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# **WHAT DRIVES ENTREPRENEURIAL ALERTNESS IN HIGHER EDUCATION: THE INTERPLAY BETWEEN SELF-EFFICACY AND FINANCIAL LITERACY?**

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### ***Abstract***

*This paper explores the psychological and financial factors that drive entrepreneurial alertness among university students, focusing on the roles of self-efficacy, subjective financial literacy and objective financial literacy. The study was conducted on a sample of 285 students from the University of Split in Croatia and the University of Mostar in Bosnia and Herzegovina. The analysis was performed using hierarchical regression and mediation techniques using the PROCESS macro in the SPSS. Findings indicate distinct influence between objective and subjective financial literacy on entrepreneurial alertness. While subjective financial literacy positively and significantly influences entrepreneurial alertness, objective financial literacy does not exert a direct*



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*effect. Instead, objective financial literacy indirectly influences entrepreneurial alertness through subjective financial literacy. This indicates that financial knowledge alone is not enough; it must be accompanied by confidence in one's financial abilities to effectively drive entrepreneurial alertness. Self-efficacy emerged as key driver (predictor) as well as a mediator in this relationship. Students who believe in their competences and skills, who perceive that their efforts can impact their environment and future outcomes, have a stronger sense of self-efficacy and tend to be more motivated to identify entrepreneurial opportunities in their surroundings. These findings highlight the role of self-efficacy as a driver of entrepreneurial alertness among students. The results suggest that educational programs aimed at enhancing entrepreneurial potential should focus more on building students' confidence and perceived abilities rather than solely improving financial knowledge. A more psychologically informed approach to entrepreneurial education could better prepare young individuals for engaging in entrepreneurial activities. Overall, this study contributes to the better understanding of the cognitive processes that effectively stimulate entrepreneurial alertness and provide guidelines for designing more effective educational interventions.*

**Keywords:** *entrepreneurial alertness, self-efficacy, subjective financial literacy, objective financial literacy, university students*

## 1. INTRODUCTION

Rapid technological change, driven by the rise of artificial intelligence (AI), has resulted in increasingly uncertain labour markets. These changes, combined with increased political tensions, wars, and economic instability, have created significant global economic challenges. As a result, young people are increasingly expected to demonstrate initiative, adaptability, and entrepreneurial thinking. However, despite numerous efforts and educational reforms, many graduates still lack the skills, knowledge, and confidence needed to recognize and grab entrepreneurial opportunities. This perceived gap highlights the importance of understanding the cognitive and financial foundation of entrepreneurial behavior among young people. Therefore, it is imperative to explore how financial literacy and self-efficacy together contribute to entrepreneurial alertness and may provide valuable insights for designing more effective entrepreneurship education programs.

This highlights the importance of fostering entrepreneurial alertness (EA), particularly among university students, who are about to enter the labor market and have the opportunities to develop entrepreneurial projects and initiatives. Higher education has been consistently recognized as an effective platform for promoting entrepreneurial skills among young people (Bauman & Lucy, 2021), as it plays a very important role in formation of an entrepreneurial mindset and development of entrepreneurial alertness among students (Iddris, 2025). Namely, during their education journey process, students can mature in

their cognitive and behavioral aspects that drive entrepreneurship thinking and behavior, which in turn can lead to higher levels of their entrepreneurial alertness (Tang, Kacmar, & Busenitz, 2012), defined as the ability to recognize and respond to opportunities in the environment (Kirzner, 1978). A highly developed level of entrepreneurial alertness is crucial for the successful implementation of entrepreneurial activities. It encompasses the active search for and interpretation of relevant environmental information, the ability to connect seemingly unrelated data, and the capacity to evaluate and assess potential business opportunities (Sharma, 2019; Tang et al., 2012). However, entrepreneurial alertness cannot operate independently. Recent literature emphasized the importance of cognitive elements and psychological perspectives in shaping entrepreneurial alertness. Among these factors, self-efficacy (SE), defined by Bandura (1997) as the belief in one's ability to perform tasks successfully, has emerged as a key predictor (Şahin, Karadağ & Tuncer, 2019; Urban, 2020; Zhao, Seibert & Lumpkin, 2010). Self-confidence, as a part of entrepreneurial mindset, reflects one's belief in their ability to recognize and capitalize on opportunities, and thereby contributes to the development of one's entrepreneurial alertness. Research studies are pointing out that individuals with high self-efficacy are more likely to identify opportunities and engage in entrepreneurial activities (Baron, 2000; Boyd & Vozikis, 1994; Chen et al., 1998; Newman et al., 2019). By strengthening self-efficacy, individuals become more confident in themselves, which enhances their ability to make proactive decisions and navigate effectively in uncertain environments. Additionally, starting a new business venture requires certain financial resources, as well as the financial knowledge needed to assess the risks and profitability of a business idea (Muñoz-Céspedes, Ibar-Alonso & Cuerdo-Mir 2024; Šimić Šarić, 2017). However, many potential entrepreneurs face limited financial resources and a lack of specific knowledge needed to objectively evaluate the profitability of an entrepreneurial venture. Raising initial capital, writing business plans, and financial monitoring of a business can pose significant challenges for new entrepreneurs (Almeida & Costa, 2024; Šimić, 2015). Such challenges can discourage individuals from actively seeking entrepreneurial opportunities. Since financial aspects are crucial for the success of entrepreneurial activities, the improvement of financial literacy (FL) can serve as an important tool for empowering individuals and encouraging their entrepreneurial alertness. Financial literacy is considered as a fundamental economic skill necessary for making good financial decisions in the modern world (Lusardi, 2015; Lusardi & Mitchell, 2014). It represents a set of financial knowledge, skills, and behaviors in the financial sphere of life. Therefore, it can be argued that increasing the level of financial literacy can positively affect an individual's self-efficacy in making financial decisions, and thus indirectly influence their entrepreneurial alertness. This perspective of a new segment of entrepreneurial education opens up space for the design of educational interventions aimed at the financial empowerment of individuals, with the potential to stimulate entrepreneurial activities, especially among young people who are most vulnerable at the beginning of their entrepreneurial careers. Support for this view can be found in previous research

