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Investigating the Factors Contributing to the Formation of Secondary School Students' Interest towards Higher Education Studies

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Abstract: The present study's objective constitutes the examination of the prognostic factors that influence the inclination of students in secondary school towards pursuing higher education. To achieve this goal, an existing questionnaire was utilized and appropriately altered to align with the Greek educational system. The survey involved the participation of 301 secondary school students from Piraeus, which comprises one of Greece's major cities. The outcomes of the research yield substantial endorsement for the principles outlined in the social cognitive career theory. Specifically, the study highlights the significant role of family background, encompassing the educational levels of the parents, the students' perceptions of the family's financial situation, and the financial support provided by the family during the students' academic journey, in shaping the students' intent towards pursuing higher education. Moreover, the presence of a secure attachment bond between students and their parents suggests a favorable inclination towards higher education. Conversely, students deriving from low-income families are prone to exhibit hesitancy in pursuing higher education. The acquired data reveal a constructive relationship among outcome expectations, social support, as well as the process of students' interest in developing a desire for higher education. Conversely, factors such as gender and age, as well as the presence of siblings studying in higher education, appear to have little influence in this regard.

Keywords: social cognitive career theory; career decision making self-efficacy; attachment theory; learning experiences; outcome expectations; social support

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1. Introduction

SCCT (social cognitive career theory) stems from A. Bandura's self-efficacy theory and general social cognitive theory, developed due to his discontent with behaviorism and psychoanalysis. It presents a significant conceptual and theoretical framework, delving into factors that affect the cognitive process of educational and career decision-making [1–3]. Unlike behaviorism and psychoanalysis, which often overlook the role of cognition in motivation and the impact of situations, SCCT thoroughly addresses these aspects [4]. Lent, Brown, and Hackett [5–7] are credited with developing and formulating this theory. Based on these researchers, it is crucial to consider the influence of individual and intra-personal circumstances on achieving positive outcomes related to external situations, which are closely tied to one's belief in their own abilities, often referred to as "self-efficacy". A. Bandura was the first to propose "self-efficacy" as a term, and by then it had been extensively discussed in various studies, including those on social learning theory [8–13]. However, numerous other researchers have also conducted investigations on "self-efficacy" [14,15]. The concept of "self-efficacy" or "self-efficacy expectation" can also be explored in the social cognitive theory of behavior [16,17], examining an individual's capacity to shape their own actions (human agency). Bandura's theory highlights the significance of indirect learning, specifically through observational learning, as a means

of acquiring knowledge. This form of learning involves observing others and might potentially affect socio-cognitive mechanisms' development that enable individuals to modulate their behavior, thereby influencing their future success or performance.

2. Review of Existing Research and Theoretical Basis

2.1. Overview of SCCT

SCCT's fundamental distinguishing factor compared to other models of professional development lies in its focus on the presence and operation of social-cognitive mechanisms as human behavior's influential factors. While other models of professional development perceive behavior as a product of the interconnection among individuals and their environment, SCCT acknowledges that human behavior serves as an environment's alterer as well. Therefore, SCCT embraces A. Bandura's causality' triadic reciprocal model [18], wherein cognitive and environmental factors, along with a person's observable behavior, dynamically interact and mutually influence one another [5,19,20].

Hence, the initial part of the theory primarily emphasizes the cognitive elements, which are believed to influence career interests, preferences, and subsequent performance. However, it is important to acknowledge that human actions do not occur in isolation from the environment. Consequently, the latter part of the theory addresses the significance of individual and environmental factors. According to the proponents of SCCT, an individual's professional development can be likened to a theatrical production unfolding on a social stage [20]. Within this framework, personal, environmental, and learning factors assume critical roles in shaping an individual's career trajectory. These factors contribute significantly to the formation of central cognitive mechanisms like perceptions of self-efficacy and outcomes' expectations, thereby influencing the individual's subsequent professional development [3,5,20], as depicted schematically in Figure 1. Hence, SCCT offers a precious framework towards exploring the fundamental aspects of career decision-making. It is noteworthy that SCCT highlights the importance of personal agency for individuals, which constitutes a frequently neglected factor within the career development procedure. Moreover, SCCT aids in recognizing essential elements, encompassing personal, contextual, as well as behavioral variables, that impact the evolution of career interests, capabilities, ambitions, as well as decisions [3].

