European Public & Social Innovation Review

ISSN 2529-9824

Research Article

Self-efficacy and academic performance in higher education: a case study

Autoeficacia y rendimiento académico en educación superior: un caso de estudio

Elisa Figueiredo[1]: Polytechnic Institute of Guarda, Portugal.
efigueiredo@ipg.pt
Cecilia Fonseca: Polytechnic Institute of Guarda, Portugal.
cfonseca@ipg.pt
Teresa Paiva: Polytechnic Institute of Guarda, Portugal.
tpaiva@ipg.pt

Date of Reception: 01/06/2024

Acceptance Date: 06/08/2024

Publication Date: 04/11/2024

How to cite the article

Figueiredo, E., Fonseca, C., & Paiva, T. (2024). Self-efficacy and academic performance in higher education: a case study [Autoeficacia y rendimiento académico en educación superior: un caso de estudio]. *European Public & Social Innovation Review*, 9, 01-16. https://doi.org/10.31637/epsir-2024-960

Abstract
Introduction: There is a large body of research showing that self-efficacy is a crucial predictor of student achievement. Based on this framework, this study aims to investigate the correlation between students' general self-efficacy (GSE) and Social self-efficacy (SSE) and academic performance, as well as the relationship between GSE and SSE with age and gender. **Methodology**: Our approach was quantitative, descriptive, and cross-sectional. The target population was all students enrolled during the academic year 21/22 at a Portuguese higher education institution. **Results:** The results indicate that students with a high level of GSE perform better than those with lower GSE and the level of GSE depends on age and gender. Although, no correlation was identified for SSE and student performance. **Discussion:** From the results it was possible to corroborate the following study hypothesis: s*tudents with a high level of GSE perform better than those with lower GSE*, *the level of GSE and SSE depends on age and gender*. Although the hypothesis set *students with a high level of SSE perform better than those with*

[1] **Corresponding author:** Elisa Figueiredo. Polytechnic Institute of Guarda (Portugal).

lower SSE was not supported. **Conclusions:** This investigation could support strategies to promote self-efficacy in students with the aim of improving their academic performance.

Keywords: Self-efficacy; General Self-efficacy; Social Self-efficacy; Students; Academic Performance; Age; Gender; Correlation.

Resumen
Introducción: Existe un gran cuerpo de investigación que muestra que la autoeficacia es un predictor crucial del rendimiento estudiantil. Basado en este marco, este estudio tiene como objetivo investigar la correlación entre la autoeficacia general (GSE) y la autoeficacia social (SSE) de los estudiantes y su rendimiento académico, así como la relación entre la GSE y la SSE con la edad y el género. **Metodología:** El enfoque fue cuantitativo, descriptivo y transversal. La población objetivo fueron todos los estudiantes matriculados durante el año académico 2021/2022 en una institución de educación superior en Portugal. **Resultados:** Los resultados indican que los estudiantes con un alto nivel de GSE obtienen un mejor rendimiento que aquellos con menor GSE, y que el nivel de GSE depende de la edad y el género. No obstante, no se identificó ninguna correlación entre la SSE y el rendimiento académico de los estudiantes. **Discusión:** A partir de los resultados, fue posible corroborar la siguiente hipótesis del estudio: los estudiantes con un alto nivel de GSE rinden mejor que aquellos con menor GSE, y el nivel de GSE y SSE depende de la edad y el género. Sin embargo, no se apoyó la hipótesis de que los estudiantes con un alto nivel de SSE rinden mejor que aquellos con menor SSE. **Conclusiones:** Esta investigación podría apoyar estrategias para promover la autoeficacia en los estudiantes con el objetivo de mejorar su rendimiento académico.

Palabras clave: Autoeficacia; Autoeficacia General; Autoeficacia Social; Estudiantes; Desempeño académico; Edad; Género; Correlación.

1. Introduction

This paper focuses on self-efficacy as a predictor of higher education student performance. Many studies point to self-efficacy as an important predictor of students´ motivation to learn, learning engagement and, ultimately, student performance (Kaufmann et al., 2022; Afable et al., 2022; Dehbozorgi et al., 2021; Zakariya, 2021; Alrabai, 2018; Dent et al., 2018; Ouweneel et al., 2013; Diseth, 2011; Ouweneel et al., 2011).

If we consider the fact that student performance is a critical factor in a country's economic and social development, since it is the graduating students who will be the leaders of the various regions (Min et al., 2022), we realise the critical role this issue plays and the importance of understanding the factors that impact academic performance. Despite the large number of international studies that underline the positive impact of self-efficacy on motivation, learning ability and achievement, i.e., performance, such as those mentioned above, we were unable to identify in Portugal, any study regarding the relationship between these two constructs.

Considering the relevance of the topic and the lack of research in Portugal, we decided to perform this exploratory study, so that can stimulate further in-depth subsequent studies, thus contributing to enriching the literature field that focuses on understanding and identifying the mechanisms that support students' academic performance.

In this sense, the main purpose of our study is to investigate the correlation between students' general self-efficacy (GSE) and performance, as well as the correlation between social self-efficacy (SSE) and performance. Furthermore, the study aims to examine any relationships between GSE and SSE with age and gender, the research questions and hypotheses will be

presented at 1.2 section. Focused on the nuclear objective of our study, we structured this article in 4 sections following this introduction. Therefore, Section 2 presents the literature review, with Section 3 describing the research design. Sections 4 and 5, respectively, present and discuss the results, limitations and main contributions.