on entrepreneurship and financial literacy which has shown that entrepreneurs with higher financial literacy achieve better financial results in their business (Anshika & Singla, 2022). Furthermore, individual entrepreneurs tend to have higher levels of financial literacy than those employed by others. Moreover, self-employed entrepreneurs with employees demonstrate higher levels of financial literacy than those without employees, highlighting the importance of financial literacy for business growth (Muñoz-Céspedes et al., 2024). Financial literacy has a positive effect on starting new entrepreneurial activity (Struckell et al., 2022) as well as on managing an existing business (R. Li & Qian, 2019). In addition, research among students has shown that students with a higher level of financial literacy have a greater predisposition towards careers in entrepreneurship after graduation (Bulog et al., 2021; Thevenet & Hamelin, 2025). Although financial literacy and self-efficacy are conceptually distinct, they can interact in meaningful ways. For instance, a financially literate individual may feel more confident in their ability to assess and pursue entrepreneurial opportunities, thereby enhancing self-efficacy (Amatucci & Crawley, 2011). Conversely, high self-efficacy may encourage individuals to seek out financial knowledge, creating a reinforcing loop. Despite this potential interplay, limited research has jointly examined the relative influence of both variables on entrepreneurial alertness, particularly in the context of young individuals. Given the growing interest in the motivational and cognitive dimensions of entrepreneurship (Urban, 2020), this research aims to fill an important gap by investigating how the interaction between self-efficacy and financial literacy fosters entrepreneurial alertness among university students.

We propose that self-efficacy and financial literacy significantly influence students' ability to recognize and act upon entrepreneurial opportunities. Furthermore, we argue that financial literacy can serve as a valuable intermediary in promoting entrepreneurship among young people by enhancing their self-efficacy. Thus, building our research on the assumptions that self-efficacy, as an essential part of entrepreneurial mindset, reflects an individual belief in their ability to recognize and capitalize on opportunities, and that financial literacy is implicitly included in the capacity to identify opportunities and make informed decisions, we suggest that both variables contribute to entrepreneurial alertness. Accordingly, this paper focuses on answering the questions of how self-efficacy and financial literacy contribute to the development of the entrepreneurial mindset, and how this mindset leads to greater entrepreneurial alertness.

## **2. SELF – EFFICACY AND ENTREPRENEURIAL ALERTNESS**

Self-efficacy (SE) represents a non-cognitive personal trait, relating to one's confidence in their own ability to perform efficiently (Bandura, 1997). It refers to an individual's confidence in their own abilities, which is essential for

goal achievement (Heslin & Klehe, 2006). SE reflects the perceived capability to manage responsibilities and tasks, follow and achieve goals, and navigate uncertain or challenging situations. In essence, it captures how firmly individuals believe that their present actions can shape future outcomes (Kuhnen & Melzer, 2018). The concept of SE originates from Albert Bandura's Social Cognitive Theory, which underlines the standing of social context, experimental learning, and mental processes in persuading ones behaviour and learning (Bandura, 1997). At the core of this theoretical framework is SE, the cognitive trait, defined by Bandura (1986, 1175) as "people's beliefs about their capabilities to exercise control over events that affect their lives." Researchers argue that individuals with high self-efficacy outperform those with lower levels of self – efficacy due to their preference for challenging tasks, greater determination, and stronger belief that their actions will lead to success (Markman & Baron, 2003).

The literature suggests that SE is also an information processing skill, which is related to decision making in uncertain contexts. Namely, alert individuals possess complex mental frameworks regarding their social environments, which help them to see situations from new perspectives or in an unconventional ways (Urban, 2020). SE has been conceptualized as a unique set of cognitive processing skills that are expressed in an attitude of receptiveness to available and previously overlooked opportunities (Tang et al., 2012; Urban, 2020). Therefore, SE can be observed as key indicator of personal success and serves as a distinguishing factor between entrepreneur and non-entrepreneur individuals. Levels of SE differ from person to person across various life domains and situations. These variations are reflected in how confident individuals feel in their abilities, in their belief in their capacity to regulate behaviour, and in the longevity and sustainability of their entrepreneurial activities (Caputo & Pellegrini, 2019).

