



Self-efficacy and mindsets research among Bulgarian citizens

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Abstract

The purpose of the present study is to trace the relationship between the levels of self-efficacy and the belief about the possibility of improving abilities among a sample of Bulgarian citizens. This issue is topical because of its practical importance in the everyday life of every person. The formed way of thinking has an impact on the behavior and on the readiness and conviction to implement some change. The present material examines the ideas of Albert Bandura and Carol Dweck. Perceived level of self-efficacy indicates confidence in the ability to exercise control over life events. The mindset, on the other hand, expresses the handling of challenging tasks. A study was conducted using two questionnaires: 1) General Self-Efficacy Scale (GSE), Schwarzer & Jerusalem, 1995), and 2) Dweck Mindset Instrument (2008). The Cronbach's Alpha reliability of the GSE scale across all 10 scale items is 0.895, which means that the scale has very good reliability for practical purposes. The Cronbach's Alpha reliability of the Dweck Mindset Instrument on all 10 items of the scale is 0.5, which means that the scale has satisfactory reliability and can be used for practical purposes. The results of the study show that there is no correlation between the two phenomena. The levels of self-efficacy among the respondents are relatively high, and progressive thinking prevails. No age and gender differences are established in this study. The levels of perceived self-efficacy among the respondents are in the moderate range, even slightly above the average values. Progressive thinking prevails among the study participants. The influence of other factors on the formation of a way of thinking among Bulgarian citizens should be further studied, as well as the possibilities of changing the perceived levels of self-efficacy and formed fixed thinking.

Keywords: Self-efficacy, growth mindset, fixed mindset, achievement

Introduction

The idea of personal potential and the possibility of its development over time is not new in the field of modern psychology. Making daily efforts leads to the formation of a mindset in which characteristics such as goal setting, commitment to challenging tasks, and learning from experience can be clearly highlighted. The present study tracks the levels of general self-efficacy and understanding of abilities among a sample of Bulgarian students.

General self-efficacy is a construct in psychological science that refers to a person's confidence in having the ability to exercise control over life events. Albert Bandura introduced the concept of self-efficacy by distinguishing three components therein: 1) significance related to the individual's confidence to cope with a given task; 2) strength, indicating the ability of a person to cope with tasks of varying complexity; 3) generalization, referring to the understanding that self-efficacy is applicable in similar activities (Bandura, 1997). Self-efficacy also has an impact on students' academic achievement, but there are still uncertainties about the socio-cognitive mechanisms that directly determine this relationship (Domeneh-Betoreh, et. al., 2017). This causality can be presented in yet another dimension, namely: whether high levels of self-efficacy contribute to better academic success, or whether success is a product of effort, persistence, and work (Yusuf, 2011). Confidence in one's own abilities to deal with life's challenges is also related to an individual's willingness to engage in social and community activities, as well as to the possibility of a better understanding of the surrounding world (Jayesh & Thomas, 2022). The perceived level of self-efficacy can indicate the level, with which a person engages in coping with family, work commitments, as well as with daily tasks (Kondratowicz & Godlewska – Werner, 2022).

Dweck, (2006). introduced the concept of *mindset* in psychological science in 2006. It refers to the possibility of people to develop their capabilities and potential, as well as to influence the events of their lives. This construct represents two directions in thinking: 1) fixed thinking (fixed mindset), as well as 2) progressive thinking (growth

mindset). People who have a fixed mindset assume that their intelligence and skills are innate and unchangeable. For this reason, there is no point in making efforts, as they would be fruitless. These people see failure as a complete failure and evaluation of their personality, and their main motivation is to avoid it. People with a progressive mindset, on the other hand, accept the idea that potential can and is improved if effort and persistence are applied. They engage in challenging tasks because they are motivated to achieve success. Interdependence between the way of thinking (mindset) and their personal academic achievements of students, as well as their motivation (Zhang et al., 2017), could also be outlined. Achieving success among students is not only the result of their efforts, but also includes factors such as their beliefs, values, and attitudes (Limeri et al., 2020). An empirical study was conducted, in which a correlational dependence was traced between the levels of perceived self-efficacy and the way of thinking among Bulgarian citizens of different ages.