1.1. Theoretical framework

The concept of self-efficacy is a central construct to Social Cognitive Theory (Bandura, 1977, 1997) which highlights the extensive capacity of self-efficacy to influence human cognition, motivation and behaviour (Ouweneel et al., 2013). Bandura (1986) considers that people who doubt their abilities avoid difficult tasks, reduce their efforts and give up quickly in the face of difficulties, accentuate their personal shortcomings, lower their aspirations, and suffer greatly from anxiety and stress. Such self-doubt diminishes performance and generate great discomfort. On the contrary, individuals who considers him/herself highly self-confident who perceive themselves to be highly effective act, think and feel differently from those who perceive themselves as ineffective. Bandura (1986) goes further and states that the results that a person expects derive for the most part from one's own judgments, in such a way that the success raises expectations of mastery, while failure raises expectations decreases.

These beliefs are pointed out by different authors as a fundamental variable that influences socialization and academic success, intellectual development, the use of strategies and self-regulation for learning, while increasing motivation, self-imposition of more challenging goals, reduces emotional situations of stress and anxiety, as well as a decrease in antisocial behaviours' (Paoloni & Bonetto, 2013).

According to Graham & Weiner (1996), self-efficacy stands out from the other motivational constructs as a significant behavioural predictor. Is that so, because students' academic motivation and success, greatly depend on their own capabilities, but also, on the extent to which they believe in those capabilities (Ouweneel et al., 2013). Consider this, perceived self-efficacy "has emerged as a robust predictor of motivation and performance across time, a variety of environments, and different populations" (Komarraju, & Nadler, 2013, p. 67). On this assumption, self-efficacy assumes a central role, considering that self-efficacy concept refers to the "belief in one's capabilities to organise and execute the course of action required to produce given attainments" (Bandura, 1997, p. 3). Particularly, academic self-efficacy has been defined as the "personal judgments of one's capabilities to organize and execute courses of action to attain designated types of educational performances" (Zimmerman, 1995, p. 203).

As stated at the article introduction, there are a large scale of studies that recognizes the correlation between academic performance and self-efficacy (Sarteshniz et al., 2023; Breitenbach et al., 2022; Dehbozorgi et al, 2021; Rosales-Ronquillo & Hernández-Jácquez, 2020; Castellanos, 2017; Wilson & Narayan, 2016; Lishinski et al., 2016; Paoloni & Bonetto, 2013; Hórreo & Carro, 2007; Luszczynska et al., 2005; Ramalingam et al., 2004). Luszczynska et al. (2005) further emphasise that people with high self-efficacy choose to perform more challenging tasks, set themselves higher goals and stick to them. Latorre et al. (2018) also finds a statistically significant correlation between self-efficacy and academic performance and a possible relationship of reciprocal and positive influence between the perception of self-efficacy and academic performance. With this configuration, self-efficacy, specifically, academic self-efficacy, is considered as a critical predictor of a student's school performance and positively related to grades (Elias & MacDonald, 2007) which justifies that, normally, is quantified through the general weighted average (Afable et al., 2022).

Regardless the main research pointing to a strong positive correlation between self-efficacy and academic performance, there are some research lines that recognize the absence of this correlation within some student populations and in different circumstances (Ballen et al., 2017). In this context, Dehbozorgi et al. (2021) stats that correlation between these two constructs depends on different factors, e. g., the background of students, their age, major, the learning environment and class setting. On the other hand, Bui et al (2017) report that, while self-efficacy was significant in predicting the performance of domestic students, this positive relationship was not found among international students. Alosaimi (2021) confirms this research line with his study on the predictive power of learning self-efficacy on performance of clinical skills and ability to control sociodemographic characteristics among nursing students, concluding that students' professional and clinical skills were not associated with students' perception of their self-efficacy, while demographic characteristics such as age, academic level and gender predict and contribute to student's performance differences. Popa-Velea et al., (2021) on the other hand, were unable to identify a statistically significant relationship between gender and academic performance, since self-efficacy were similar in men and women.

In this regard, we observe that literature identifies a wide range of factors associated with self-efficacy and academic performance, which go beyond demographic characteristics and demonstrate the centrality and complexity of this relationship in explaining students' goals achievement. Examples of this include psychological constructs such as motivation, self-regulation, and anxiety (Honicke & Broadbent, 2016; Skaalvik et al., 2015, Li & Wang, 2010;), job search self-efficacy, career optimism and pessimism (Sarteshnizi et al., 2023), study skills and academic achievement (Dadandı, 2023) or even how self-efficacy, levels of and changes in boredom and improvement in presentation competence, are associated with presentation performance (Schickel & Ringeisen, 2022). Also, Martínez and Medina (2019) in their study on learning approaches, self-regulation and self-efficacy and their influence on academic performance in undergraduate psychology students reported that higher self-efficacy and self-regulation better explain academic success. Along the same path, León et al. (2019), confirm that as academic self-efficacy becomes more satisfying, academic achievement and resilience increase, concluding that there is a direct relationship between these variables.

González-Benito et al., (2021) from their study to analyse the extent to which motives for students taking distance learning university courses and perceptions of academic self-efficacy influence achieved outcomes, conclude that the only factor that is positively associated with academic performance is the feeling of self-efficacy. However, as mentioned above, our study focuses on self-efficacy as a predictor of student's performance. Focussed on this purpose and based on the literature review we were able to identify another level of analysis focused on the distinction between general self-efficacy (GSE) and social self-efficacy (SSE).

GSE "is the belief in one's competence to tackle novel tasks and to cope with adversity in a broad range of stressful or challenging encounters, as opposed to specific self-efficacy, which is constrained to a particular task at hand" (Luszczynska et al., 2005, p.80). The same authors conclude that students with higher school achievements had high GSE scores (Luszczynska et al., 2005). On the other hand, SSE was identified by Sherer & Adams (1983) and Sherer & Maddux (1982) and can be defined as the extent to which people feel a sense of capability to influence their social environment through their actions (Ferris et al., 2007). In their research, Sherer & Maddux (1982) managed to identify a predictive relationship between GSE and educational and vocational success, but no relationship between SSE and success in education was identified.