Krueger et al. (2000) argued that SE is a critical antecedent of entrepreneurial intent. Developing SE helps entrepreneurs transform motivation into effective actions and maintain resilience in a dynamic environment, which is crucial for the growth and survival of new ventures. Individuals with high SE are more likely to take the initial step in launching a business because they are confident in their capacity to succeed, therefore SE acts as an initial driving force behind an individual's motivation, resilience, and capability to create and grow new businesses. It is generally acknowledged that individuals with a higher level of SE tend to perform tasks and roles aimed at entrepreneurial outcomes (Chen, Greene, & Crick, 1998), which plays a crucial role in determining whether individuals pursue entrepreneurial careers and engage in entrepreneurial behaviour (Newman et al., 2019). Individuals with high SE have more intrinsic interests in entrepreneurial tasks, and are more willing to make an effort and show persistence when faced with obstacles and setbacks. Prior research shows that founders exhibit higher SE than non-founders (Chen, Greene, & Crick, 1998; Oyugi, 2015), and higher SE predicts start-up survival and income (Caliendo et al., 2023). EA is a key feature of the progressive entrepreneurial mind-set

(Obschonka et al., 2017), and if decision makers are entrepreneurially alert, they are more prepared to make decisions that will lead them to subsequent entrepreneurial activities. Roundy, Bradshaw and Brockman, (2018) suggest that alert decision makers respond quickly and flexibly, increasing their chances of gaining an early market advantage. As such, EA is not merely about possessing knowledge, but about being mentally prepared and motivated to recognize novel combinations of resources and market gaps. Highlighting the SE importance helps educators, policymakers, and aspiring entrepreneurs recognize and foster this trait for greater entrepreneurial success. Entrepreneurs with greater SE tend to secure resources more successfully, adapt their strategies when required, and navigate the stresses and ambiguities of new venture creation more effectively.

EA captures the individual's ability to scan, interpret, and connect disparate pieces of information from the environment in a way that facilitates opportunity recognition. It encompasses three stage processes such as environmental information scanning and search (recognition), information association and connection (development), and opportunity evaluation and judgment (evaluation) (Tang et al., 2012). This condition triad forms the underlying structure of EA, which suggest the difference between entrepreneur alerted and non-alerted individuals. EA is influential because alert individuals tend to make rapid decisions and are more likely to gain first-mover advantage (Troise & Tani, 2020), thereby enabling them to identify and exploit better entrepreneurial opportunities. The recent increased emphasis on individual cognitive abilities (cognitive traits) that influence entrepreneurial behaviour has led to demand for further research aimed to better understand the role of individual (personal) attributes and cognition in relation to entrepreneurial intentions (Urban, 2020). In particular, researchers have emphasized the need for closer conceptual and empirical links between intentions, beliefs, and cognitive processes (Şahin et al., 2019). Among cognitive traits, SE, defined as an individual's belief in their capacity to perform specific tasks, stands out as a key factor in understanding entrepreneurial behaviour, including both intention and action. It enables individuals to think beyond existing knowledge structures to improve their cognitive capacities (Baron & Ward, 2004; Boukamcha, 2015 in Urban, 2020, 490). Therefore, individuals must perceive themselves as capable and believe in their capacity to perform specific entrepreneurial tasks. Empirical research confirms multiple interrelated relationships between self-efficacy and entrepreneurial alertness among university students. Findings indicate that SE not only directly influences opportunity recognition but also shapes opportunity-driven behaviour (Gill et al., 2021; Otache et al., 2024; Tang et al., 2012; Urban, 2020; Uy et al., 2015; Wang et al., 2023), highlighting its critical role in facilitating opportunity-oriented action. Moreover, SE significantly influences various financial behaviours, including individuals' willingness to take risks, make informed decisions, persist through financial difficulties, set and pursue financial goals and build financial resilience (Mrnjavac et al., 2024).

Building on prior research and the notion that educational programs hold significant potential in developing both SE and EA, this research proposes that the confidence gained through such programs can directly enhance individuals' alertness to entrepreneurial opportunities and foster proactive behavior. Individuals with higher SE are more likely to engage in proactive environmental scanning, maintaining heightened awareness of changes in their surroundings (J. Li et al., 2003). Based on these insights, the following relationships are proposed:

H1: Self-efficacy has a significant impact on entrepreneurial alertness

H2: Self-efficacy is a mediator between subjective financial literacy and entrepreneurial alertness

### **3. FINANCIAL LITERACY AND ENTREPRENEURIAL ALERTNESS**

Financial literacy (FL) is recognized not only as a vital life skill (Kaiser & Lusardi, 2024; Lusardi & Mitchell, 2014), but also as a strategic competence that influences individual financial behaviour, long-term financial planning, the ability to respond to economic opportunities and risks, and the successful management of business activities (Anshika & Singla, 2022; Lusardi & Mitchell, 2014; Pepur, Bulog & Rimac Smiljanić, 2022; Oberrauch, Kaiser & Lusardi, 2024; OECD/INFE, 2020). According to a widely accepted definition, "financial literacy is the knowledge and understanding of financial concepts and risks, and the skills and attitudes to apply that knowledge and understanding to make effective decisions in a range of financial contexts, improve the financial well-being of individuals and society, and enable participation in economic life" (Lusardi 2016, in Oberrauch et al., 2024, 65). Financial literacy (FL) is understood as a multidimensional construct that includes cognitive (knowledge), behavioural (e.g. saving, budgeting) and affective (self-confidence, attitudes) components. These dimensions are particularly relevant for young people, as they are often confronted with decisions about financial independence and entrepreneurial engagement simultaneously.