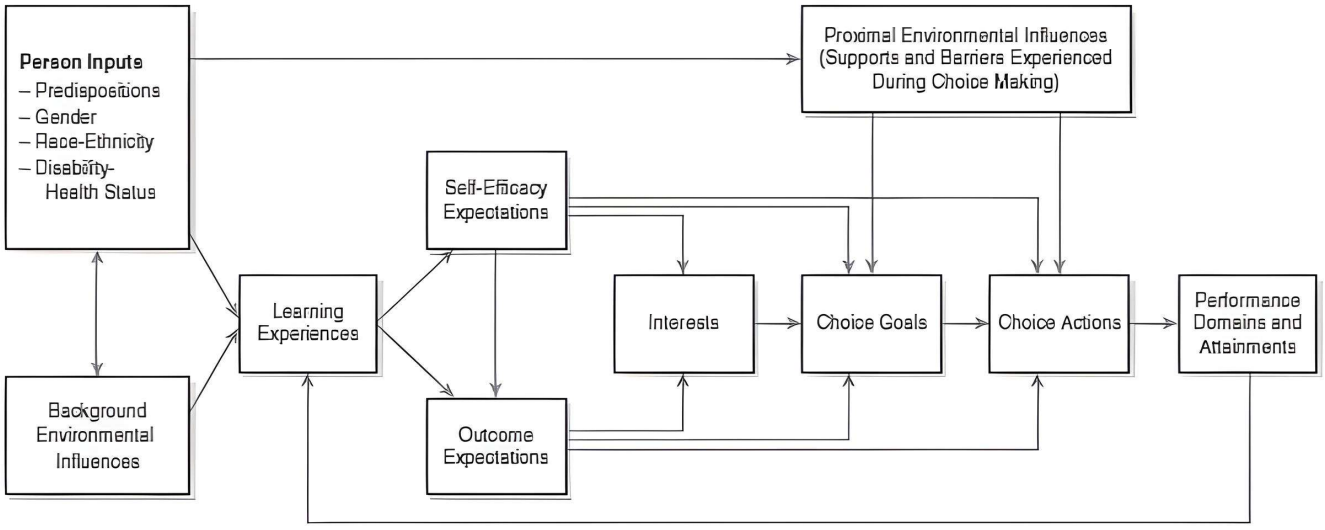

Figure 1. SCCT flow chart [5].

Benefits of SCCT

SCCT acknowledges the significance of psychological elements (like interests, abilities, and values), social elements (including socioeconomic prestige, gender, and race), as well as economic elements (such as employment and training opportunities) [21]. In doing this,

SCCT strives to establish a comprehensive framework that addresses the shortcomings of conventional theories that compartmentalize psychological, social, and economic variables. SCCT offers a more systematic understanding of the way in which the interplay among fundamental cognitive, personal, and environmental factors supports an individual's career development [1].

Furthermore, Lent and colleagues [5] formulated SCCT's framework, contending that interest is shaped through self-efficacy as well as outcome expectations. Self-efficacy and outcome expectations' dynamism is acknowledged, evolving in response to changing learning experiences. The theory adopts a developmental perspective in understanding career development, emphasizing the dynamic nature of goal selection and acknowledging the impact of environmental factors on goal setting, aligning with the present boundaryless era's specifications. Conversely, to traditional career theories, which tend to overlook social and environmental factors, prioritize the alignment of personality traits with careers, as well as neglect the environment's effect on career development, SCCT underscores the significance of individual and environmental factors. It perceives career selection as a continuously evolving system that adjusts over time, demonstrating greater flexibility to modern society compared to conventional career theories [1].

Additionally, SCCT posits that environmental factors significantly contribute to shaping individual career progression, directly influencing the creation of learning experiences. This perspective spans various special groups, providing opportunities and career-counseling strategies tailored to these specific populations. Numerous studies have delved into special groups, including individuals facing serious mental health disorders [22], youth in institutional settings [23], immigrant high school students [24], students in rural schools [25,26], as well as students in secondary school presenting mild special educational needs [27].

2.2. Predictive Factors in SCCT Related to Students' Inclination towards Pursuing Higher Education

The primary factors (gender, age, family background, learning experiences, career decision-making self-efficacy, outcome expectations, environmental students' influence factors, and social support) based on SCCT that will be studied within our study's model are presented below. Earlier studies seem to have been centered on students' perceptions of technical vocational education and training studies [4], as well as core subjects such as English language [28,29], mathematics and science disciplines [30,31], and online learning [32–34], while there is a lack of empirical studies investigating students' attitudes to pursue higher education studies.

2.2.1. Gender

Genders' differential socialization has formed differential self-efficacy career perceptions among genders. The issues of gender impact on an individual's professional development were first explored in Hackett and Betz's social cognitive theory of behavior [35]. Thus, differential gender socialization has led to differential access to sources of self-efficacy perceptions and, therefore, to different perceptions of certain stereotypical male and female occupations, respectively [5,19].

In contrast to self-efficacy career perceptions, which are different among the genders in stereotypical male and female occupations, career decision-making self-efficacy perceptions (CDMSE) are not differentiated. This could be attributed to the fact that the two types of self-efficacy perceptions have moderate affinity [36]. This fact is expected when the decision-making process is evaluated differently from the career-making process [14]. As a result, differences between self-efficacy perceptions for educational and professional decisions among the genders are not indicated in secondary school students, either in older or in more recent surveys [37–40].

2.2.2. Age

Age is categorized as personal information related to an individual and holds significant importance in the decision-making process regarding education and professional choices. Age is usually related to the processes that take place within the family. Hence, for adolescents aged 15–16 (10th grade), family effects in the process of making the above decisions are extremely strong [41–46].

This fact is related to the lower autonomy and self-identification levels, which are characteristic of this developmental phase of this particular age group compared to the older adolescents, who approach their entry into tertiary education [47,48].