1. Purpose of the study

The purpose of the present study is to establish the levels of general self-efficacy and the understanding of the subjects about the possibility of improving their abilities, as well as to look for the presence of a correlation between the two studied phenomena.

2. Objectives of the study

- To establish the levels of self-efficacy among a sample of Bulgarian students;
- To establish the understanding of Bulgarian students regarding the possibility of improving their abilities;
- To determine whether there are gender differences in the levels of self-efficacy among a sample of Bulgarian students;
- To establish whether there are gender differences in the understanding of Bulgarian students regarding the possibility of improving their abilities;
- To look for a correlation between the levels of self-efficacy and the belief that abilities /can/not be improved.

3. Hypotheses of the study

Hypothesis 1: It is assumed that the levels of self-efficacy among the respondents are within moderate limits.

Hypothesis 2: It is assumed that the levels of progressive thinking among the respondents are within moderate limits.

Hypothesis 3: It is assumed that there are no age differences in the levels of self-efficacy among the subjects.

Hypothesis 4: It is assumed that there are no gender differences in the understanding of Bulgarian students regarding the possibility of improving their abilities.

Hypothesis 5: It is assumed that there is a significant correlation between levels of self-efficacy and the belief that abilities /can/not be improved.

4. Method

Two questionnaires were used in the present study: 1) General Self-Efficacy Scale (GSE, Schwarzer & Jerusalem, 1995), consisting of 10 items and 2) Dweck Mindset Instrument (2008). It consists of 16 items and is designed to track the type of thinking – progressive or fixed.

5.1 Respondents

The number of persons studied is 135 persons, distributed as follows: 76.30% female and 23.70% male, respectively. The youngest respondent is 16 years old and the oldest one is 47 years old.

5.2 Procedure

The study was organized through a Google form. The estimated time to complete both questionnaires was about 15 minutes. Data was processed with the statistical analysis program SPSSv.23 and presented using MS Excel.

5.3 Results

Demographic data of the respondents

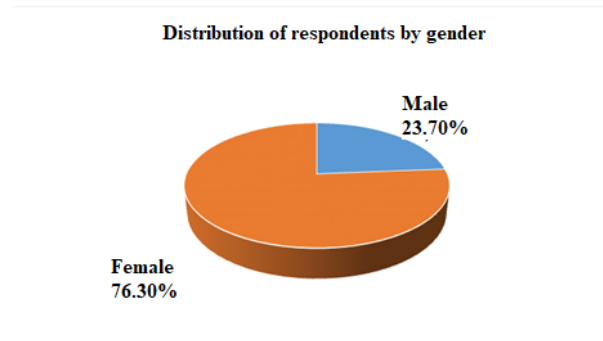


Figure 1. Diagram of the distribution of respondents by gender

The number of female participants is greater.

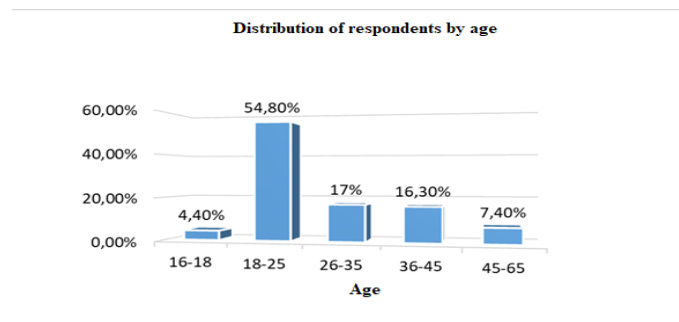


Figure 2. Diagram of the distribution of respondents by age

The group of respondents in the age group between 18 and 25 is the most numerous.

