett, C. (2010). *self-regulated learning with meta tutor: advancing the science of learning with meta cognitive tools BT-new science of learning: cognition, computers and collaboration in education* (M. S. Khine & I. M. Saleh (eds.): pp. 225–247). Springer New York. https://doi.org/10.1007/978-1-4419-5716-0_11.
- Backović, D. V., Ilić Živojinović, J., Maksimović, J., & Maksimović, M. (2012). Gender differences in academic stress and burnout among medical students in final years of education. *Psychiatria Danubina*, 24(2), 175–181.
- Bakker, A. B., Emmerik, H. van, & Euwema, M. C. (2006). Crossover of burnout and engagement in work teams. *Work and Occupations*, 33(4), 464–489. <https://doi.org/10.1177/0730888406291310>.
- Bardach, L., Lüftenegger, M., Oczlon, S., Spiel, C., & Schober, B. (2019). Context-related problems and university students' drop out intentions: the buffering effect of personal best goals. *European Journal of Psychology of Education*, 35, 477–493. <https://doi.org/10.1007/s10212-019-00433-9>.
- Bean, J. P. (1982). Student attrition, intentions, and confidence: Interaction effects in a path model. *Research in Higher Education*, 17(4), 291–320. <https://doi.org/10.1007/BF00977899>.
- Belloc, F., Maruotti, A., & Petrella, L. (2011). How individual characteristics affect university students drop-out: a semiparametric mixed-effects model for an Italian case study. *Journal of Applied Statistics*, 38(10), 2225–2239. <https://doi.org/10.1080/02664763.2010.545373>.
- Bennett, R. (2003). Determinants of undergraduate student drop out rates in a university business studies department. *Journal of Further and Higher Education*, 27(2), 123–141. <https://doi.org/10.1080/030987703200065154>.
- Berger, J. B., Blanco-Ramírez, G., & Lyon, S. (2012). Past to present: A historical look at retention. In A. Seidman (Ed.), *College Student Retention: Formula for Student Success*, 7–34. Lanham, MD: Rowman & Littlefield.
- Berliner, D. C. (2005). The near impossibility of testing for teacher quality. *Journal of Teacher Education*, 56(3), 205–213. <https://doi.org/10.1177/0022487105275904>.
- Bernardo, A., Esteban, M., Fernández, E., Cervero, A., Tuero, E., & Solano, P. (2016). Comparison of personal, social, and academic variables related to university drop-out and persistence. *Frontiers in Psychology*, 7, 1610. <http://dx.doi.org/10.3389/fpsyg.2016.01610>.
- Bourdieu, P. (1984). A social critique of the judgement of taste. *Traducido Del Francés Por R. Nice. Londres, Routledge*.
- Bourdieu, P., & Richardson, J. G. (1986). Handbook of theory and research for the sociology of education. *The Forms of Capital*, 241, 258.
- Braxton, J. M., Milem, J. F., & Sullivan, A. S. (2000). The influence of active learning on the college student departure process: Toward a revision of Tinto's theory. *The Journal of Higher Education*, 71(5), 569–590. <https://doi.org/10.1080/00221546.2000.11778853>.
- Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *The Internet and Higher Education*, 27, 1–13. <https://doi.org/https://doi.org/10.1016/j.iheduc.2015.04.007>.
- Brooks, J. H., & DuBois, D. L. (1995). Individual and environmental predictors of adjustment during the first year of college. *Journal of College Student Development*, 34(6). <https://psycnet.apa.org/record/1996-12954-001>.
- Cabrera, A. F., Nora, A., & Castañeda, M. B. (1993). College persistence. *The Journal of Higher Education*, 64(2), 123–139. <https://doi.org/10.1080/00221546.1993.11778419>.