According to Malinauskas et al. (2018), persons with a high level of SSE are more effective in solving problems because of their self-confidence in their ability to handle problematic situations. Particularly in the case of students, the same authors underline that the level of SSE is determinant in the student's positive relationships and constructive interaction, and students with a higher level of SSE can regulate more effectively their social lives than others. Carmeli et al. (2021) also noted that SSE enables individuals to take advantage of their social connections to create social conditions that will promote positive affect and personal growth.

Antipodes of this discussion, Ferrari and Parker (1992) recognise a positive relationship between SSE and academic performance in first-year college students. More recent studies reinforce the importance of this topic (Malinauskas & Saulius, 2019) and report that students with a lower level of SSE are at a greater risk of experiencing learning difficulties and adopting behaviours as anti-social behaviour, violence and criminality and leaving school without any certification or vocational skills, with consequently poor employability opportunities (Akelaitis & Lisinskiene, 2018). Çankaya et al. (2017), in this same line, identified a positive correlation between language proficiency and social self-efficacy and that social self-efficacy provides a unique prediction of the Personal Growth Initiative. In the professional context, too, SSE is seen as relevant to outcome variables in the career development or work adjustment process (Smith & Betz, 2000). In turn, Kale (2020) stated that when general self-efficacy perceptions of individuals with both anxiety and avoidance attachments are low, their job performance decreases as a result.

1.2. Research questions and hypothesis formulation

In this theoretical framework, we formulate the following research questions:

Do students with high general self-efficacy (GSE) perform better than those with lower general self-efficacy?
Do students with high social self-efficacy (SSE) perform better than those with lower social self-efficacy?
Do GSE and SSE vary by age and gender?

Based on those research questions, we formulate the following Hypothesis:

H1: Students with a high level of GSE perform better than those with lower GSE.
H2: Students with a high level of SSE perform better than those with lower SSE.
H3: The level of GSE and SSE depends on age and gender.

2. Methodology

To achieve the defined objectives, a study was carried out on the population of all students enrolled during the academic year 21/22 from a public Portuguese High Education Institution (HEI). The methodology was quantitative, descriptive, and cross-sectional. A questionnaire survey was used as a data collection instrument, structured into two parts and with closed questions (multiple-choice and rating scales), only one question was open. The questionnaire was designed to be concise, thereby encouraging participation. The survey's first part was dedicated to sociodemographic (age, gender, nationality) and academic characteristics (degree program, course, average grade). The second part included the Self Efficacy Scale (SES) of Sherer et al. (1982) and Sherer & Adams (1983) to measure the two dimensions of self-efficacy (general self-efficacy and social self-efficacy. The scale consists of 23 closed items, being the rated agreement from "1- strongly disagree" to " 7- strongly agree", thus a 7-point Likert-scaled survey. From the SES validation study, two subscales were identified and named the general self-efficacy and social self-efficacy, the first consisting of 17 items (with eleven

reversed items) and the second of 6 items (with three reversed items). A pre-test was carried out with the aim of validating the data collection instrument.

The structured survey, distributed digitally through Google Forms, was available to the target population (self-administered) from September to December 2021 for data collection. For inclusion, students had to voluntarily agree to participate and complete the forms, which included the informed consent. The confidentiality of the participant's identity was respected, and the study complied with all ethical issues. A total of 280 students from a public Portuguese HEI agreed to participate in the study, representing a non-probabilistic sample.

The internal consistency of the SES tool in the sample was evaluated through Cronbach's alpha, with values of 0.802 for the GSE and 0.639 for the SSE, being close to those reported by Sherer et al. (1982), which were 0.86 and 0.71, respectively. There are references to acceptable values between 0.70 and 0.95 (Nunnally & Bernstein, 1994; Tavakol & Dennick, 2011) and also for values above 0.6 (Gliem & Gliem, 2003; DeVellis, 2016), especially for scales with fewer items or in exploratory research contexts.

Descriptive data analysis (namely the measures: Standard Deviation-SD, mean, median, first quartile, third quartile) was performed to provide a sociodemographic and academic characterisation of the sample, as well as the score of the SES (Mann, 2018). The 95% Confidence Intervals (CI) were determined when it was justified. The *Spearman's rho* was used to assess the bivariate correlation, given the ordinal scale of some variables (Norman, 2010). To compare differences in a qualitative ordinal variable between two independent groups, the *Mann–Whitney* test was applied (Nachar, 2008). The multivariate linear regression was applied with previous conditions verification by using *Kolmogorov-Smirnov test* with de *Lilliefors* correction, *Durbin-Watson* statistic and variance inflation factors. The internal consistency of SES in the sample was evaluated by Cronbach's alpha. The results were analysed at a significance level of 5%. Data processing and analysis were carried out using Statistical Package for Social Sciences version 29 (IBM Corp., Armonk, NY, US).