2.2.3. Family Background

Young individuals from affluent socio-economic backgrounds exhibit a greater sense of ease during the selection process [49,50]. Furthermore, as the socio-economic status rises, so do the aspirations and academic accomplishments of these individuals [51–56]. More recent surveys have shown that social status seems to have a noteworthy impact on both educational and professional decision-making procedures; it affects not only access to educational resources but also the level of professional adaptation and, finally, people's perceptions about the meaning and motivation movement of their work [57]. Namely, a study by Rathidevi and Sudhakaran [58] suggests that in our society, enhanced social standing is frequently linked to government positions and corporate careers. There is a common belief that corporate occupations are strongly associated with prestige, social status, authority, and intellectual prowess [58,59]. Traditionally, certain professions such as carpentry, mechanics, blacksmithing, and welding have been associated with a lower socio-economic status, while engaging in these occupations is often deemed disreputable due to perceived associations with lower IQ, laziness, and academic performance issues [59–61]. Additionally, according to AhmedAlnaqbi [62] students whose families have limited educational backgrounds show a greater propensity to attend technical vocational education and training programs than in higher education studies, compared to students from urban areas with higher socioeconomic backgrounds, including greater income, housing costs, and academic qualifications. These children also have a strong social network that supports them (such as acquaintances with people of power), and they believe that the right to be given opportunities is at least guaranteed [63]. More specifically, according to various studies [4,64,65], students from economically deprived families are often considered a secondary choice following university.

Over the past few years, according to the SCCT, the relationship between the family socio-economic background and its effects on both educational and professional decision-making procedures has been explored. Notably, Thompson, and Subich [66] have studied the aforementioned relationship and confirmed the existence of a positive correlation between them. On the basis of the SCCT, a family's socio-economic background is an environmental factor that contributes to the socio-cognitive mechanisms' formation. Thus, according to recent data research, it pertains to career decision-making self-efficacy perceptions [67–71].

Further to this, regarding the family structure, the siblings seem to be the direct and accessible models of professional roles and act as the main sources of professional information search [72].

2.2.4. Social Support

Social support will be explored not only on the basis of financial parental support but also on the basis of perceived support from friends and teachers. Parents and relatives seem to be the main sources of career information and decisions and act as models of professional occupations [73–75]. The parental influence on academic and professional decisions can be explored according to the quality of relationships among family members. These family processes, as the literature supports, can be studied via three theories: the

attachment theory, the social cognitive theory of behavior, and the social cognitive career theory, although the study focuses on the third theory.

Parental support, as it is delineated in the context of attachment theory [76–79] and identified by elements such as accountability, autonomy, communication, encouragement, and guidance, is proven to be an important factor that can predict teenagers' interest and educational and professional choices [56,80–83]. Therefore, the attachment's secure bond existence with parents allows the developing person to have a more active attitude [77,84] especially when they are in transition periods of their lives, such as the period of making educational and professional decisions [85,86]. O'Brien [87] has justified that the combination of psychological autonomy and secure bonding with parents positively influences professional selections and career decision-making self-efficacy perspectives [88,89].

Grounded on the second of the aforementioned theories, young people who have received the required parental support can develop self-efficacy perceptions in order to organize and complete actions that are related to the design and effective implementation of their professional career projects [13].

According to the third theory, recent surveys [38,90,91] show that parental support positively predicts certainty about higher education and professional choice [69].

2.2.5. Environmental Students' Influence Factors

The peer group and the consequent friendly relations with peers are characterized by the international literature as important factors for the teenager's professional development [92]. However, Kandel and Lesser [93] have noted that teenagers accept their peers' influence mainly on issues relating to day-to-day reality but much less on matters related to their future. For their professional plans, they trust their parents more, who have a greater impact on them [94,95].

In a survey by Paa and McWhirter [96] about personal and environmental factors that affect teenagers' professional expectations, the researchers confirmed that teenagers consider their friends as the second environmental factor that affects their professional aspirations after their parents. Then teachers and professional counselors of the same gender follow.

2.2.6. Outcome Expectations

Outcome expectations pertain to an individual's anticipation of the outcomes linked to taking part in a specific behavior, and an increased degree of positivity in these expectations enhances the likelihood of the individual engaging in the behavior [3]. Future advantages resulting from a specific decision have the potential to motivate students towards adopting a particular behavior, leading to anticipated outcomes. An example of this can be seen in the context of higher education, where it is commonly believed that pursuing further studies can open doors to improved career prospects, a higher income, and a respected social standing [97]. The perception of higher education's social value and the drive to attain personal goals fall under the category of outcome expectations.

2.2.7. Self-Efficacy

Bandura [18] introduced the concept of self-efficacy that specifies an individual's subjective judgments as well as perspectives on their own capabilities to successfully fulfil a task. The aforementioned judgments and perceptions are dynamic and susceptible to alterations [3]. Self-efficacy encompasses not only personal beliefs but also the necessary actions that individuals need to take for a positive outcome (response outcome expectation) and the subsequent outcomes of those actions.

Self-efficacy is imperative in the formation of interests, ambitions, choices, as well as aspirations [19,98], all comprising essential factors influencing behavior and performance [16–18,99,100]. However, for the purpose of this survey, our focus is specifically on perceptions of career decision-making self-efficacy rather than career self-efficacy. Consequently, the former does not differentiate between genders, as previously indicated [36–40].