In the context of entrepreneurship, FL can be a spark for the development of EA. Previous research has confirmed the positive influence of FL on students' entrepreneurial intentions (Bulog et al., 2021; Tran et al., 2024). FL has been recognized as a crucial prerequisite for successful entrepreneurship, as it enables individuals to better evaluate business opportunities and more easily secure financial resources for new ventures (Vlašić et al., 2022). Empirical research by Vlašić et al. (2022) conducted on a sample of Generation Z participants confirmed that a higher level of FL significantly increases their propensity to engage in entrepreneurship. These findings suggest that ensuring at least a basic level of FL is essential for fostering entrepreneurial aspirations among new generations. These findings are in line with Zentai and Kovács (2022), who highlighted its role in fostering entrepreneurial readiness through greater

financial awareness. However, while openness to financial education correlates with investment behavior, it does not appear to directly stimulate entrepreneurial action, suggesting that foundational financial knowledge is more crucial than a general willingness to learn (Vlašić et al., 2022; Zentai & Kovács, 2022).

Thevenet and Hamelin (2025) went a step further and documented the distinct roles of objective and subjective financial literacy. Their findings indicate that subjective financial literacy (SFL) is a stronger predictor of entrepreneurial intentions than objective financial literacy (OFL). Similar results have been observed in relationship to different financial behaviors (Lind et al., 2020). OFL refers to an individual's actual financial knowledge, while SFL reflects a personal assessment of one's financial capabilities (Lind et al., 2020). OFL provides a basic knowledge for making decisions, but can also increase awareness of potential business risks, and thus discourage overly optimistic entrepreneurial ideas. On the other hand, SFL encourages and builds self-confidence and belief in one's financial abilities (Thevenet & Hamelin, 2025), which is key component of the entrepreneurial mindset. Previous research has shown that individuals with higher financial knowledge are better at identifying investment opportunities, managing risk and analyzing the outcomes of entrepreneurial activities (Panigrahi, 2023). They also have a lower risk aversion for starting entrepreneurial activity (Riepe et al., 2022). Starting a new business can be seen as a form of investment decision (Thevenet & Hamelin, 2025), and its successful realization requires a series of financial decisions (Šimić Šarić, 2017). These decisions are easier to make with a high level of OFL, i.e. financial knowledge. Therefore, it can be assumed that there is a connection between OFL and EA. However, entrepreneur characteristics encompass not only knowledge but also personality traits, primarily high self-confidence. Perceived financial self-confidence, i.e. SFL, as a part of overall self-confidence may therefore be important. This financial confidence can encourage and motivate individuals to actively seek business opportunities in their environment. Consequently, individuals with high SFL may be more likely to evaluate starting a new business as a good and attractive financial alternative. On the other hand, individuals with a higher level of financial knowledge, i.e. OFL, are more likely to engage in long-term financial plans, budget their income and expenses, save more, and invest (Oberrauch et al., 2024). These financial behaviors result in a better financial position, the achievement of financial goals and consequently the development of good financial decision-making habits and skills. Over time, these activities will be reflected in an improved personal financial situation, which ultimately strengthens individual faith in their ability to manage money, i.e. their SFL. In addition, financial knowledge can help individuals assess the long-term and short-term financial consequences of their behaviors (Tohar & Akron, 2025). This develops a sense of control and confidence in managing personal finances and individuals begin to understand that the achievement of their financial goals depends on discipline and daily planning. This knowledge encourages the consistent development of good habits and a sense of personal responsibility for one's own financial situation, which is an integral part of self-assessment and

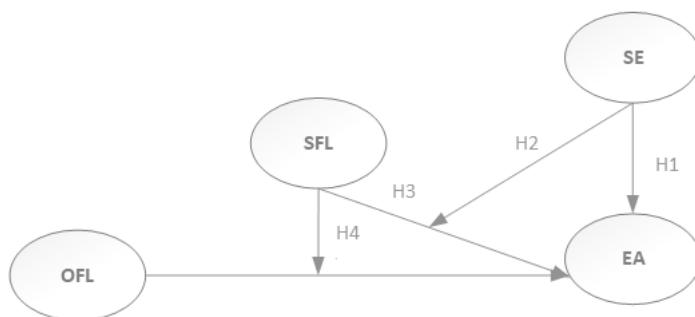
SFL. Furthermore, financial knowledge empowers individuals to realistically assess their possibilities and limitations (Hastings, Madrian & Skimmyhorn, 2013; Rimac Smiljanić, Pepur & Bulog, 2023). By learning about financial risks, interest rates, debt management and investment principles, inflation, individuals develop a more informed and critical view of their own financial decision-making. This enables them to have a deeper understanding of their own strengths, weaknesses and areas for growth. Most importantly, financial knowledge also encourages forward thinking. When students learn to evaluate the long-term impact of financial decisions, they become more aware of how present behaviors affect future outcomes (Angrisani et al., 2023). Developing temporal awareness contributes directly to the subjective personal perspective of financial measures by fostering the habit of anticipating consequences, setting realistic goals and making conscious decisions that are in line with one's values and aspirations. Considering the above, it is important to separately consider the influence of OFL and SFL when examining the relationship between FL and EA. Based on these insights, the following relationships are proposed:

H3: Subjective financial literacy has an impact on entrepreneurial alertness.