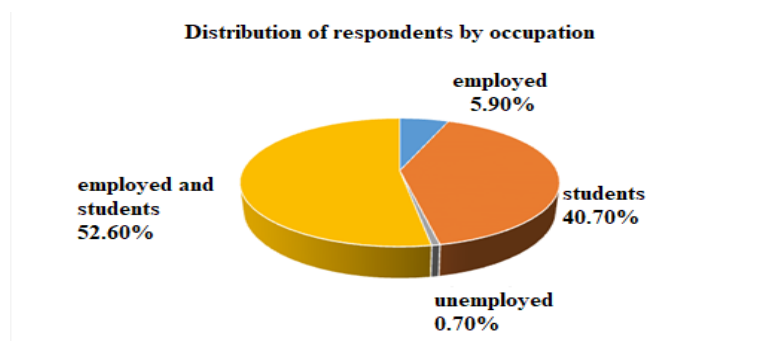


Figure 3. Diagram of the distribution of respondents by occupation

From Figure 3, it is clear that the greater number of respondents are working and studying, and the smallest group is the proportion of students who are unemployed.

Psychometric properties of the General Self-Efficacy Scale.

Cronbach’s Alpha reliability for all 10 items of the scale is 0.895, which means that the scale has very good reliability for practical purposes. Table 1, column 5 (Cronbach’s Alpha if Item Deleted) shows that it is not necessary to delete an item because the reliability will not change significantly.

Table 1. Statistics for the total score of the items

ITEMS	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
Item 1	28.31	21.045	.696	.881
Item 2	28.79	21.038	.582	.888
Item 3	28.55	20.684	.651	.883
Item 4	28.56	21.003	.678	.882
Item 5	28.74	20.421	.730	.878
Item 6	28.37	21.161	.638	.884
Item 7	28.59	20.452	.667	.882
Item 8	28.65	20.908	.592	.888
Item 9	28.37	21.066	.726	.879
Item 10	28.63	22.746	.439	.896

Figure 4 provides a histogram of the raw scale score distribution, and Table 2 provides descriptive statistics.

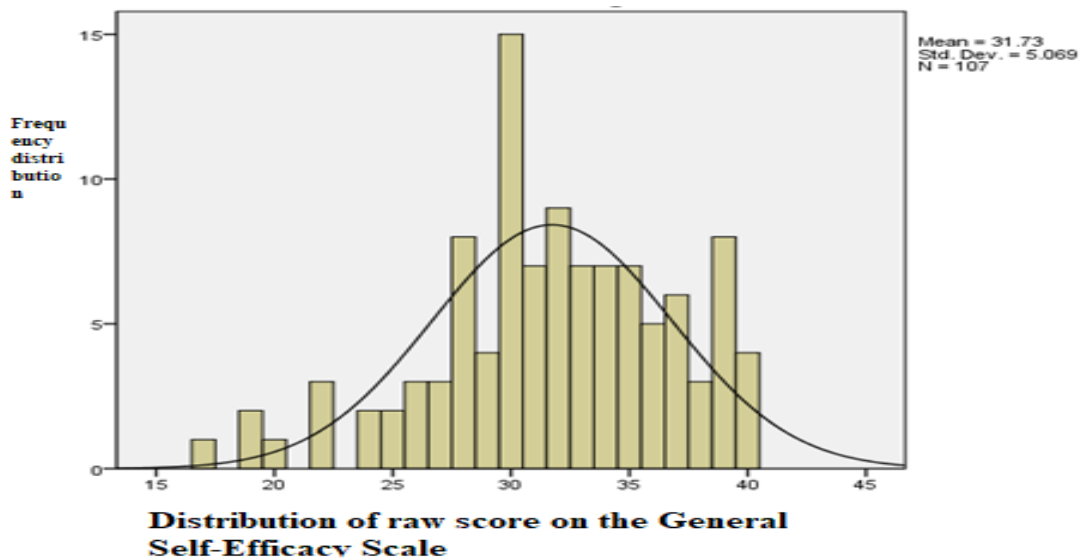


Figure 4. Histogram of the distribution of scores on the General Self-Efficacy Scale

From the check for normality of the distribution of the raw score on the General Self-Efficacy Scale according to the Shapiro-Wilk test (Stat.=0.966, sig.=0.007<0.05) it turns out that **it is not normal**.

Table 2. Descriptive statistics results

Total number of respondents	Minimal	Maximum	Median	Average score	Standard deviation	Asymmetry	Excess
107	17	40	32	31.73	5,069	-0,517	0,185

The average value is 31.73, the minimum is 17, and the maximum is 40. The asymmetry is negative, meaning that the results are shifted slightly to the right towards the higher raw score values. As long as it is in the range of -1 to 1 it is small and still the results are around the average value. The distribution is not normal, and this means that respondents show slightly above average levels of general self-efficacy.