- Cabrera, L., Bethencourt, J. T., Pérez, P. A., & Afonso, M. G. (2006). *El problema del abandono de los estudios universitarios* [The problem of university dropout]. http://www.uv.es/RELIEVE/v12n2/RELIEVEv12n2_1eng.htm.
- Casanova, J. R., Cervero Fernández-Castañón, A., Núñez Pérez, J. C., Almeida, L. S., & Bernardo Gutiérrez, A. B. (2018). Factors that determine the persistence and drop out of university students [Factores determinantes de la permanencia y abandono de los estudiantes universitarios]. *Psicothema*, 30(4), 408–414. <https://doi.org/10.7334/psicothema2018.155>.
- Castaño, E., Gallón, S., Gómez, K., & Vásquez, J. (2004). Deserción estudiantil universitaria: una aplicación de modelos de duración. [University student desertion: an application of duration models]. *Lecturas de Economía*, 60, 39–65.
- Comtois, D. (2022). *summary tools: Tools to Quickly and Neatly Summarize Data*. <https://github.com/dcomtois/summarytools>.
- Darling-Hammond, L., & Youngs, P. (2002). Defining “highly qualified teachers”: What does “scientifically-based research” actually tell us? *Educational Researcher*, 31(9), 13–25. <https://doi.org/10.3102%2F0013189X031009013>.
- Davies, P. (2000). *Student retention in further education: a problem of quality or of student finance?* <https://core.ac.uk/download/pdf/4152585.pdf>.
- Davies, R., & Elias, P. (2003). *Dropping out: A study of early leavers from higher education*. Citeseer.
- Dias, D., Marinho-Araujo, C., Almeida, L. S., & Amaral, A. (2011). The democratization of access and success in higher education. *Higher Education Management and Policy*, 23(1), 1–20. <https://doi.org/10.1787/hemp-23-5kgglbdlrptg>.
- Díaz, P., & De León, A. T. (2016). Design and validation of a questionnaire to analyze University drop out-CADES. *World*, 3(2), 267–280. <https://doi.org/10.22158/wjer.v3n2p267>.
- Donoso, S., & Schiefelbein, E. (2007). Análisis de los modelos explicativos de retención de estudiantes en la universidad: una visión desde la desigualdad social [Analysis of explicative models of student's retention at the University: A vision from the social inequality]. *Estudios Pedagógicos (Valdivia)*, 33(1), 7–27.
- Douglas, J., Douglas, A., & Barnes, B. (2006). Measuring student satisfaction at a UK university. *Quality Assurance in Education*, 14(3), 251–267.
- Duque, C. (2011). Student's cocreation, learning outcomes, satisfaction and drop out intentions. *Econ. Res. Educ*, 6, 448–459. <http://2011.economicsofeducation.com/malaga2011/duque.pdf>.
- Duque, L. C., Duque, J. C., & Suriñach, J. (2013). Learning outcomes and drop out intentions: an analytical model for Spanish universities. *Educational Studies*, 39(3), 261–284. <https://doi.org/10.1080/03055698.2012.724353>.
- Esteban García, M., Bernardo Gutiérrez, A. B., & Rodríguez-Muñoz, L. J. (2016). Permanencia en la universidad: la importancia de un buen comienzo. *Aula Abierta*, 44(1), 1–6. <https://doi.org/https://doi.org/10.1016/j.aula.2015.04.001>.
- Fenstermacher, G. D., & Richardson, V. (2005). On making determinations of quality in teaching. *Teachers College Record*, 107(1), 186–213. <http://www-personal.umich.edu/~gfenster/teaqual14ss.PDF>.
- Fishbein, M., & Ajzen, I. (1977). *Belief, attitude, intention, and behavior: An introduction to theory and research*. <https://philarchive.org/archive/FISBAI>.
- Georg, W. (2009). Individual and institutional factors in the tendency to drop out of higher education: a multilevel analysis using data from the Konstanz Student Survey. *Studies in Higher Education*, 34(6), 647–661. <https://doi.org/10.1080/03075070802592730>.
- Gilardi, S., & Guglielmetti, C. (2011). University Life of non-traditional