H4: Subjective financial literacy is a mediator between objective financial literacy and entrepreneurial alertness.

The conceptual research model is shown in Figure 1. It reports main constructs with the presented hypotheses.

Figure 1 The proposed conceptual research model that links SFL, OFL, SE and EA



Source: Author's work

#### 4. METHODOLOGY AND DATA

The data for this study were collected through an online survey conducted among students at the University of Split, Croatia, and the University of Mostar, Bosnia and Herzegovina in 2024. A pilot version of the questionnaire

was conducted with a small group of students at the University of Split. Based on their feedback, the questionnaire was revised and then published on the websites of the faculties that are part of the two aforementioned universities accompanied by a request for students to complete the questionnaire. A call for participation, along with a link to the survey, was posted on the websites of each faculty and both universities. Participation in the survey was voluntary and anonymous. The call was publicly available for two weeks. The final sample consisted of 285 students, 150 from the University of Split and 135 from the University of Mostar (Table 1).

As shown in Table 1, the majority of participants were enrolled in non-business or non-economics degree programs. Most respondents were female and over the age of 20. The high proportion of women in the sample was expected, given the dominance of women among the student population at both universities, as well as also the demonstrated greater willingness of women to participate in written survey research (Mulder & Bruijne, 2019). More than three-quarters of the students lived with their parents, and the majority were either unemployed or occasionally employed through the student union.

Table 1 Sociodemographic characteristics of the respondents

		n	%
Gender	Female	216	75.8
	Male	69	24.2
Age	18-20	42	14.8
	20-22	105	37.0
	22 and more	137	48.2
Size of your place of residence	Fewer than 3,000 people	59	20.7
	Between 3,000 and approximately 15,000 people	84	29.5
	Between 15,000 and approximately 100,000 people	72	25.3
	Between 100,000 and approximately 1,000,000 people	70	24.6
	More than 1,000,000 people	0	0.0
Household status	I live with my parents	221	77.5
	I live alone	42	14.7
	I live with someone without a formal relationship	4	1.4
	I am married	12	4.2
	I am in a civil partnership	6	2.1
Student	Undergraduate student	171	60.4
	Graduate (Master's) student	107	37.8
Major field of study	Business / Economics	127	44.7
	Other	157	55.3
Your current employment status is:	Unemployed	121	42.5
	Occasional student jobs	122	42.8
	Self-employed	6	2.1

Source: Research results ( $N = 285$ )

In this study, two concepts of FL were employed: *objective (OFL) and subjective financial literacy (SFL)*. OFL was evaluated using the widely recognized “Big Five” questions. These items appraise fundamental financial knowledge related to interest rates, inflation, diversification, compound interest, and bonds - core concepts that underpin most financial decision-making (Hastings et al., 2013). The “Big Five” questions are broadly accepted as reliable indicator of individual financial competence. This indicator is commonly employed in empirical research as a standard measure of OFL (Angrisani et al., 2023). SFL was assessed through the question: "How would you assess your overall financial knowledge?" Respondents were asked to rate their perceived ability to manage money on a 5-point Likert scale, ranging from 1 (not at all good) to 5 (very good). The *SFL scale* had a mean (M) of 3.84 with a standard deviation (SD) of 0.83, and scores ranged from a minimum of 1 to a maximum of 5. The Self-Efficacy (SE) scale is comprised of 10 items based on the self-efficacy test developed by Baessler and Schwarzer (1993) (e.g., “I can always solve difficult problems if I try hard enough”). This scale is designed to assess individuals’ perceived ability to influence outcomes through their own actions. It captures the general sense of belief in one’s capacity to effectively manage challenges and achieve goals. Participants responded using a five - point Likert scale, and the overall SE score was calculated as the average of all item responses. The Cronbach's alpha coefficient for the self-efficacy scale is 0.910. Higher average scores indicate a stronger sense of general self-efficacy. The dependent variable, *Entrepreneurial Alertness (EA)*, was measured using scale items adapted from Tang et al., (2012), employing a five-point Likert-type scale (e.g. “I have frequent interactions with others to acquire new information.”, “I can distinguish between profitable opportunities and not-so profitable opportunities”). The validated 13-item alertness scale captures three dimensions, three distinct elements of alertness: scanning and search, association and connection, and evaluation and judgment (see Tang et al., 2012). The final EA score was calculated as the mean of the individual item responses, with higher average values indicating greater levels of entrepreneurial alertness. The Cronbach's Alpha coefficient for final EA score scale is 0.907, while the values for the individual dimensions are as follows: EA: scanning and search – 0.844, EA: association and connection – 0.846, and EA: evaluation and judgment – 0.869. Based on previous research results about the differences in FL and EA, gender, age, and field of study were included as *control variables* (Bulog et al., 2021; Klepić & Klepić, 2020; Oberrauch et al., 2024; Thevenet & Hamelin, 2025; Tinghög, Ahmed, Barrafreem, Lind, Skagerlund & Västfjäll, 2021). In the study, gender was measured using a two-item scale (1 = female, 2 = male). Age was grouped into three categories (1 = 18–20 years; 2 = 20–22 years; 3 = 22 years and older). Field of study was coded using a two-item scale (1 = major in business or economics; 2 = all other majors). Data analysis was conducted using SPSS 23 and statistical macro PROCESS for conditional process analysis. Statistical procedures applied in this research are Cronbach’s alpha, descriptive statistics, correlation analysis, and hierarchical regression analysis.