3. Results

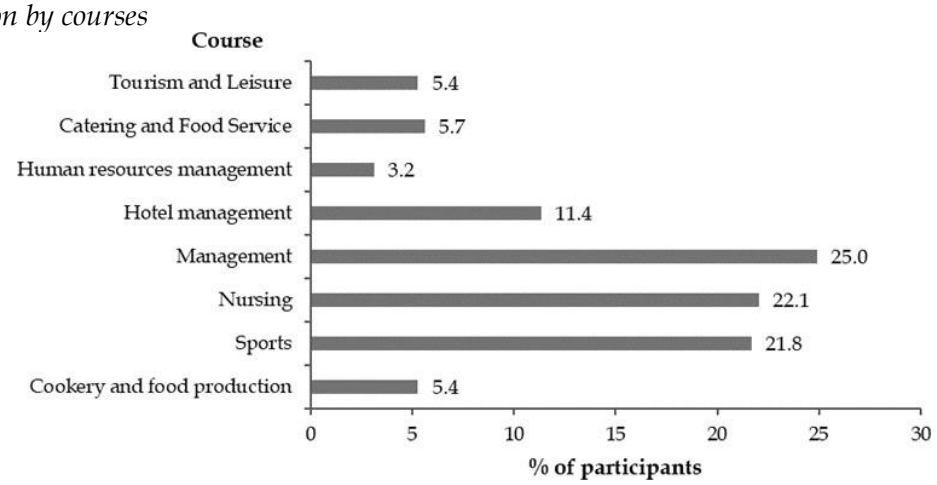
The presentation of the data analysis begins with the characterisation of the sample of participants, followed by the results of the two self-efficacy dimensions: general (GSE) and social (SSE). The outcomes of the investigation into the correlation between GSE and academic performance, age and gender, as well as the results for SSE, will be detailed at the end of the section.

3.1. Sociodemographic and academic characteristics

A total of 280 students participated in the study and most of them were female (164, 58.6%), with an average age of 20.9 years (±3.5=SD), between a minimum of 17 years old and a maximum of 50 years old. Most of the participants were Portuguese (250, 89.3%), with some representation (23, 8.2%) of nationalities from the Community of Portuguese Speaking Countries (African Countries and Brazil), with a participant from French and Spanish nationalities (0.7%), the remainder didn't answer (5, 1.8%). Among them, 94.6% were enrolled in a bachelor's degree program, while 5.4% were pursuing a Higher Professional Technical course. The representativeness of the courses is shown in Figure 1, where the Management, Sports and Nursing courses stand out, where there is only one Higher Professional Technical course which is Cookery and Food Production.

Figure 1.

Distribution by courses



Source: Author's elaboration (2024).

The academic performance of the participants in the study is based on their average grade at the time of data collection. Thus, the study's participants had an average grade of 13.8 (±1.7=SD), with scores ranging from 10 to 19 on a scale from 0 to 20.

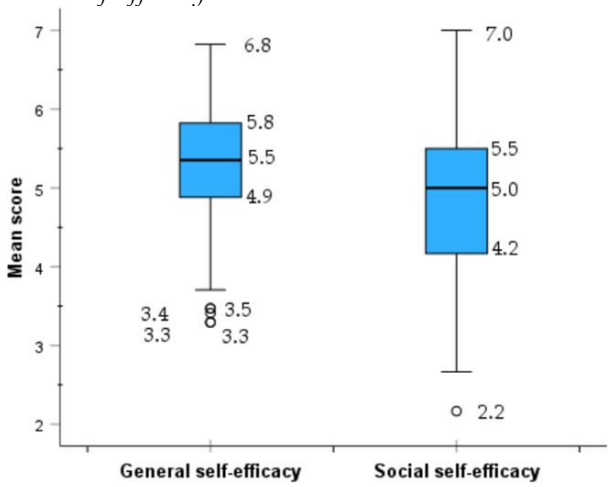
3.2. General self-efficacy (GSE) and social self-efficacy (SSE)

As detailed previously, the self-efficacy scale was applied to evaluate the GSE and SSE of the students who participated in the study. The GSE was calculated from the mean of seventeen specific items of the self-efficacy scale, which could range from one ("strongly disagree") to seven ("strongly agree"), given the ordinal scale of the items, with higher scores indicating greater self-efficacy. For the SSE the procedure was similar but for six items. Considering the ordinal nature of the values, the comparison of GSE and SSE in the sample was based on the ordinal measures as can be seen in Figure 2. Based on the participants' perceptions of their self-efficacy, similar median values were obtained for GSE (5.5, 95% CI 5.3 - 5.5) and SSE (5.0, 95% CI 5.0 - 5.2). Based on the interquartile range, which describes the variation of the middle 50% between the first quartile and third quartile (Figure 2), it could be concluded that they are similar, so the perception of self-efficacy in the two dimensions are similar and the upper four, it can be categorised as a slightly high level of general and social self-efficacy.

The correlation between the two dimensions of self-efficacy was evaluated and obtained the value of *Spearman's rho* of 0.46 ($p < 0.001$). The positive correlation can be classified as regular and statistically significant, an increase in GSE is associated with an increase in SSE.

Figure 2.

Boxplot for General and Social self-efficacy



Source: Author's elaboration (2024).

3.3. Self-efficacy and sociodemographic/academic characteristics

The correlation between GSE e SSE and student academic performance, based on their average course grades, was assessed. The results showed a weak but statistically significant positive correlation between GSE and performance (*Spearman's rho* = 0.194, p = 0.002), which indicates that students with higher average course grades are associated with higher general self-efficacy. However, it was not observed correlation between SSE and students' average score (*Spearman's rho* = 0.058, p = 0.359). Additionally, there was a weak positive correlation between GSE and students' age (*Spearman's rho* = 0.157, p = 0.008), suggesting that increasing age is associated with greater general self-efficacy, but without correlation with social self-efficacy (*Spearman's rho* = 0.085, p = 0.157).

Furthermore, the results revealed a difference in the perception of social self-efficacy between males and females, with males reporting higher values (Z = -2.179, p = 0.029).

Based on the previous results, the extent to which academic performance was explained by GSE, SSE, age and gender was assessed using a multiple linear regression model (Table 1). We examined the assumptions of multiple regression (residuals with approximately normal distribution without autocorrelation and multicollinearity among the predictors) to ensure the validity of our results. The multiple linear regression model was statistically significant (ANOVA: F(4, 253) = 4.91, p <0.001) with R=0.268. By the regression coefficients (Table 1), it could be concluded that GSE (β=0.028, p=0.006) and Age (β=0.073, p=0.013) were the predictors with statistical significance to explain academic performance, gender (β=0.289, p=0.161) and SSE (β=-0.023, p=0.293) were not significant to predict academic performance.