The progressive or fixed learning scale contains 16 items. Cronbach's Alpha reliability on all 10 items of the scale is 0.5, which means that the scale has satisfactory reliability and can be used for practical purposes. In Table 3, column 5 (Cronbach's Alpha if Item Deleted) shows that it is not necessary to delete an item because the reliability will not change significantly.

Table 3. Statistics for the total score of the items

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 1	50.58	40.906	.225	.458
Item 2	50.39	43.920	.007	.504
Item 3	52.78	40.761	.254	.453
Item 4	50.12	40.900	.217	.459
Item 5	52.74	40.252	.288	.445
Item 6	50.81	43.625	-.006	.513
Item 7	52.63	41.066	.254	.454
Item 8	52.34	40.282	.233	.455
Item 9	50.54	40.345	.211	.459
Item 10	50.77	40.143	.209	.459
Item 11	52.14	41.291	.139	.477
Item 12	50.69	42.649	.066	.493
Item 13	52.22	41.364	.145	.475
Item 14	50.86	42.650	.053	.498
Item 15	52.23	40.351	.241	.453
Item 16	52.18	41.166	.172	.468

Figure 5 shows a histogram of the raw scale score distribution, and Table 6 shows the descriptive statistics.

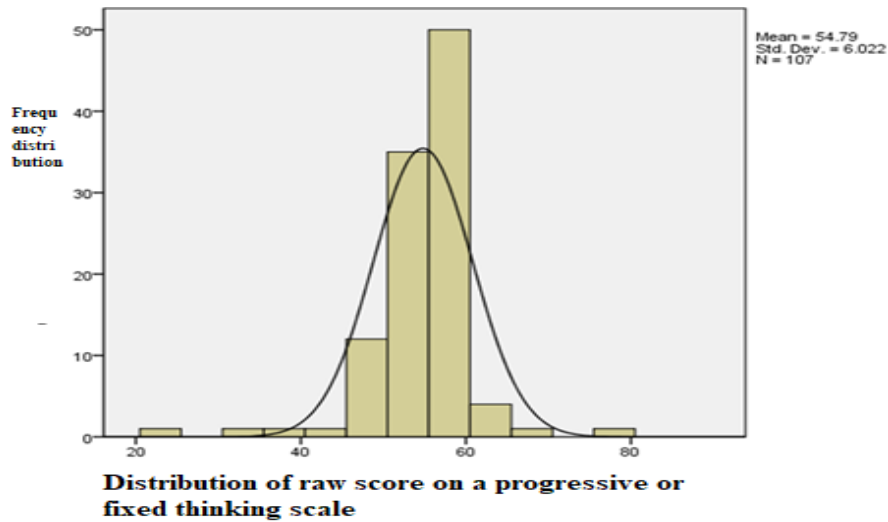


Figure 6. Histogram of the distribution of progressive or fixed thinking scale scores

From the check for normality of the distribution of the raw score on the scale of general self-efficacy according to the Shapiro-Wilk test (Stat.=0.731, sig.=0.00<0.05) it turns out that it is not normal.

Table 4. Descriptive statistics results

Total number of respondents	Minimal	Maximum	Median	Average score	Standard deviation	Asymmetry	Excess
107	23	80	56	54.79	6.02	-1,294	4.63

The average value is 54.79, the minimum is 23, and the maximum is 80. The asymmetry is negative and large, meaning that the scores are heavily skewed to the right above the mean to the higher raw score values, meaning that respondents are in end of the scale that is associated with progressive thinking.

Figure 6 shows a diagram of the levels defined on the scale. It turns out that 92% of the respondents have a pronounced progressive mindset with some fixed ideas /notions/.