## 5. RESULTS AND DISCUSSION

Table 2 presents descriptive statistics and correlation coefficients for the main variables. The results reveal that EA is significantly correlated with gender, age, OFL and SFL, as well as with SE. Precisely, EA indicates a modest positive correlation with OFL ( $r = 0.129$ ,  $p < .05$ ), robust with SFL ( $r = 0.286$ ,  $p < .01$ ), while strong with SE ( $r = 0.569$ ,  $p < .01$ ). Furthermore, based on the results, no issues of multicollinearity were detected among the variables.

Table 2 Descriptive statistics and correlations between gender, age, Faculty, EA, SE, SFL and OFL

	Mean	SD	Gender	Age	Faculty	SFL	OFL	SE	EA
Gender	1.24	.429	1	.125*	-.035	.103	.245**	.127*	.131*
Age	2.33	.721	.125*	1	-.077	.138*	.342**	.136*	.149*
Major	1.55	.498	-.035	-.077	1	-.120*	-.349**	.007	-.097
SFL	3.84	.829	.103	.138*	-.120*	1	.238**	.229**	.286**
OFL	2.42	1.569	.245**	.342**	-.349**	.238**	1	.131*	.129*
SE	38.95	6.31545	.127*	.136*	.007	.229**	.131*	1	.569**
EA	3.69	.67001	.131*	.149*	-.097	.286**	.129*	.569**	1

Note: \* Correlation is significant at the 0.05 level (2-tailed); \*\* sig. at the 0.01 level (2-tailed)

Source: Research results ( $N = 285$ )

In Table 3, Panel A presents the results of the mediation analysis of SFL, following the method proposed by Liu & Zhang (2021). Model 1 is the base model that includes only the control variables: gender, age and field of study. The coefficient of determination  $R^2$  value for Model 1 is 0.203, indicating that 20.3% of the variance in students' EA can be explained by these control variables. In Model 2, OFL and SFL were introduced. While OFL shows a negative, statistically non-significant relationship, in contrast, SFL demonstrates a significant positive relationship with EA, with an estimated regression coefficient of 0.207 ( $p < .001$ ). The  $R^2$  value for model 2 shows that it explains 32.3 % of the variance in entrepreneurial alertness, suggesting an improved explanatory power over Model 1. In Model 3, the SE was introduced into analysis. As indicated by  $R^2$  value, this model explains 60.01% of the variance in students' EA, which is substantially higher than in Models 1 and 2. The regression coefficient for SE is 0.056 ( $p < .001$ ), indicating a statistically significant positive influence on EA. Although the direction and significance levels of the coefficients for OFL and SFL remain the same their scales shift (OFL: from  $-0.0005$  to  $-0.017$ ; SFL: from 0.207 to 0.121). These results suggest that SE mediates the relationship between FL and EA.

Table 3 Regression analysis results; Panel A - EA depended variable; Panel B - SE depended variable

Panel A - EA depended variable					Panel B - SE dependent variable		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Variables							
Constant	3.37***	2.633***	1.064***	1.365***	33.983***	33.382***	28.178***
Gender	0.173*	0.143	0.073	0.075	1.658*	1.389	1.399
Age	0.119**	0.094*	0.054	0.056	1.076**	0.835	0.854*
Major	-0.109	-0.077	-0.119*	-0.124*	0.251	0.628	0.534
OFL		-0.005	-0.017			0.375	
SFL		0.207***	0.12***				1.617***
SE			0.056***	0.056***			
R	0.203	0.322	0.601	0.587	0.176	0.194	0.272
R <sup>2</sup>	0.041	0.104	0.362	0.342	0.031	0.037	0.74
AR <sup>2</sup>	0.031	0.088	0.348	0.332	0.021	0.024	0.61
F- statistics	3.98	6.409	26.053	36.048	2.977	2.704	5.575

Note \*\*\*  $p < 0,001$ ; \*\*  $p < 0,05$ ; \*  $p < 0,10$

Source: Research results ( $N = 285$ )

Panel B in Table 3 displays the results of the regression models with SE as the dependent variable. In Model 4, only the control variables – gender, age, and field of study – were included, and accounts for 17.6% of the variance in SE, as the  $R^2$  value indicates. In Model 5, OFL was introduced, showing a positive effect, although not statistically significant. In Model 6, SFL was introduced, which displays a statistically significant positive effect on SE ( $R = 1.617$ ,  $p < .001$ ). The  $R^2$  value for Model 6 indicates that this model explains 27.23% of the variance in SE, which is higher than in the previous two models. So, it can be concluded that Model 6 is demonstrating improved explanatory power compared to the previous models. The presented results point toward a potential mediating role. However, to obtain more robust evidence and confirm or reject the proposed Hypotheses 3 and 4, further analysis was conducted. Specifically, the confidence interval test method was employed to examine whether SFL mediates the relationship between OFL and EA, as well as to test the mediating role of SE and SFL in the relationship between OFL and EA. The analysis employed the PROCESS macro developed by Hayes (2022), using a 95% bias-corrected bootstrap method with 5000 resamples to estimate confidence intervals (CIs). The main results from the PROCESS analysis are presented in Tables 4 and 5.