Table 1.

Regression coefficients for the multiple regression model predicting academic performance

Coefficients[a]					
	Unstandardized Coefficients		Standardized Coefficients		
Model	β	Std. Error	β	*T*	Sig.
(Constant)	9.963	0.993		10.034	0.000
SSE	-0.023	0.022	-0.074	-1.053	0.293
GSE	0.028	0.010	0.196	2.770	0.006
Gender	0.289	0.206	0.086	1.405	0.161
Age	0.073	0.029	0.155	2.491	0.013

a. Dependent Variable: average course grades

Source: Author's elaboration (2024).

4. Discussion

The purpose of this study was to investigate the correlation between two dimensions of self-efficacy (GSE, SSE) and student academic performance, as well as the relationships between GSE and SSE with age and gender. Recalling the research questions and hypotheses formulated for this study, the conclusions follow, based on the results obtained from the sample of participants.

Regarding the *H1* hypothesis, s*tudents with a high level of GSE perform better than those with lower GSE*, the results corroborated it, given the statistically significant positive correlation between GSE and academic performance. Considering the second hypothesis *(H2), students with a high level of SSE perform better than those with lower SSE*, the results didn't support it. That is because no correlation was observed, and SSE was tested as a predictor of academic performance and results showed no statistical significance. Finally, the last hypothesis, that *the level of GSE and SSE depends on age and gender (H3)*, is supported by the results. So, data suggest that increasing age is associated with greater GSE and suggest that males have SSE with higher values than females.

The relationship between social self-efficacy (SSE) and academic performance is more complex and less consistent in the literature. Some studies suggest a positive correlation, particularly in contexts where collaborative learning and social interactions are integral to the educational process (Ferrari & Parker, 1992; Malinauskas et al., 2018). However, other research has found no significant relationship between SSE and academic outcomes, indicating that the impact of SSE might be context-dependent (Sherer & Adams, 1983; Çankaya et al., 2017).

The research allows us to conclude, as expected, that an increase in GSE, is associated with an increase in SSE, which agrees with the revised literature (Sherer et al, 1982; Sherer & Adams, 1983). From the descriptive analysis of GSE and SSE scores, it can be concluded that participants perceived a slightly high level of self-efficacy in both dimensions. These results are in accordance with those presented by Latorre et al. (2018), where the participants obtained a high score on global self-efficacy perception. The study of Afable et al (2022) also revealed that the participating students had a high perception of self-efficacy.

The results also indicate that students with a high level of GSE had better academic perform than those with lower GSE. These results are similar to previous research, namely Ouweneel et al. (2013), Latorre et al. (2018), Martínez & Medina (2019), Dehbozorgi et al. (2021) and Afable et al. (2022).

Our findings' alignment with existing literature on GSE reinforces the robustness of the theoretical framework underpinning self-efficacy as a predictor of academic performance. The positive relationship between GSE and academic outcomes underscores the importance of fostering general self-efficacy in educational settings to enhance student achievement.

Although, no correlation was identified for SSE and student performance which is in line with the results of Sherer et al. (1982). Note that SSE does not have a direct impact on academic performance, which may be due to the possible individualistic nature of academic assessments that prioritize personal effort and cognitive abilities over social skills.

Age and gender are often discussed as influential factors in the development of self-efficacy. Data further suggests that increasing age is associated with greater GSE, but without correlation with SSE. Other research indicates that GSE tends to increase with age, as students gain more experience and confidence (Luszczynska et al., 2005). We emphasise that in the literature reviewed, no support was found for the relationship between SSE and age.

Another piece of evidence from the results is that there are differences in SSE between males and females, with males reporting a higher perception of social Self-efficacy. This result is not in accordance with that presented by Malinauskas et al. (2018), which covered students of High and Youth schools, where they concluded that females have higher social self-efficacy than males despite differences in the target population. However, if we consider constructs close to SSE, we encounter studies such as those by Satici et al. (2016) which concluded that the academic self-efficacy of male students is higher than females as well and Latorre et al. (2018) reported that males have slightly higher self-perceived in communication, which is in the same direction as our research.

The comparative analysis between the literature and this study's findings highlights the multifaceted nature of self-efficacy and its varying impact on academic performance. While GSE consistently emerges as a crucial factor in student success, the role of SSE appears more context-dependent, influenced by specific educational practices and cultural norms. By integrating these insights, educators and policymakers can better design interventions to support students' self-efficacy and academic achievement.

One limitation of the current research is the lack of control over the influence of other variables, such as family conditions, background experiences, economic status, and physical and emotional states, which can impact self-efficacy. These limitations could also justify the degree of correlation found, as well as the dimension and representativeness of the sample. Therefore, in the future, a broader study should be carried out that includes variables that make it possible to overcome the limitations pointed out.

We also suggest that future studies focus on the relationship between SSE and age so that we can compare the results obtained in this study. Considering the particular case of Portugal, it is recommended that future studies consider the various dimensions of self-efficacy in order to overcome the lack of research on this subject, to which this study is already trying to contribute.

Future research should also consider longitudinal designs to track changes in self-efficacy and academic performance over time, providing a more dynamic understanding of these relationships. One additional issue that could be considered in a future study is using other self-efficacy assessment tools.

5. Conclusions

The results indicate that students with a high level of GSE perform better than those with lower GSE and the level of GSE depends on age and gender. Although, no correlation was identified for SSE and student performance, which may be due to the context and dynamics of the institution, being small and in an inland region, as well as may be due with possible individualistic nature of academic assessments that prioritize personal effort and cognitive abilities over social skills.