2.2.8. Learning Experiences

A multitude of studies have offered support for the notion that engaging students in activities both within and outside the school setting enhances their inclination towards pursuing higher education [101]. In Ferry, Fouad, and Smith's research [63], it was justified that a parental's involvement degree, and in particular parental encouragement, significantly influences learning experiences and students' performance in mathematics and science. Similarly, Byars-Whinston and Foaud [102], confirm that the degree of parental involvement seems to be related to students' goals in positive and mathematical sciences through positive self-efficacy perspectives and outcome anticipations in these specific study fields.

Research in high school students has also demonstrated that the students' attachment's secure bond to the mother is related to the development of a positive affinity for both the effectiveness of girls in mathematics and science, as well as in career decision-making self-efficacy perceptions [103].

2.3. Greek Secondary Schools' Science Courses

As mentioned in our previous study, post-secondary secondary education in Greece is offered by "Technical Vocational" Schools, as well as "Unified High Schools", consisting of three grades and offering general education courses (10th grade), both general and direction-specific courses (11th grade), and the requirement for the students to decide upon one specific direction (12th grade) [104]. The present research concentrated on students from eight "Unified High Schools".

3. Research Design

Drawing from the previously mentioned theoretical basis, this study investigates several variables, namely, gender and age, as personal characteristics of the students. Additionally, it examines students' socio-economic status and the social support they receive from their immediate and indirect social surroundings, which fall under environmental factors and contextual influences. Furthermore, the study explores outcome expectations and self-efficacy as individuals' cognitive mechanisms and students' learning experiences, such as their participation in activities inside and outside the school's framework, along with their academic achievements and performance. The study employed a quantitative approach, gathering and analyzing numerical data via questionnaires to explore the connections between variables and make inferences about the target population. It was conducted as a cross-sectional study, involving data collection at a single point in time.

3.1. Questionnaire

The questionnaire used is based on our previous research by Mitsopoulou et al. [104]. Formulation and reformation of half of the used statements have been conducted by taking into consideration the Greek educational system, and half of the proposed statements used were first translated into Greek. The questionnaire was made with the approval of the Ministry of Education. Finally, the questionnaire includes thirty questions that are presented in the corresponding Appendix of ref. [104]. The survey was administered to public secondary school students within the Piraeus region under the supervision of the Greek Ministry of Education, Research, and Religions. Overall, integrating SCCT into the development of questionnaires improves the instrument's reliability and validity [3].

Based on the content of the questions, the modified statements can be categorized into four parts. The first part consists of four questions relative to students' personal data (see questions 18, 19, 20, and 21 of the Appendix in ref. [104]). The second part includes six questions concerning students' attitudes towards higher education (see questions 1, 2, 3, 4, 4a, 5, and 6 of the Appendix in ref. [104]). The third part contains eleven questions that are related to students' learning experiences (see questions 11, 12, 13, 14, 15, 16, 17, 22, 23, 24, and 25 of the Appendix in ref. [104]). The fourth and final part consists of nine questions regarding students' socio-economic status (see questions 7, 8, 9, 10, 26, 27, 28, 29, and 30 of the Appendix in ref. [104]).

3.2. Research Question

Given the information provided, the study was structured to address the following research inquiry:

- What are the SCCT-based factors that are able to predict secondary students' interest in pursuing higher education?

3.3. Input Variables

3.3.1. Dependent

The sole dependent variable under consideration is the inclination of secondary school students towards pursuing higher education studies. This variable was assessed through question 2 as described in the Appendix of our previous research [104], with possible answers: 1—definitely not, 2—probably not, 3—probably yes, and 4—definitely yes.

For the purpose of statistical modeling, the answers to this variable were subdivided into two groups: (a) no (answers 1, 2), and (b) yes (answers 3, 4).

3.3.2. Independent

The independent variables taken into consideration were gender, age, family background (estimated via father's and mother's educational level, the students' cognition of the economic status of their family, and the structure of the family related to students' influence by older siblings), students' influence from their close surroundings, learning experiences, outcome expectations, students' social support, and career decision-making self-efficacy. More specifically:

- Gender: a partition variable separating boys from girls.

(1) Age was assessed using question 20 as described in the Appendix of our previous research [104], with possible answers: 1-1-10th grade, 2-2-11th grade, and 3-3-12th grade. The possible answers to the question were divided into three categories: (a) 15–16 age (answer 1), (b) 16–17 age (answer 2), and (c) 17–18 age (answer 3).

- Family background was assessed via the following questions, which include:

(a) Mother's educational level, quantified through question 27 as described in the Appendix of our previous research [104], with possible answers: 1—Primary education, 2—secondary education (junior high school or high school diploma), 3—post-secondary education and 4—academic education (college, university, master, or PhD degree). Then the answers to this question were divided into two categories: (a) non-academic education (answers 1, 2, 3) and (b) academic education (answer 4).