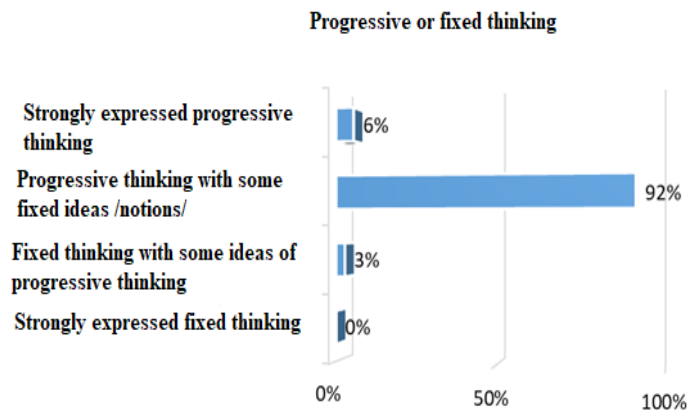


Figure 6. Diagram of the levels of progressive or fixed thinking

Correlation analysis

The relationship between the two scales is statistically insignificant.

Analysis of variance

Influence of the gender factor

We studied the influence of the independent factor gender on the dependent variable raw score on the Self-Efficacy Scale. The influence is insignificant $p=0.453$.

Table 5. Descriptive statistics results

Gender	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Male	26	31.08	5.919	1.161	28.69	33.47	17	39
Female	81	31.94	4.786	.532	30.88	33.00	19	40
Total	107	31.73	5.069	.490	30.76	32.70	17	40

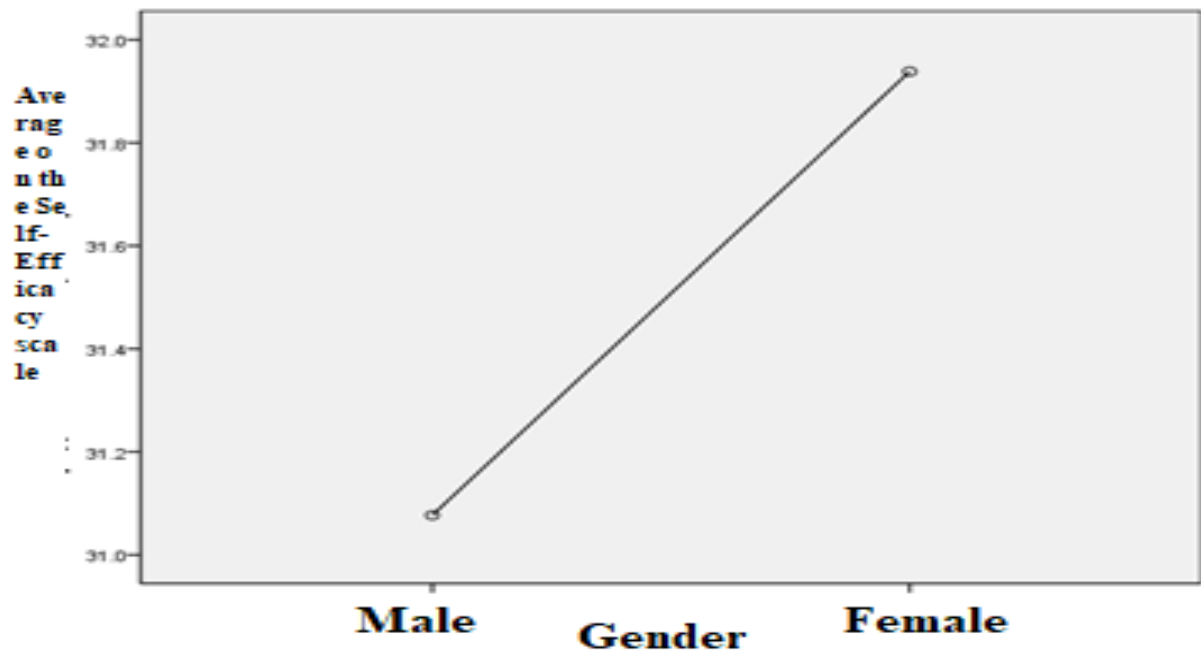


Figure 7. Diagram comparing the average values of men and women on the General Self-Efficacy Scale. The influence of the gender factor in the Carol Dweck scale is insignificant – $p=.138$.