This research enables the evaluation of general and social self-efficacy in relation to academic performance and some sociodemographic characteristics of the student population targeted. The results obtained can be used to support strategies to promote self-efficacy in students with the aim of improving their academic performance and pave the way for other studies in Portugal on this construct.

6. References

Afable, T., Lamberto, J., Ng, T., Umandap, A., & Arcinas, M. (2022). SHS Students' Engagement in Online Synchronous Collaborative Learning Activities: Correlations with Self-efficacy, Peer Social Support, Well-being and Academic Performance. *21st Century Learning and Innovations (CLI)*. http://dx.doi.org/10.11594/ijmaber.03.06.16

Akelaitis, A. V., & Lisinskiene, A.R. (2018). Social Emotional Skills and Prosocial Behaviour among 15-16-Year-Old Adolescents. *European Journal of Contemporary Education*, *7*(1), 21-28. 10.13187/ejced.2018.1.21

Alosaimi, D. (2021). Learning self-efficacy as predictor of nursing students' performance of clinical skills. *Educational Sciences: Theory and Practice*, *21*(3), 120-131. http://dx.doi.org/10.12738/jestp.2021.3.009

Alrabai, F. (2018). The association between self-efficacy of Saudi learners and their EFL academic performance. *Theory and Practice in Language Studies*, *8*(10), 1351-1360. 10.17507/tpls.0810.14

Ballen, C., Wieman, C., Salehi, S., Searle, J., & Zamudio, K. (2017). Enhancing diversity in undergraduate science: Self-efficacy drives performance gains with active learning. *CBE – Life Sciences Education*, 16(4), ar56. https://doi.org/10.1187/cbe.16-12-0344

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215. https://bit.ly/4cSnXSC

Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Clinical and Social Psychology*, 4, 359-373. https://bit.ly/4cSnXSC

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman. https://bit.ly/4cSnXSC

Breitenbach, E., Adler, K., & Pazdernik, V. (2022). Writing Self-Efficacy and Performance Among Students in an Online Doctoral Program. *International Journal of Innovative Teaching and Learning in Higher Education* (IJITLHE), *3*(1), 1-14. http://doi.org/10.4018/IJITLHE.304080

Bui, H., Fung So, K., Kwekc, A., & Rynned, J. (2017). The impacts of self-efficacy on academic performance: An investigation of domestic and international undergraduate students in hospitality and tourism, *Journal of Hospitality, Leisure, Sport & Tourism Education* 20, 47–54. 10.5281/zenodo.8303197

Çankaya, E., Dong, X., & Liew, J. (2017). An examination of the relationship between social self-efficacy and personal growth initiative in international context. *International Journal of Intercultural Relations*, 61, 88-96. https://doi.org/10.1016/j.ijintrel.2017.10.001

Carmeli, A., Peng, A. C., Schaubroeck, J. M., & Amir, I. (2021). Social support as a source of vitality among college students: The moderating role of social self-efficacy. *Psychology in the Schools, 58*(2), 351-363. https://doi.org/10.1002/pits.22450

Castellanos, V., Latorre, D., Mateus, S., & Navarro, C. (2017). Modelo explicativo del desempeño académico desde la autoeficacia y los problemas de conducta. *Revista Colombiana de Psicología, 26*(1), 149-161. http://www.redalyc.org/articulo.oa?id=80454273010.

Dadandı, İ. (2023). Academic self-efficacy, study skills and academic achievement: A serial mediation model. *Research on Education and Psychology (REP), 7*(2), 291-306. https://doi.org/10.54535/rep.1342022

Dehbozorgi, N., Maher, M., & Dorodchi, M. (2021), Does Self-Efficacy Correlate with Positive Emotion and Academic Performance in Collaborative Learning? *IEEE Frontiers in Education Conference (FIE) | 978-1-6654-3851-3/21* 10.1109/FIE49875.2021.9637471.

Dent, L., Maloney, P., & Karp, T. (2018). Self-efficacy development among students enrolled in an engineering service-learning section. *International Journal for Service Learning in Engineering, Humanitarian Engineering and Social Entrepreneurship*, *13*(2), 25-44. https://doi.org/10.24908/ijsle.v13i2.11483

DeVellis, R. F. (2016). *Scale Development: Theory and Applications* (4th ed.). Sage Publications. https://www.columbusstate.edu/academic-affairs/_docs/eduf_syllabus.pdf

Diseth, Å. (2011). Self-efficacy, goal orientations and learning strategies as mediators between preceding and subsequent academic achievement. *Learning and individual differences*, *21*(2), 191-195. https://doi.org/10.1016/j.lindif.2011.01.003

Elias, S., & MacDonald, S. (2007). Using past performance, proxy efficacy, and academic self-efficacy to predict college performance. *Journal of Applied Social Psychology*, *37*(11), 2518-2531. https://bit.ly/4cSnXSC

Ferrari, J. R., & Parker, J. T. (1992). High school achievement, self-efficacy, and locus of control as predictors of freshman academic performance. *Psychological Reports*, 1, 515-518. https://bit.ly/4cSnXSC

Ferris, G. R., Treadway, D. C., Perrewé, P. L., Brouer, R. L., Douglas, C., & Lux, S. (2007). Political skill in organizations. *Journal of Management*, 33, 290-320. https://bit.ly/4cSnXSC

Gliem, J. A., & Gliem, R. R. (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. *Midwest Research to Practice Conference in Adult, Continuing, and Community Education*. https://bit.ly/4cSnXSC

González-Benito, A., López-Martín, E., Expósito-Casas, E., & Moreno-González, E. (2021). Motivación académica y autoeficacia percibida y su relación con el rendimiento académico en los estudiantes universitarios de la enseñanza a distancia. *RELIEVE - Revista Electronica de Investigation y Evaluación Educativa, 27*(2), art. 2. http://doi.org/10.30827/relieve.v27i2.21909

Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review,* 17, 63-84. https://doi.org/10.1016/j.edurev.2015.11.002

Hórreo, V., & Carro, R. (2007). Studying the impact of personality and group formation on learner performance. *In International Conference on Collaboration and Technology*, 287-294. https://bit.ly/4cSnXSC

Kale, E. (2020) Attachment styles and job performance in the hospitality industry: the mediating role of general self-efficacy, *Journal of Human Resources in Hospitality & Tourism, 19*(1) 23-42, 10.1080/15332845.2020.1672244

Kaufmann, L., Ninaus, M., Weiss, E. M., Gruber, W., & Wood, G. (2022). Self-efficacy matters: Influence of students' perceived self-efficacy on statistics anxiety. *Annals of the New York Academy of Sciences, 1514*(1), 187-197. 10.1111/nyas.14797

Komarraju, M., & D. Nadler (2013). "Self-efficacy and academic achievement: Why do implicit beliefs, goals, and effort regulation matter?" *Learning and Individual Differences,* 25, 67–72. https://doi.org/10.1016/j.lindif.2013.01.005

Latorre, M., Tena, R., Cruz, J., & Toscano, M. (2018). Percepción de autoeficacia y rendimiento académico en estudiantes de bachillerato. *Caleidoscopio-Revista Semestral de Ciencias Sociales y Humanidades*, 39, 33-46. http://orcid.org/0000-0002-1183-1518

León Hernández, A., González Escobar, S., Barcelata Eguiarte, B., & González Arratia, N. (2019). Estrés, autoeficacia, rendimiento académico y resiliencia en adultos emergentes. *Electronic Journal of Research in Educational Psychology, 17*(1), 129-148. https://bit.ly/4cSnXSC

Li, Y., & Wang, C. (2010). An empirical study of reading self-efficacy and the use of reading strategies in the Chinese EFL context. *Asian EFL Journal*, *12*(2), 144-162. https://asian-efl-journal.com/PDF/June-2010.pdf#page=144

Lishinski, A., Yadav, A., Good, J., & Enbody, R. (2016). Learning to program: Gender differences and interactive effects of students' motivation, goals, and self-efficacy on performance. In *Proceedings of the 2016 ACM conference on international computing education research* (pp. 211-220). https://doi.org/10.1145/2960310.296032

Luszczynska, A., Gutiérrez-Donã, B., & Schwarzer, R. (2005). General self-efficacy in various domains of human functioning: Evidence from five countries. *International Journal of Psychology, 40*(2), 80-89. https://doi.org/10.1080/00207590444000041

Malinauskas, R., & Saulius, T. (2019) Social Self-Efficacy and Prosocial Behaviour Among Students of High and Youth Schools. *European Journal of Contemporary Education*, *8*(3), 542-549. 10.13187/ejced.2019.3.542

Malinauskas, R., Sniras, S., & Malinauskiene, V. (2018). Social self-efficacy training programme for basketball-playing students: a case study. *Revista de Psicología del Deporte, 27*(1), 165-185. https://bit.ly/4cSnXSC

Mann, P. S. (2018). *Introductory Statistics* (9th ed.). Wiley. https://bit.ly/4cSnXSC

Martínez, J. G., & Medina, A. R. (2019). Enfoques de aprendizaje, autorregulación y autoeficacia y su influencia en el rendimiento académico en estudiantes universitarios de Psicología. *EJIHPE: European Journal of Investigation in Health, Psychology and Education*, *9*(2), 95-107. https://dialnet.unirioja.es/servlet/articulo?codigo=7109636

Min, W., Jun, G., & Feng, L. (2022). How Psychological Wellbeing and Digital Mental Health Services Intervene the Role of Self-Efficacy and Affective Commitment of University Students in Their Performance?. *Frontiers in Psychiatry*, 13, 946793. https://doi.org/10.3389/fpsyt.2022.946793

Nachar, N. (2008). The Mann-Whitney U: A Test for Assessing Whether Two Independent Samples Come from the Same Distribution. *Tutorials in Quantitative Methods for Psychology*, 4, 13-20. https://doi.org/10.20982/tqmp.04.1.p013

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in health sciences education*, *15*(5), 625-632. https://doi.org/10.1007/s10459-010-9222-y

Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric Theory (3rd ed.). New York: McGraw-Hill. https://bit.ly/4cSnXSC

Ouweneel, E., Le Blanc, P., & Schaufeli, W. (2011). Flourishing students: A longitudinal study on positive emotions, personal resources, and study engagement. *The Journal of Positive Psychology, 6*(2), 142-153. https://doi.org/10.1080/17439760.2011.558847

Ouweneel, E., Le Blanc, P., & Schaufeli, W. (2013). Do-it-yourself: An online positive psychology intervention to promote positive emotions, self-efficacy, and engagement at work. *Career Development International*, *18*(2), 173-195. https://doi.org/10.1108/CDI-10-2012-0102

Paoloni, P. V. R., & Bonetto, V. A. (2013). Creencias de autoeficacia y rendimiento académico en estudiantes universitarios. Propuestas para favorecer aprendizaje y motivación. https://ri.conicet.gov.ar/handle/11336/98923

Popa-Velea, O., Pîrvan, I., & Diaconescu, L. (2021). The Impact of Self-Efficacy, Optimism, Resilience and Perceived Stress on Academic Performance and Its Subjective Evaluation: A Cross-Sectional Study. *International Journal Environment Research Public Health*, *18*(17), 8911. https://doi.org/10.3390/ijerph18178911