Table 4 Mediating effect analysis of subjective financial literacy in PROCESS

Path	Effect		Coeff.	SE	LLCI	ULCI
OFL -> SFL -> EA	Total effect		0.055	0.027		
OFL -> EA	Direct effect		0.028	0.025	-0.022	0.077
OFL -> SFL		Effect on mediator SFL	0.126	0.031	0.066	0.186
SFL -> EA		Effect mediator on EA	0.219	0.048	0.126	0.312
OFL -> SFL -> EA	Indirect effect		0.028	0.010	0.011	0.050

Source: Research results (N = 285)

We examined whether OFL indirectly influences EA through the mediation of SFL. This mediation model was tested to gain a deeper insight and understanding into the mechanisms by which FL is related to EA.

The analysis revealed a significant positive relationship between OFL and SFL ( $\beta = 0.126$ ,  $p < 0.001$ ), indicating that individuals with higher levels of OFL are more likely to perceive themselves as financial knowledgeable (SFL). In turn, SFL emerged as a significant predictor of EA ( $\beta = 0.219$ ,  $p < 0.001$ ), suggesting that individuals with greater confidence in their financial knowledge are more likely to identify or engage with entrepreneurial opportunities in their environment. Conversely, the direct effect of OFL on EA was not statistically significant ( $\beta = 0.028$ ,  $p = 0.273$ ), implying that financial knowledge alone may not directly contribute to EA. Importantly, the mediation analysis revealed a significant indirect effect of OFL on EA through SFL (indirect effect = 0.0275, 95% CI [0.0111, 0.0496]), indicating that the influence of OFL on EA is primarily channelled through individuals' self-perceptions of their financial knowledge. This finding highlights the critical psychological role of SFL as a mediating pathway linking objective financial knowledge to entrepreneurial outcomes. The model demonstrated acceptable explanatory power (Model fit:  $R^2$  for the mediator = 0.0564,  $p < 0.001$ ;  $R^2$  for the outcome = 0.0858,  $p < 0.001$ ). Table 5 presents the regression coefficients for the total, direct, and indirect effects in the mediation analysis of SE in the relationship between SFL and EA.

Table 5 Mediating effect analysis of self-efficacy in PROCESS

Path	Effect	Coefficient	SE	LLCI	ULCI
SFL -> SE -> EA	Total effect	0.2313	0.0355	0.1612	0.3014
	Direct effect	0.1329	0.0399	0.0544	0.2114
	Indirect effect	0.0984	0.0280	0.0470	0.1564

Source: Research results (N = 285)

The results presented in Table 5 are showing a significant positive relationship between SFL and SE ( $\beta = 1.745$ ,  $p < 0.001$ ), suggesting that individuals who rate their financial knowledge higher tend to report higher levels of confidence in their ability to cope with tasks and challenges. This finding highlights the significant role of perceived financial knowledge in fostering broader psychological resources, such as SE.

A further analysis showed that both SFL and SE are significant predictors of EA. In particular, SFL ( $\beta = 0.133$ ,  $p = 0.001$ ) and SE have a direct and significant ( $\beta = 0.056$ ,  $p < 0.001$ ) effect on EA. These results suggest that individuals who perceive themselves as financially knowledgeable and self-confident are more likely to recognize and to be aware of entrepreneurial opportunities in their environment. In particular, the indirect effect of SFL on EA through SE was also statistically significant (indirect effect = 0.0984, 95% CI [0.0470, 0.1564]). Since the confidence interval does not include zero, it can be concluded that SE mediates the relationship between SFL and EA. This suggests that individuals with higher perceived financial knowledge are more likely to develop stronger SE, which in turn strengthens their EA. The results presented are consistent with the previous results presented in Table 2 and thus contribute to the robustness of the results obtained. The model demonstrated acceptable explanatory power (Model fit:  $R^2$  for mediator = 0.0525,  $p < 0.001$ ;  $R^2$  for outcome = 0.3495,  $p < 0.001$ ). These results provide empirical support for all four Hypotheses.

## 6. CONCLUSIONS AND CONTRIBUTIONS

This paper is focused on the role of SE, SFL and OFL as a driver of entrepreneurial alertness among university students in Croatia and Bosnia and Herzegovina. The findings indicate the central role of SE and SFL in fostering EA among university students. OFL remains as an important foundation, but the results are highlighting that it alone is insufficient to foster alertness toward entrepreneurial opportunities. Its influence operates through the lens of students' self-perception of financial capability and confidence (SFL). Furthermore, SE emerged as a strong predictor of EA. Namely, students with higher levels of SE tend to show greater tendency to recognize, interpret and act upon entrepreneurial opportunities in their environment. In addition to this direct effect, SE also mediates the relationship between SFL and EA, suggesting that confidence in one's financial competences significantly enhances students' ability to identify and act upon entrepreneurial opportunities, thereby reinforcing the development of an entrepreneurial mind-set.