Table 6. Descriptive statistics results

Progressive thinking	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	26	53.27	7.851	1.540	50.10	56.44	23	61
2	81	55.28	5.271	.586	54.12	56.45	33	80
Total	107	54.79	6.022	.582	53.64	55.95	23	80

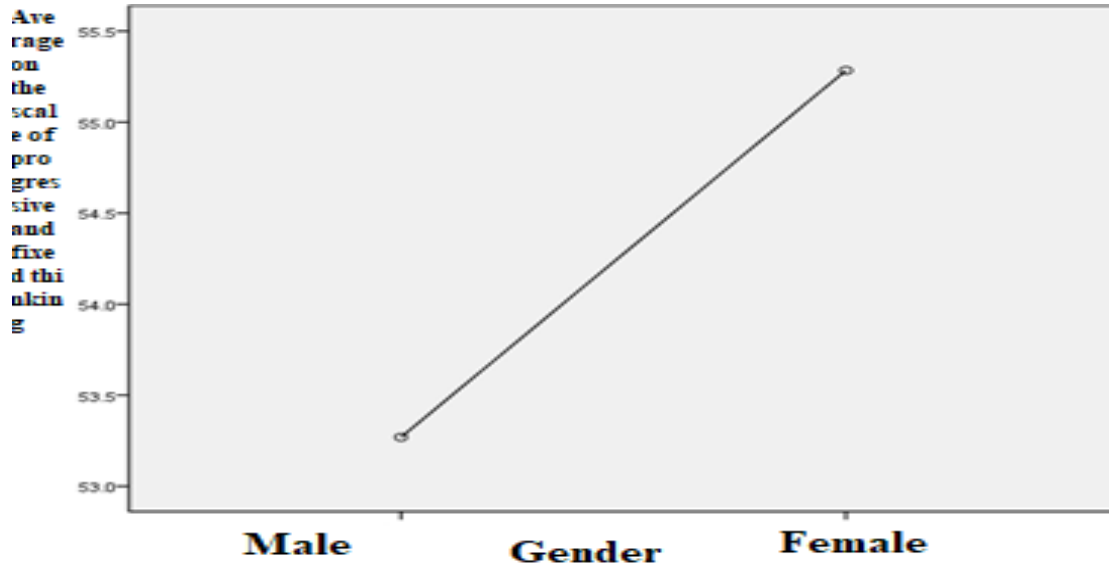


Figure 8. Diagram comparing the average values of men and women on the progressive or fixed thinking scale

Influence of the gender factor

Table 7. Descriptive statistics results

Self-Efficacy scale	Volume	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
16-18	6	27.83	5.037	2.056	22.55	33.12	22	33
18-25	54	30.94	5.503	.749	29.44	32.45	17	39
26-35	21	33.29	4.221	.921	31.36	35.21	24	40
36-45	18	32.44	4.003	.944	30.45	34.44	27	40
46-65	8	34.25	4.268	1.509	30.68	37.82	30	40
Total	107	31.73	5.069	.490	30.76	32.70	17	40

The groups formed by age are homogeneous (Levene Statistic=0.644, sig.=0.633).

We conducted ANOVA analysis of variance. The influence of the age factor is statistically insignificant sig.=0.054>0.05 for the Self-Efficacy scale. Below is the age group comparison diagram.

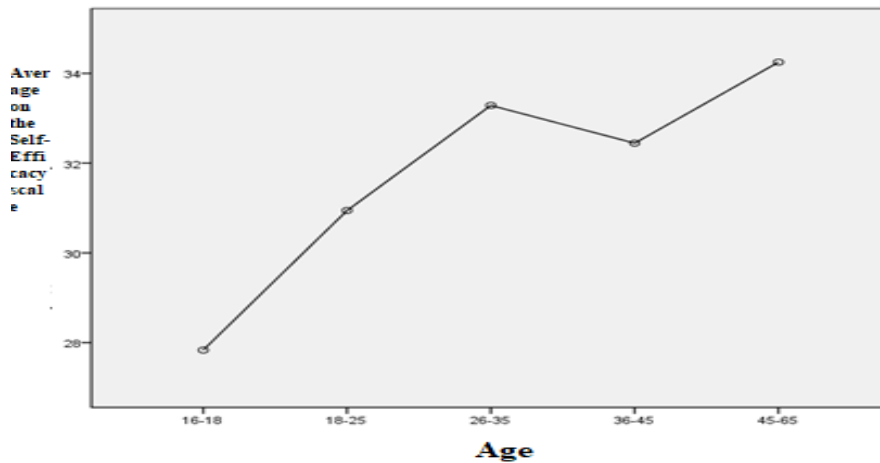


Figure 9. Progressive or fixed thinking scale

The groups formed by age are not homogeneous (Levene Statistic=3.878, sig.=0.006).