(b) Father's educational level, evaluated via question 26 as described in the Appendix of our previous research [104], with possible answers: 1—Primary education, 2—secondary education (as mentioned above), 3—post-secondary education, and 4—academic education (as mentioned above). Then the answers to this question were divided into two categories: (a) non-academic education (answers 1, 2, 3) and (b) academic education (answer 4).

(c) The students' perception of the economic status of their family was defined by the following questions:

(1) Question 30 as described in the Appendix of our previous research [104], with possible answers: 1—Low, 2—low to average, 3—average, 4—average to high, 5—high, and 6—I do not know. The answers of this variable were divided into three categories: (a) Low (answers 1, 2), (b) average (answer 3), and (c) high (answers 4, 5). Finally, answer 6—I do not know—was not included in the new variable.

(2) Question 7, as described in the Appendix of our previous research [104], with possible answers: 1—yes, 2—no, and 3—I'm not sure.

(3) Question 8, as described in the Appendix of our previous research [104], with possible answers: 1—yes, 2—no, and 3—I'm not sure.

(d) Family structure, which is related to students' influence by older siblings. This variable was evaluated through the following questions:

(1) Question 28 as described in the Appendix of our previous research [104], with possible answers: 1—yes and 2—no.
(2) Question 29 as described in the Appendix of our previous research [104], with possible answers: 1—yes and 2—no.

- Students' influence on their close surroundings was measured by the following questions:

(1) Question 9 as described in the Appendix of our previous research [104], with possible answers: 1—My parents, 2—my relatives, 3—my teachers, 4—my school counselors, 5—my friends, and 6—others. Then the answers to this question were modified into four categories: (a) My parents (answer 1), (b) my school environment (answers 3, 4), (c) my friends (answer 5), and (d) others (answers 2, 6).
(2) Question 10 as described in the Appendix of our previous research [104], with possible answers: 1—yes and 2—no.

- Learning experiences were assessed utilizing the questions listed below:

(1) Question 23, as described in the Appendix of our previous research [104], with possible answers: 1—None at all, 2—little, 3—moderate, 4—very much, and 5—I do not attend this lesson. The answers to this question were then divided into three categories: (a) none at all (answers 1, 2), (b) moderate to very much (answers 3, 4), and (c) not attending the course (answer 5).
(2) Question 24, as described in the Appendix of our previous research [104], with possible answers: 1—Below 59, 2—between 60 and 69, 3—between 70 and 79, 4—between 80 and 89, and 5—between 90 and 100. The answers were subsequently subdivided into three groups: (a) low performance (answer 1), (b) moderate performance (answers 2, 3), and (c) high performance (answers 4, 5).
(3) Question 11, as described in the Appendix of our previous research [104], with possible answers: 1—yes and 2—no.

- Outcome expectations and students' social support were measured by factor analysis of thirteen different statements as mentioned in question 6 as described in the Appendix of our previous research [104], in which the responders were asked to specify their level of agreement or disagreement on the basis of a four-level Likert-type scale: 1—I disagree, 2—I probably disagree, 3—I probably agree, and 4—I agree. The possible answers were classified into two groups: (a) I disagree (answers 1, 2) and (b) I agree (answers 3, 4). The aim of the analysis was to classify the pertinent statements and identify the uncountable quantities associated with each factor.

(1) Career decision-making self-efficacy was assessed using question 2, as described in the Appendix of our previous research [104], with possible answers: 1—Definitely not, 2—probably not, 3—probably yes, and 4—definitely yes. For the purposes of statistical modeling, the possible answers to the question were divided into two categories: (a) no (answers 1, 2) and (b) yes (answers 3, 4).

3.4. Statistical Analysis

The study utilizes qualitative variables, which are presented in terms of absolute and relative frequencies within each variable's category. To evaluate potential variations in the questionnaire responses based on gender and students' family economic situation, Pearson chi-squared (χ^2) test was realized. Statistical analyses were conducted at a significance level equal to 5%. The statistical assumptions underlying this approach are as follows:

- H0: a relationship among the two variables exists.
- H1: no relationship among the two variables exists.

When $p < 0.05$, the zero hypothesis is turned down, indicating a statistically significant association among the two variables.

Furthermore, factor analysis was applied to explore the presence of shared factors within a particular set of inquiries.

The aim of the as-mentioned method is to cluster the questions into novel variables and use them for statistical analysis. Within this set of novel variables, the Cronbach's alpha reliability coefficient (α) was utilized. The last one receives values from 0 to 1. An index value above 0.7 is usually considered satisfactory.

In addition, the *t*-test was used to evaluate the correlation between a qualitative and a quantitative variable, followed by a normal distribution.

Statistical analysis was performed utilizing SPSS software (IBM, United States, version 21). Moreover, a significance level equal to $p < 0.05$ was employed.

4. Results

This section presents the acquired results from the questionnaires' examination. It commences with an overview of the participants' demographic attributes, followed by the pertinent statistical examination aimed at investigating the research query. The distribution (N, %) of the participants' individual attributes is illustrated in Table 1, which encompasses some of the data depicted in Table 2 of the reference [104].

Table 1. Students' descriptive characteristics (N = 301) [data from Table 2 of ref. [104] are also included].