- students: engagement styles and impact on attrition. *The Journal of Higher Education*, 82(1), 33–53. <https://doi.org/10.1080/00221546.2011.11779084>.
- 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>.
- Habley, W. R., Bloom, J. L., & Robbins, S. (2012). *Increasing persistence: Research-based strategies for college student success*. John Wiley & Sons.
- 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>.
- Hillmert, S., Groß, M., Schmidt-Hertha, B., & Weber, H. (2017). Informational environments and college student drop out. In *Informational Environments* (pp. 27–52). Springer.
- 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.
- Hovdhaugen, E., & Aamodt, P. O. (2009). Learning environment: Relevant or not to students' decision to leave university? *Quality in Higher Education*, 15(2), 177–189. <https://doi.org/10.1080/13538320902995808>.
- Jensen, E. L. (1981). Student financial aid and persistence in college. *The Journal of Higher Education*, 52(3), 280–294. <https://doi.org/10.1080/00221546.1981.11780143>.
- Joyce, B., Weil, M., & Calhoun, E. (2003). *Models of teaching*.
- Kadar, M., Sarraipa, J., Guevara, J. C., & Restrepo, E. G. y. (2018). An integrated approach for fighting drops out and enhancing students' satisfaction in higher education. *Proceedings of the 8th International Conference on Software Development and Technologies for Enhancing Accessibility and Fighting Info-Exclusion*, 240–247. <https://doi.org/10.1145/3218585.3218667>.
- Kamens, D. H. (1971). The college "charter" and college size: effects on occupational choice and college attrition. *Sociology of Education*, 44(3), 270–296. <https://doi.org/10.2307/2111994>.
- Kehm, B. M., Larsen, M. R., & Sommersel, H. B. (2019). Students drop out from universities in Europe: A review of empirical literature. *Hungarian Educational Research Journal*, 9(2), 147–164. <https://doi.org/10.1556/063.9.2019.1.18>.
- Lee, G., Jolly, N., Kench, P., & Gelonesi, B. (2000). Factors related to student satisfaction with university. *Proceedings of the Fourth Pacific Rim-First Year in Higher Education Conference: Creating Futures for a New Millennium*, 1–8.
- Lin, S.-H., & Huang, Y.-C. (2014). Life stress and academic burnout. *Active Learning in Higher Education*, 15(1), 77–90.
- Lizzio, A., Wilson, K., & Simons, R. (2002). University students' perceptions of the learning environment and academic outcomes: implications for theory and practice. *Studies in Higher Education*, 27(1), 27–52. <https://doi.org/10.1080/03075070120099359>.
- Magen-Nagar, N., & Shachar, H. (2017). Quality of teaching and drop out risk: A multi-level analysis. *Journal of Education for Students Placed at Risk (JESPAR)*, 22(1), 9–24. <https://doi.org/10.1080/10824669.2016.1242069>.
- Martinez, P. (2001). *Improving student retention and achievement: what do we know and what do we need to find out? LSDA reports*. ERIC.
- McKenzie, K., & Schweitzer, R. (2001). Who succeeds at university? Factors predicting academic performance in first year Australian university students. *Higher Education Research & Development*, 20(1), 21–33. <https://doi.org/10.1080/07924360120043621>.
- McPartland, J., & Jordan, W. (2001). *Essential components of high school dropout prevention reforms*. <https://escholarship.org/content/qt0g10k4nz/qt0g10k4nz.pdf?t=msmd50>.
- Milborrow, S. (2022). *rpart.plot: Plot rpart Models: An Enhanced Version of plot.rpart* (R package version 3.1.1). <http://www.milbo.org/rpart-plot/index.html>.
- Mujica, A. D., Villalobos, M. V. P., Gutiérrez, A. B. B., Fernández-Castañón, A. C., & González-Piñeda, J. A. (2019). Affective and cognitive variables involved in structural prediction of university drop out. *Psicothema*, 31(4), 429–436. <https://doi.org/10.7334/psicothema2019.124>.
- Pancer, S. M., Hunsberger, B., Pratt, M. W., & Alisat, S. (2000). Cognitive complexity of expectations and adjustment to university in the first year. *Journal of Adolescent Research*, 15(1), 38–57.
- Pascarella, E. T. (1980). Student-faculty informal contact and college outcomes. *Review of Educational Research*, 50(4), 545–595.
- Perry, R. P., Hladkyj, S., Pekrun, R. H., & Pelletier, S. T. (2001). Academic control and action control in the achievement of college students: A longitudinal field study. *Journal of Educational Psychology*, 93(4), 776.
- Pike, G. R., & Saupe, J. L. (2002). Does high school matter? An analysis of three methods of predicting first-year grades. *Research in Higher Education*, 43(2), 187–207. <https://doi.org/10.1023/A:1014419724092>.