We conducted ANOVA analysis of variance. The influence of the age factor is statistically insignificant sig.=0.942>0.05 for the progressive or fixed thinking scale. Below is the age group comparison diagram.

Descriptive statistics

Progressive or fixed thinking scale	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
16-18	6	55.67	13.750	5.613	41.24	70.10	39	80
18-25	54	54.33	6.816	.927	52.47	56.19	23	68
26-35	21	55.38	2.655	.579	54.17	56.59	48	59
36-45	18	54.83	2.550	.601	53.57	56.10	49	58
46-65	8	55.63	4.719	1.668	51.68	59.57	49	63
Total	107	54.79	6.022	.582	53.64	55.95	23	80

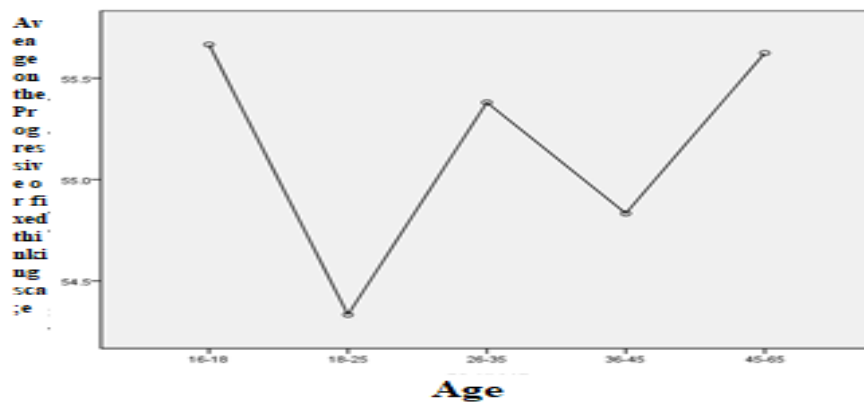


Figure 10. Age of the participants

Results

No statistically significant relationships were found between levels of self-efficacy and mindset. This rejects Hypothesis 5. There are no gender and age differences in the levels of confidence in the abilities to deal with challenges, as well as in terms of fixed/progressive thinking among the respondents. The data give reason to confirm Hypotheses 3 and 4. The levels of perceived self-efficacy among the studied persons are within moderate limits, even slightly above the average values. Hypothesis 1 is partially confirmed. Progressive thinking prevails among the studied respondents, which also confirms Hypothesis 2. Several conclusions can be drawn from the conducted study:

- It is possible to simultaneously have progressive thinking combined with elements of fixed thinking. Understanding that abilities can be improved is related to effort and persistence, which is certainly not applicable in absolutely every situation. The two ways of thinking, however, are still two separate dimensions;
- Higher levels of self-efficacy and the presence of progressive thinking imply the application of certain strategies to deal with situations, the presence of experience, and the desire to engage in challenging tasks;
- Further study on the subject is needed in order to see if these results would be replicated and to which psychological phenomena they might be linked.

In this study field, more in-depth research could be conducted with the purpose to test the idea of a dependency between parental mindset and that of their children (Chen et al., 2023). It would be interesting to follow up on what was proven in the study of Hecht et al. (2021) and Yu et al., (2022), i.e. that children's way of thinking can change in light of their educators' expectations and what happens at school. The use of incentives and sayings in parenting or learning methods is also an interesting link that can be traced (Frank and Fabian, 2017). Non-cognitive factors also influence school-aged children – such as learning strategies, social skills, and self-control (Dweck et al., 2014, Farrington et al., 2012). Socio-economic factors are also a possible explanation for formed levels of self-efficacy and mindset (Simpkins et al., 2015).

A limitation of the present study is that it was conducted using an online form as this allows for disingenuous responses. Another limitation is the inability to draw a causal relationship between the variables.

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