	N (%)
Gender	
Boy	151 (50.2%)
Girl	150 (49.8%)
Age	
15–16	126 (41.9%)
16–17	85 (28.2%)
17–18	90 (29.9%)
Father's educational level	
Non-academic education	135 (44.9%)
Academic education	166 (55.1%)
Mother's educational level	
Non-academic education	140 (46.5%)
Academic education	161 (53.5%)
Students' perception of the family economic background	
Low	62 (21.4%)
Average	129 (44.5%)
High	99 (34.1%)
Regarding your school performance and grades are you planning to pursue higher education?	
Yes	285 (94.7%)
No	16 (5.3%)
Do you have older siblings?	
Yes	151 (50.2%)
No	150 (49.8%)
If yes, do any of them study at a higher academic institution?	
Yes	110 (72.8%)
No	41 (27.2%)
In case you decide to pursue higher education, will your family support you financially during your studies?	
Yes	231 (76.7%)
No	12 (4.0%)
I am not sure	58 (19.3%)

Table 1. *Cont.*

	N (%)
In case you decide to pursue higher education, will you be required to support financially your family during your studies?	
Yes	40 (13.3%)
No	123 (40.9%)
I am not sure	138 (45.8%)
Amongst your close circle of friends and family, who in your view are most likely to influence your decision to pursue or not to pursue higher education?	
Parents	212 (70.4%)
School environment	30 (10.0%)
Others	59 (19.6%)
Do you know any people (in your close surroundings-family and friends) who hold an academic degree (do not count teachers and administration in your school)?	
Yes	281 (93.4%)
No	20 (6.6%)
Have you ever visited an academic institution?	
Yes	179 (59.5%)
No	122 (40.5%)
Learning difficulties in Mathematics	
Not at all—little	164 (54.5%)
Moderate—very much	116 (38.5%)
I do not attend this lesson	21 (7.0%)
Learning difficulties in Physics	
Not at all—little	179 (59.5%)
Moderate—very much	107 (35.5%)
I do not attend this lesson	15 (5.0%)
Learning difficulties in Biology	
Not at all—little	198 (65.8%)
Moderate—very much	78 (25.9%)
I do not attend this lesson	25 (8.3%)
Learning difficulties in Chemistry	
Not at all—little	174 (57.8%)
Moderate—very much	106 (35.2%)
I do not attend this lesson	21 (7.0%)
What is your average score in Mathematics?	
Low	33 (11.8%)
Average	93 (33.2%)
High	154 (55.0%)
What is your average score in Physics?	
Low	23 (8.0%)
Average	95 (33.2%)
High	168 (58.7%)
What is your average score in Biology?	
Low	14 (5.1%)
Average	50 (18.1%)
High	212 (76.8%)
What is your average score in Chemistry?	
Low	23 (8.2%)
Average	77 (27.5%)
High	180 (64.3%)

Table 1. *Cont.*

	N (%)
Everyone who is capable should pursue Higher Education	
I disagree	56 (18.6%)
I agree	245 (81.4%)
It is important to acquire Higher Education	
I disagree	39 (12.9%)
I agree	262 (87.1%)
School should encourage students to pursue higher education through courses or programs.	
I disagree	18 (5.9%)
I agree	283 (94.1%)
It is important for me to have satisfactory school performance, so that I can pursue Higher Education.	
I disagree	58 (19.3%)
I agree	243 (80.7%)
I would be proud to be studying at a Higher Education Institution.	
I disagree	33 (10.9%)
I agree	268 (89.1%)
People with higher education credential are more successful in life.	
I disagree	184 (61.2%)
I agree	117 (38.8%)
People with higher education have distinctly higher social status in Greek society.	
I disagree	128 (42.5%)
I agree	173 (57.5%)
People with a higher education degree are likely to practice higher-earned professions than those who do not have a higher education degree.	
I disagree	88 (29.2%)
I agree	213 (70.8%)
My parents (at least one) encourage me to pursue higher education.	
I disagree	18 (5.9%)
I agree	283 (94.1%)

Table 2. Distribution of the reasons students are hesitating to pursue Higher Education (N = 16).

	N (%) *
I am not interested.	3 (18.8%)
For economic (financial) reasons.	2 (12.5%)
My grades and performance in high school do not allow me to pursue Higher education.	6 (37.5%)
I do not believe that I can succeed in higher education.	2 (12.5%)
My family does not encourage me to pursue higher education.	0 (0%)
I am planning to engage my family business, which does not require Higher education.	2 (12.5%)
It is a waste of time.	0 (0%)
Other, what?	1 (6.3%)

* The students were able to choose more than one response.

Out of the 301 surveyed students, 16 of them do not intend to study in higher education. Table 2 contains the percentage of each reason that is a staple towards pursuing higher education studies.

A principal component factor analysis with varimax rotation has then been performed for question 6 in the Appendix of our previous research [104]: *"Please express the level of agreement or disagreement with the following statements"*, entailing thirteen statements. Students were tasked with responding to a 4-point Likert scale, with options ranging from 0 ("I disagree") to 3 ("I agree"). Factor analysis's aim is to group together related statements and identify the underlying variables suggested by each factor. Table 3 displays Bartlett's sphericity diagnosis to assess the appropriateness of the data during the implementation of this approach.