- Pincus, F. (1980). The false promises of community colleges: class conflict and vocational education. *Harvard Educational Review*, 50(3), 332–361. <https://doi.org/10.17763/haer.50.3.y733663386302231>.
- Prevatt, F., & Kelly, F. D. (2003). Dropping out of school: A review of intervention programs. *Journal of School Psychology*, 41(5), 377–395. [https://doi.org/10.1016/S0022-4405\(03\)00087-6](https://doi.org/10.1016/S0022-4405(03)00087-6).
- R Core Team. (2022). *R: A Language and environment for statistical computing*. <https://www.r-project.org/>.
- Respondek, L., Seufert, T., Stupnisky, R., & Nett, U. E. (2017). Perceived academic control and academic emotions predict undergraduate university student success: examining effects on drop out intention and achievement. In *Frontiers in Psychology*, 8, 243. <https://www.frontiersin.org/article/10.3389/fpsyg.2017.00243>.
- Revelle, W. (2021). *Psych: Procedures for psychological, psychometric, and personality research*. <https://personality-project.org/r/psych/>.
- Ribeiro, Í. J. S., Pereira, R., Freire, I. V., de Oliveira, B. G., Casotti, C. A., & Boery, E. N. (2018). Stress and quality of life among university students: A systematic literature review. *Health Professions Education*, 4(2), 70–77.
- Robotham, D., & Julian, C. (2006). Stress and the higher education student: a critical review of the literature. *Journal of Further and Higher Education*, 30(02), 107–117.
- Roso-Bas, F., Jiménez, A. P., & García-Buades, E. (2016). Emotional variables, drop out and academic performance in Spanish nursing students. *Nurse Education Today*, 37, 53–58. <https://doi.org/10.1016/j.nedt.2015.11.021>.
- Rupp, A. A., & Zumbo, B. D. (2004). A note on how to quantify and report whether IRT parameter invariance holds: When Pearson correlations are not enough. *Educational and Psychological Measurement*, 64(4), 588–599. <https://doi.org/10.1177/0013164403261051>.
- Sabiote, C. R., & Torres, L. H. (2009). Análisis correlacional-predictivo de la influencia de la asistencia a clase en el rendimiento académico universitario. Estudio de caso en una asignatura [Co-relational-predictive analysis about the influence of the attendance to class in the academic university achievement: Study of a case in a subject]. *Profesorado. Revista de Currículum y Formación de Profesorado*, 13(2), 1–13. <https://www.redalyc.org/pdf/567/56711798017.pdf>.
- Salanova, M., Schaufeli, W. B., Martínez, I. M., & Bresó, E. (2010). How obstacles and facilitators predict academic performance: The mediating role of study burnout and engagement. *Anxiety, Stress & Coping*, 23(1), 53–70.
- Scrucca, L., Fop, M., Murphy, T. B., & Raftery, A. E. (2016). mclust 5: clustering, classification and density estimation using Gaussian finite mixture models. *The R Journal*, 8(1), 205–233. <https://journal.r-project.org/archive/2016-1/scrucca-fop-murphy-et-al.pdf>.
- Seidman, A. (2005). *College student retention: Formula for student success*. Greenwood Publishing Group.
- Sneyers, E., & De Witte, K. (2017). The interaction between drop out, graduation rates and quality ratings in universities. *Journal of the Operational Research Society*, 68(4), 416–430. <https://doi.org/10.1057/jors.2016.15>.
- Spady, W. G. (1970). Drop outs from higher education: An interdisciplinary review and synthesis. *Interchange*, 1(1), 64–85. <https://doi.org/10.1007/BF02214313>.
- Spady, W. G. (1971). Drop outs from higher education: Toward an empirical model. *Interchange*, 2(3), 38–62. <https://link.springer.com/content/pdf/10.1007/BF02282469.pdf>.
- Stamelos, G., Kiprianos, P., Evangelakou, P., & Kavasakalis, A. (2021). *Comprendre et prévenir l'abandon étudiant* [Understanding and preventing student dropout]. *Recherche En Éducation*, 22, 1–23.
- Stamelos, G., & Paivandi, S. (2015). Access to higher education in southern Europe. *Academia*, 5(1), 1–17.
- Suhre, C. J. M., Jansen, E. P. W. A., & Harskamp, E. G. (2007). Impact of degree program satisfaction on the persistence of college students. *Higher Education*, 54(2), 207–226. <https://doi.org/10.1007/s10734-005-2376-5>.
- Sulea, C., Van Beek, I., Sarbescu, P., Virga, D., & Schaufeli, W. B. (2015). Engagement, boredom, and burnout among students: Basic need satisfaction matters more than personality traits. *Learning and Individual Differences*, 42, 132–138.
- Therneau, T., Atkinson, B., & Ripley, B. (2018). *rpart: Recursive partitioning and regression trees (R package)*. <https://cran.r-project.org/package=rpart>.
- Tinto, V. (1975). Drop out from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89–125. <https://doi.org/https://doi.org/10.3102/2F00346543045001089>.