Ramalingam, V., LaBelle, D., & Wiedenbeck, S. (2004). Self-efficacy and Mental Models in Learning to Program. In *Proceedings of the 9th Annual SIGCSE Conference on Innovation and Technology in Computer Science Education*, 171-175. https://doi.org/10.1145/1007996.100804

Rosales-Ronquillo, C., & Hernández-Jácquez, L. (2020). Autoeficacia académica y su relación con el rendimiento académico en estudiantes de nutrición. *Revista Electrónica Educare*, *24*(3), 139-155. http://dx.doi.org/10.15359/ree.24-3.7

Sarteshnizi, P., Farsani, Z., & Rabiei, M. (2023). Mediating Role of Academic Performance and Job Search Self-Efficacy in Correlation between Career Optimism and Pessimism and Students' Employability Perception. *Positive Psychology Research, 9*(2), 43-64. 10.22108/PPLS.2023.134500.2340

Satici, S. A., & Can, G. (2016). Investigating Academic Self-Efficacy of University Students in Terms of Socio-Demographic Variables. *Universal Journal of Educational Research, 4*(8), 1874-1880. 10.13189/ujer.2016.040817

Schickel, M., & Ringeisen, T. (2022). What predicts students' presentation performance? Self-efficacy, boredom and competence changes during presentation training. *Current Psychology*, *41*(9), 5803-5816. https://doi.org/10.1007/s12144-020-01090-8

Sherer, M., Maddux, J., Mercadante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. (1982). The Self-Efficacy Scale: Construction and validation. *Psychological Reports*, 51, 663-671. https://bit.ly/4cSnXSC

Sherer, M., & Adams, C. (1983). Construct validation of the Self-Efficacy Scale. *Psychological Reports*, 53, 899-902. https://bit.ly/4cSnXSC

Smith, H., & Betz, N. (2000). Development and validation of a scale of perceived social self-efficacy. *Journal of career assessment*, *8*(3), 283-301. https://bit.ly/4cSnXSC

Skaalvik, E., Federici, R., & Klassen, R. (2015). Mathematics achievement and self-efficacy: Relations with motivation for mathematics. *International Journal of Educational Research*, 72, 129-136. https://doi.org/10.1016/j.ijer.2015.06.008

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. International journal of medical education, 2, 53. 10.5116/ijme.4dfb.8dfd

Wilson, K., & Narayan, A. (2016). Relationships among individual task self-efficacy, self-regulated learning strategy use and academic performance in a computer-supported collaborative learning environment. *Educational Psychology, 36*(2), 236-253. https://doi.org/10.1080/01443410.2014.926312

Zakariya, Y. (2021) Self-Efficacy Between Previous and Current Mathematics Performance of Undergraduate Students: An Instrumental Variable Approach to Exposing a Causal Relationship. *Frontiers in Psychology* ,11, 556607. https://acortar.link/LJSQjw

Zimmerman, B. J. (1995). Self-efficacy and educational development. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 202-231). Cambridge University Press https://bit.ly/4cSnXSC

Zimmerman, B. J. (2015). Self-regulated learning: Theories, measures, and outcomes. In J. D. Wright (Ed.), *International encyclopedia of the social & behavioral sciences* (pp. 541-546). 10.1016/b978-0-08-097086-8.26060-1

Zimmerman, B. J., Schunk, D., & DiBenedetto, M. (2017). The role of self-efficacy and related beliefs in self-regulation of learning and performance. In A. J. Elliot, C. S. Dweck & D. S. Yeager (Eds.), *Handbook of competence and motivation: Theory and application* (pp. 313-333). http://bit.ly/4cSnXSC

AUTHORS:

Elisa Figueiredo
Polytechnic Institute of Guarda, Portugal.

Professor at the Department of Management and Economics of the School of Technology and Management (STM) at Polytechnic Institute of Guarda (IPG), Portugal. PhD in Organizational Psychology. Director of the degree in Human Resources Management at STM of the IPG. Guest lecturer on the Global Management Master's programme and on the International Human Resources Management Master's programme at ISCID-Co - International Business School of the Université Littoral Côte d'Opale (France). Member of the DIGIQUAL Observatory board (France) with the mission of promoting research in the areas of Human Resources Management, Well-being at Work, Health, Hygiene and Safety at Work, Digitalisation of HR and Change Management. Consultant and trainer in Human Resource Management and Organizational Behaviour.

efigueiredo@ipg.pt

Orcid ID: https://orcid.org/0000-0002-9598-0640

Cecilia Fonseca
Polytechnic Institute of Guarda, Portugal.

Professor at Department of Exact and Experimental Sciences of the School of Technology and Management (STM) at Polytechnic Institute of Guarda (IPG), Portugal. PhD in Applied Mathematics. President of the Technical-Scientific Council of STM. Trainer in teacher training courses within lifelong education at IPG. Participation in mobility programmes across various European countries. Research related with dependence measures for spatial extreme events, data analysis for health and management areas.

cfonseca@ipg.pt

Orcid ID: https://orcid.org/0000-0002-8543-331X

Teresa Paiva
Polytechnic Institute of Guarda, Portugal.

Professor in the area of Management and Marketing of the Polytechnic Institute of Guarda (IPG), PhD in Management, specialisation in Marketing, master's degree in Business Sciences, specialised in Strategic Management and Business Development and a degree in Economics. Has a postgraduate course in Direction of Incubators, Accelerators and Business Development Centres from the University of Salamanca. Is a certified trainer in Management and Entrepreneurship. Develops marketing, innovation, and entrepreneurship education research, with several scientific and technical publications. Has experience coordinating various scientific and applied research projects, co-financed by national and/or European funds and participates in projects co-financed by Europe.

tpaiva@ipg.pt

Orcid ID: https://orcid.org/0000-0002-1721-9813