Table 3. Bartlett's and KMO tests.

Appropriateness Check		
KMO		0.755
Bartlett's	Chi-Square	514.710
	p-value	<0.001

Given the acquired results (Table 3), the data appear to be appropriate for conducting factor analysis, as evidenced by the satisfactory value of 0.755 as derived from the utilized sampling adequacy's measurement test (KMO). Furthermore, Bartlett's sphericity test ($p < 0.001$) indicates noteworthy correlations among the items, supporting the extraction of representative factors for all the statements. In line with our previous study (refer to Table 3 of ref. [104]), three factors emerged from the analysis: (a) Social value, (b) motivation movement, and (c) social support. The first factor pertains to the societal importance attributed to higher education, while the second factor relates to the motivational aspects. The first two factors indicate outcome expectations, while the third factor indicates perceived social support towards academic pursuits.

Additionally, the first factor that represents higher education's social value exhibits a satisfactory reliability, characterized by $a = 0.62$. However, the second and third factors demonstrate lower reliability with $a = 0.57$ and $a = 0.52$, respectively. It is important to highlight that among the thirteen statements within question 6 of the table mentioned above, only ten were considered, as the remaining three statements did not exhibit noteworthy factor loadings.

Finally, the mono-factorial analysis model was applied in order to relate the dependent variable to all the aforementioned independent variables, striving to create a predictive model for students' proclivity towards higher education (Table 4).

Table 4. χ^2 test regarding the correlation between the dependent variable (question 2 as described in the Appendix of our previous research [104]) and the selected descriptive characteristics of the students.

		Answers		
		No	**Yes**	***p***
Gender				0.127
	Boy	11 (7.3%)	140 (92.7%)	
	Girl	5 (3.3%)	145 (96.7%)	
Father's educational level				0.012
	Non-academic	12 (75.0%)	123 (43.2%)	
	Academic	4 (25.0%)	162 (56.8%)	
Mother's educational level				0.057
	Non-academic	11 (68.8%)	129 (45.3%)	
	Academic	5 (31.3%)	156 (54.7%)	

Table 4. *Cont.*

		Answers		
		No	**Yes**	***p***
In case you decide to pursue higher education, will your family support you financially during your studies?				<0.001
	Yes	8 (50.0%)	223 (78.2%)	
	No	4 (25.0%)	8 (2.8%)	
	I'm not sure	4 (25.0%)	54 (18.9%)	
In case you decide to pursue higher education, will you be required to support financially your family during your studies?				<0.001
	Yes	8 (50.0%)	32 (11.2%)	
	No	4 (25.0%)	119 (41.8%)	
	I'm not sure	4 (25.0%)	134 (47.0%)	
If yes, do any of them study at a higher academic institution?				0.287
	Yes	4 (57.1%)	106 (73.6%)	
	No	3 (42.9%)	38 (26.4%)	
Do you know any people from your close surroundings—family and friends—who hold an academic degree (do not include your teachers or administration in your school)?				0.081
	Yes	13 (81.3%)	268 (94.0%)	
	No	3 (18.8%)	17 (6.0%)	
My parents (at least one) encourage me to pursue higher education.				0.001
	Disagree	4 (25.0%)	14 (4.9%)	
	Agree	12 (75.0%)	271 (95.1%)	
Have you ever visited an academic institution during your school visits?				0.019
	Yes	5 (31.3%)	174 (61.1%)	
	No	11 (68.8%)	111 (38.9%)	
Amongst your close circle of family and friends, who in your view is most likely to influence your decision to pursue or not to pursue higher education?				0.822
	Parents	9 (56.3%)	184 (64.6%)	
	Friends	2 (12.5%)	30 (10.5%)	
	School environment	2 (12.5%)	28 (9.8%)	
	Others	3 (18.8%)	43 (15.1%)	

As it can be noticed from Table 4, there are no considerable alterations between the two genders and their decision to follow higher education (p-value = 0.127), while there is statistical significance in the answers (p-value = 0.012) regarding the correlation of the dependent variable with the father's educational level. In particular, a student's percentage equal to 75%, whose father does not possess an academic degree, does not intend to continue studies in higher education, while those whose father does intend to continue in higher education have a percentage of the order of 56.8%.

Additionally, as for the correlation of the dependent variable with the mother's educational level, a statistically significant correlation in the answers was calculated at the edge of significance (p-value = 0.057). More specifically, a high percentage of students' (68.8%), whose mother does not possess an academic degree, do not intend to follow higher education studies, contrary to those whose mother does who intend to continue in higher education (54.7%).

Furthermore, the correlation of the dependent variable with the family's ability to financially support the students during their studies indicated statistical significance in the answers (p-value < 0.001) as well. It is obvious that a high percentage (78.2%) of students whose family intends to support them financially during their studies plan to continue studies in higher education, while a percentage of the order of 25% of students, who will not be supported financially by their family, do not plan to continue in higher education. Additionally, a notably high percentage (25%) of students do not intend to pursue further (higher education) education and express uncertainty about receiving financial support from their families. Cumulatively, 50% of students who will not get or are not sure if they will get economic support from their family do not intend to continue in higher education.