- Tinto, V. (1993). *Leaving College*. (2nd Edn.) Chicago and London. The University of Chicago Press.
- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *The Journal of Higher Education*, 68(6), 599–623. <https://www.jstor.org/stable/2959965>.
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention: Research, Theory & Practice*, 8(1), 1–19. <https://doi.org/10.2190%2F4YNU-4TMB-22DJ-AN4W>.
- Tinto, V. (2017). Through the eyes of students. *Journal of College Student Retention: Research, Theory & Practice*, 19(3), 254–269. <https://doi.org/10.1177/1521025115621917>.
- Ulriksen, L., Madsen, L. M., & Holmegaard, H. T. (2010). What do we know about explanations for drop out/opt out among young people from STM higher education programs? *Studies in Science Education*, 46(2), 209–244. <https://doi.org/10.1080/03057267.2010.504549>.
- Van Bragt, C. A. C., Bakx, A. W. E. A., Bergen, T. C. M., & Croon, M. A. (2011). Looking for students' personal characteristics predicting study outcome. *Higher Education*, 61(1), 59–75. <https://doi.org/10.1007/s10734-010-9325-7>.
- Van Bragt, C. A. C., Bakx, A. W. E. A., Van der Sanden, J. M. M., & Croon, M. A. (2007). Students' approaches to learning when entering higher education: Differences between students with senior general secondary and senior secondary educational backgrounds. *Learning and Individual Differences*, 17(1), 83–96. <https://doi.org/10.1016/j.lindif.2007.02.003>.
- Van der Hulst, M., & Jansen, E. (2002). Effects of curriculum organization on study progress in engineering studies. *Higher Education*, 43(4), 489–506. <https://doi.org/10.1023/A:1015207706917>.
- Wayne, A. J., & Youngs, P. (2003). Teacher characteristics and student achievement gains: A review. *Review of Educational Research*, 73(1), 89–122. <https://doi.org/10.3102%2F00346543073001089>.
- Wickham, H., Chang, W., Henry, L., Pedersen, T. L., Takahashi, K., Wilke, C., Woo, K., Yutani, H., & Dunnington, D. (2022). *ggplot2: Create Elegant Data Visualizations Using the Grammar of Graphics*. <https://cran.r-project.org/package=ggplot2>.
- Wickham, H., Hester, J., & Bryan, J. (2022). *readr: Read Rectangular Text Data*. <https://cran.r-project.org/package=readr>.
- Willcoxson, L. (2010). Factors affecting intention to leave in the first, second and third year of university studies: a semester-by-semester investigation. *Higher Education Research & Development*, 29(6), 623–639. <https://doi.org/10.1080/07294360.2010.501071>.
- Xie, Y. (2022). *knitr: A general-purpose package for dynamic report generation in R*. <https://yihui.org/knitr/>.
- Yorke, M. (1999). *Leaving early: Undergraduate non-completion in the United Kingdom*. London: Falmer Press.
- Yorke, M. (2000). The quality of the student experience: what can institutions learn from data relating to non-completion? *Quality in Higher Education*, 6(1), 61–75. <https://doi.org/10.1080/13538320050001072>.
- Yorke, M., & Longden, B. (2004). *Retention and student success in higher education*. McGraw-Hill Education (UK).
- Zajac, T. Z., & Komendant-Brodowska, A. (2019). Premeditated, dismissed and disenchanted: higher education drop outs in Poland. *Tertiary Education and Management*, 25(1), 1–16. <https://doi.org/10.1007/s11233-018-09010-z>.
- Zanon, C., Hutz, C. S., Yoo, H., & Hambleton, R. K. (2016). An application of item response theory to psychological test development. *Psicologia: Reflexao e Critica*, 29(1). <https://doi.org/10.1186/s41155-016-0040-x>.
- Κυπριανός, Π., & Κονιόρδος, Μ. (2003). Η απομυθοποίηση του πανεπιστημίου: “αιώνιοι φοιτητές” και εγκατάλειψη σπουδών. [The demystification of the university: “Eternal” students and dropout of studies]. *Σύγχρονη Εκπαίδευση*, 132, 23–34. <http://hepnet.upatras.gr/xfiles/articles/Απομυθοποίηση Πανεπιστημίου, αιώνιοι φοιτητές.pdf>.
- Σταμέλος, Γ. (2016). *Οι πέραν των κανονικών εξαμήνων φοιτητές* (Μελέτη 16). [The students beyond the normal semesters]. HepNet. <https://doi.org/10.13140/RG.2.1.4878.1847>.