These results have important implications. Firstly, they are indicating the importance of self-perceptions and confidence in the development of entrepreneurial mind-set. This suggests a necessary change in the curriculum for entrepreneurship education. The results highlight the need to integrate the development of psychological and cognitive skills into entrepreneurship and

financial literacy courses. Educational programs should not only impart financial and entrepreneurial knowledge, but should also include experiential learning, mentoring, and reflective practices that strengthen students' confidence, self-efficacy, and self-awareness. Such approaches could be incorporated through project-based learning, peer collaboration, and feedback mechanisms aimed at improving students' perceived financial competence and self-efficacy.

This underscores the need to redesign educational approach to entrepreneurship, shifting the focus from merely acquiring nominal knowledge toward cultivating cognitive skills, such as building student's confidence, self-awareness, and belief in their own financial and entrepreneurial cognition. Secondly, the distinction between SFL and OFL is a valuable finding which can upgrade understanding of how financial competences can influence entrepreneurial behavior. The results are suggesting that entrepreneurial education should not prioritize only the development of financial knowledge, but instead should focus on strategies that strengthen students' belief and confidence in applying these knowledge and skills in real-life situations.

From a theoretical perspective, this research contributes to the existing literature in several ways. Firstly, it deepens the understanding of the cognitive and psychological factors that influence student entrepreneurship through an integrated approach that simultaneously examines how SE, SFL and OFL shape EA. Secondly, the research empirically confirms the mediating role between SFL and OFL and EA. Additionally, it confirms the mediating role of SE in the relationship between SFL and EA. This expands the existing knowledge about financial literacy by indicating that the perception of one's own financial capabilities (SFL) can have a stronger influence on entrepreneurial behavior than the objective knowledge. This contributes conceptually and methodologically to the differentiation of these two different forms of financial literacy, which is still relatively neglected in the literature.

From an applicative perspective, the research provides a new conceptual model linking FL and SE with EA, which can serve as a foundation for design of targeted educational intervention and curriculum innovations aimed at fostering entrepreneurial behaviour among students. This model can guide educators and policymakers in developing evidence-based programs that combine financial education with psychological empowerment, thereby encouraging entrepreneurial alertness and proactive opportunity recognition.

However, the research also has limitations, primarily reflected in the fact that all data were collected through self-assessments, which may lead to bias due to socially desirable responses or the effect of a common measurement method. Therefore, in future research, it would be desirable to conduct experimental research in order to better understand the causal relationships between variables. Namely, qualitative research could further deepen the understanding of the personal development of financial self-confidence and its role in the development of EA. In this context, it would be valuable to consider additional factors such as

risk tolerance, family money management, financial and entrepreneurial education, and the availability of community support for entrepreneurship.

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## **ŠTO POTIČE PODUZETNIČKU BUDNOST U VISOKOM OBRAZOVANJU: MEĐUODNOS SAMOUČINKOVITOSTI I FINACIJSKE PISMENOSTI**

***Sažetak***

*Ovaj rad istražuje psihološke i financijske čimbenike koji potiču poduzetničku budnost među sveučilišnim studentima, s posebnim naglaskom na ulogu samoučinkovitosti, subjektivne financijske pismenosti i objektivne financijske pismenosti. Istraživanje je provedeno na uzorku od 285 studenata Sveučilišta u Splitu u Hrvatskoj i Sveučilišta u Mostaru u Bosni i Hercegovini. Analiza je provedena primjenom hijerarhijske regresije i medijacijskih tehnika, korištenjem makronaredbom PROCESS u programu SPSS. Nalazi ukazuju na različit utjecaj objektivne i subjektivne financijske pismenosti na poduzetničku budnost. Dok subjektivna financijska pismenost pozitivno i značajno utječe na poduzetničku budnost, objektivna financijska pismenost ne pokazuje izravan učinak. Umjesto toga, objektivna financijska pismenost neizravno utječe na poduzetničku budnost na temelju subjektivne financijske pismenosti. To upućuje na to da samo financijsko znanje nije dovoljno; potrebno ga je dopuniti samopouzdanjem u vlastite financijske sposobnosti za učinkovito poticanje poduzetničke budnosti. Samoučinkovitost se pojavila kao ključni pokretač (prediktor) i posrednik u ovom*

*odnosu. Studenti koji vjeruju u svoje kompetencije i vještine, koji percipiraju da njihov napor može utjecati na okolinu i buduće ishode, imaju izraženiji osjećaj samoučinkovitosti i skloniji su motiviranije prepoznavati poduzetničke prilike u svojoj okolini. Ovi nalazi naglašavaju ulogu samoučinkovitosti kao pokretača poduzetničke budnosti među studentima. Rezultati upućuju na to da bi se obrazovni programi usmjereni na poticanje poduzetničkog potencijala trebali više fokusirati na izgradnju studentskog samopouzdanja i percipiranih sposobnosti, a ne isključivo na poboljšanje financijskog znanja. Psihološki utemeljen pristup poduzetničkom obrazovanju mogao bi bolje pripremiti mlade pojedince za bavljenje poduzetničkim aktivnostima. Općenito, ovo istraživanje doprinosi boljem razumijevanju kognitivnih procesa koji učinkovito potiču poduzetničku budnost i pružaju smjernice za osmišljavanje učinkovitijih obrazovnih intervencija.*

***Ključne riječi: poduzetnička budnost, samoučinkovitost, subjektivna financijska pismenost, objektivna financijska pismenost, studenti.***

***JEL klasifikacija: L26, I23, G53.***