Similar results are acquired by studying the correlation of the dependent variable with students who are required to financially support their families during their studies (statistical significance in the answers, p-value < 0.001). It can be seen that a high percentage (50%) of students who are required to financially support their families do not intend to carry on with higher education studies.

Most of the statements of question 6 in the Appendix of our previous research [104], which are related to outcome expectations and social support, appear to have positive affinity after their correlation with the dependent variable.

Also, the correlation of the dependent variable with students' visits to an academic institution presented statistical significance in the answers (p-value < 0.019). A percentage equal to 61.1% of students who have visited a higher academic institution plan to continue their studies in higher education.

Nevertheless, age's impact on processes that take place within the family does not seem to indicate any statistical significance (Table 5).

Table 5. χ^2 test regarding the correlation between the students' age and the processes that take place within the family (question 9 as described in the Appendix of our previous research [104]).

		Answers				
		Parents	**Friends**	**School Environment**	**Others**	***p***
Age						0.394
	15–16	87 (45.1%)	13 (40.6%)	7 (23.3%)	19 (41.3%)	
	16–17	50 (25.9%)	11 (34.3%)	10 (33.3%)	14 (30.4%)	
	17–18	56 (29.0%)	8 (25.0%)	13 (43.3%)	13 (28.3%)	

Moreover, studying family background and the existence of older siblings who study in higher education does not seem to be pivotal in students' decisions towards pursuing higher education.

Similar results led to the study of the correlation of the dependent variable with people from close surroundings who possess an academic degree. As it can be noticed (Table 4), there is no statistical significance in the answers.

5. Results-Discussion

In accordance with the statistical examination of the results of this research, gender's effect on students' interest in following higher education studies does not differentiate between the two genders, as seen in Table 4. This is in agreement with international literature, which indicates that although career self-efficacy perceptions differentiate between the two genders [5,19], something similar is not observed in career decision-making self-efficacy perceptions [14,36–40].

It has already been mentioned that teenagers at the age of 15–16 accept great influence from their parents in order to take important decisions about their lives [41–46]. In our research, however, parents' impact on students' decisions to persist in higher education studies does not show statistical significance, as we may notice in Table 4. However, the percentages, as regards the people in the close surroundings that influence the adolescents' decision to study, are in line with the literature data. According to the first one, it is the parents who have the greatest influence on their decision, followed by the friends and teachers [4,94–96,105].

The family's background influence, as defined by the mother and father's educational levels and the family's economic situation, was confirmed in all of the afore-mentioned parameters. Specifically, positive affinity was shown between students' interest in higher education studies and their mother's and father's educational levels (Table 4). Of great interest in the students' decision to carry on their studies in higher education is their financial support from their family during their studies (Table 4). A large percentage of students who will be financially supported by their parents are more likely to pursue their studies in higher education. Simultaneously, a fairly large students' percentage, who will

not proceed, will be forced to support their families financially (Table 4). Literature data confirm that children of high socio-economic status have resources and opportunities that at least secure their right to study. As a result, they are more comfortable with their decision to carry on with higher education studies [4,49–57,63,67–71,106].

The family's influence on the students' choice to continue with higher education studies, apart from the socio-economic context that characterizes it, exerts a substantial influence on the level of encouragement and moral support towards this choice. Particularly, families' motivation and students' interest in studying appear to have a positive affinity (Table 4). In addition, students who have visited an academic institution are more likely to pursue higher education (Table 4) [101].

Furthermore, most of the statements of question 6 in the Appendix of our previous research [104] suggest positive affinity after their correlation with the dependent variable. These statements consist of the outcome expectations [97] and the perceived social support [73–75].

The existence of older siblings, who study in higher education, does not seem to play a key role in students' choices towards pursuing higher education studies (Table 4). This is because the majority of Greek students, who attend secondary education, according to statistical data, carry on towards higher education studies. Hence, the existence of siblings, who study, does not seem to be a regulatory factor predicting students' interest in pursuing higher education. Only 16 out of 301 surveyed students do not intend to follow higher education studies (Table 2).

Additionally, people who hold an academic degree do not seem to influence students' decisions to continue studies in higher education (Table 4), in contrast with the literature data.

Finally, age's impact on the processes that take place within the family does not seem to be a regulatory factor in the students' decision to continue in higher education (Table 5).

6. Constraints and Considerations for Future Research

An aspect that was overlooked in the questionnaire utilized for this study was the absence of a query regarding the careers of the students' parents. Incorporating such an inquiry might have provided valuable perspectives on the students' interests, given the potential correlation between a father's occupation and a student's chosen academic path. Investigating this association could serve as a potential focus for future research surveys.

In addition, it would be remarkably intriguing to evaluate the existence of a secure attachment bond in relation to adaptability in educational and career choices, given the existing support in the literature.

Furthermore, it would be beneficial to broaden the research sample beyond the city of Piraeus. By considering the factor of residential location across the entire country, a more comprehensive understanding could be gained. Another intriguing aspect to include in our survey would be the involvement of students enrolled in technical high schools, as they receive distinct levels of education and practical training. This could present an additional avenue for prospective investigations.

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