George S. Androulakis was born in Athens in 1969. He graduated from the Department of Mathematics of the University of Patras (1991). He did his doctoral studies (1998) in Nonlinear Optimization at the University of Patras.

He fulfilled his military obligations between 1997 and 1998. Since 1999 he has taught at the Department of Business Administration of University of Patras up to present. Three of his previous publications: a) GS Androulakis, DA Georgiou, P Kiprianos, G Stamelos. (2020). Examining the sequence of factors affecting student'

tendency to drop out: a case study in Greece. *International Journal of Education*, 12 (4), 107–131. b) GS Androulakis, DA Georgiou, G Nikolaou (2021). The grid of burnout, engagement and job satisfaction: a case study in Greece. *International Journal of Human Resource Studies*, 11(4), 24–46. c) George S. Androulakis, Dimitra Ap. Georgiou, Maria Kaisari (2022). Flipped classroom and peer learning: a new approach to the educational process at university. *International Journal of Education*, 14 (3), 142–168.

His current research interests are linear, nonlinear constrained and unconstrained optimization, quantitative and qualitative methods in social sciences, item response theory, structural equational models, time series analysis and portfolio management.



Dimitra A. Georgiou was born in Greece. She did her graduate (2002) and postgraduate (2003) studies at the Department of Business Administration of Central Lancashire, UK. She did her doctoral studies (2019) in Human Resource Management at the University of Patras.

Since 2005 has taught at higher educational institutes: Technological Educational Institute of Western Greece (2005–2017), University of Patras (2019–present). She teaches in the Interdepartmental Graduate Program of the University of Patras “Educational Leadership” at the Department of Educational Sciences and Social Work. Three of her previous publications: a) GS Androulakis, DA Georgiou, P Kiprianos, G Stamelos (2020). Examining the sequence of factors affecting student' tendency to drop out: a case study in Greece. *International Journal of Education*, 12 (4), 107–131. b) GS Androulakis, DA Georgiou, G Nikolaou (2021). The grid of burnout, engagement and job satisfaction: a case study in Greece. *International Journal of Human Resource Studies*, 11(4), 24–46. c) Androulakis G.S., Georgiou D. Ap., Kiprianos P., Stamelos G. (2021). The role of the academic factor in university drops out. *Journal of Education and Human Development*, 10(1), 50–62. DOI: 10.15640/jehd.v10n1a1. Vol. 10, No.1.

Central sectors of her specialization are issues of job satisfaction, professional burnout, work engagement in education and in the general working context. Her current research interests also include administration of educational units and organizations, drop out of studies in higher education, motivation and training in education, and flipped classroom in higher education.



George Nikolaou was born in Kozani in 1964. He studied Educational Sciences in Greece (1983) and France (1986). He did his postgraduate studies (1988) at university Lumiere-Lyon2. He did his doctoral thesis in 1999, at the University of Athens.

From September 2001 to May 2015, he served as a Faculty Member specializing in Intercultural Pedagogy at the Elementary Education Department of the University of Ioannina. Since May 2015, he has been working as a Professor of Intercultural Pedagogy at the Department of Education & Social Work Sciences (formerly PTDE) of the University of Patras. He has collaborated with the Open and the European University of Cyprus, as well as with the Hellenic Open University. He has published three monographs, participated in many conferences in Greece and abroad, while his articles have been published in scientific journals in Greece and abroad. Three of his previous publications: a) Nikolaou, G., & Samsari, E. (2020). Greek university students' attitudes towards refugees: The role of contact with refugees in a common context since the beginning of refugees' arrival. *International Journal of Migration Studies*, 10(1), 73–95. b) Vassilopoulos, A., Karachontziti, E., Nikolaou, G., & Kamarianos, I. (2021). Effects of student mobility: The case of Erasmus students at the University of Patras. *Journal of Internationalization of Higher Education-Policy and Practice*, 2(Supp. 42). doi: <https://doi.org/10.36197/INT.2-2021.03>. c) Vavitsas, Th., & Nikolaou, G. (2021). Highlighting the critical elements of interculturalism: Towards a Critical Intercultural Education. *Journal of Critical Education Policy Studies*, 19(2), 296–314.

He is regular member of the Pedagogical Society of Greece, Member of the Special Education Pedagogical Society, Member of the Association pour la Recherche Interculturelle, based at the University of Fribourg, Switzerland., Correspondent in Greece of the Network for the creation of the common university space for Latin America (Red Urel-ELAES), coordinated by the University of Valladolid (Spain), and Founding member and former Chairman of the Board of the Hellenic Observatory for Intercultural Education and Training.



Pantelis Kiprianos was born in Greece in 1959. He graduated from the Department of Political Sciences of Panteion University, Athens (1981). He did his postgraduate (1984) and doctoral (1990) studies in Political Sociology at the University of Paris II.

He fulfilled his military obligations between 1991 and 1992. Since 1994 he has taught at higher educational institutions: University of West Attica (1994-1996), University of Crete (1996-1998), Patras (1998-present). He has also taught as a visiting professor at the universities of Paris 3, Coventry, and Princeton. Three of his previous publications: a) Kiprianos P. (Published online: 09 Jul 2013). Greek technical-vocational education (1870–1940): intentions and failed aspirations. *Paedagogica Historica: International Journal of the History of Education*, 1–16. Routledge, DOI 10.1080/00309230.2013.790908. b) Stamelos G., Kiprianos P., Evangelakou P. & Kavasakalis A. (2021). Comprendre et prévenir l'abandon étudiant. *La recherche en Éducation*, 22, 1–23. c) Kiprianos P., Balias S., Passas V., (2003) Greek Policy towards Immigrants and Immigration. *Social Policy and Administration*, 37(2), 147–164.

His current research interests include a) Higher Education Policy, and b) Teacher Education. Professor Kiprianos has been president of the Board of the Hellenic Quality Assurance Authority (2019-2020). He is a member of the Inter-University Higher Education Policy Network (HepNet). He is also a member of the international scientific organizations AIFREF, ADMEE and AFIRSE.



George Stamelos was born in Athens in 1961. He graduated from the Department of Mathematics (1984) of the University of Patras. He did his postgraduate (1986) and doctoral (1990) studies in Education Sciences at the University of Paris 8.

He fulfilled his military obligations between 1990 and 1991. Since 1992 he has taught at higher educational institutions: Panteion (1992-1995), ASPAITE (1993-1995), Athens (2002-2004), Peloponnese (2002-2006), Patras (1995-present) and Rouen (France) (2008-2014, 2018-present). He has also taught as a visiting professor at the universities of Paris 8, Paris X, Rouen, Aix-Marseille, Lorraine, Lille III, Fribourg and Cyprus. Three of his previous publications: a) Stamelos G., Joshi K.M. & S. Paivandi (ed). (2017). *Quality assurance in higher education. a global perspective*. New Delhi: Studera Press. b) Stamelos G., Kiprianos P., Evangelakou P. & Kavasakalis A. (2021). Comprendre et prévenir l'abandon étudiant. *La recherche en Éducation*, 22, 1–23. c) Stamelos G. (2021). Pourquoi aller à l'université ? Le choix des élèves de terminale. In Chaleta E., Ferreira A. & Beltrán (coords). *Formas de enseñar y aprender en educación superior/Faces do ensinar e do aprender no ensino superior*. n.31, 63–74. His current research interests include a) Higher Education Policy, and b) Teacher Education.

Professor Stamelos has been a member of the Board of the Hellenic Quality Assurance Authority (2013-2020). He is a member of the Sectoral Council of the Hellenic Research Foundation (2020-present). He is coordinator of the Inter-University Higher Education Policy Network (HepNet) and director of the Master program "Higher Education Policy: theory and practice." He is also a member of the international scientific organizations ADMEE and AFIRSE.