



UNIVERSITY OF LIFE SCIENCES "KING MIHAI I" FROM
TIMISOARA
"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH
IN APPLIED LIFE SCIENCES"



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research in applied life sciences"

13-14 November 2025

MOTIVATION OF HIGH SCHOOL AND UNIVERSITY STUDENTS IN LEARNING BIOLOGY

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Abstract: The study examined motivation and learning strategies in 128 students using the DSML questionnaire. Higher self-efficacy and course utility were linked to more effective study strategies, while test anxiety hindered self-regulation, highlighting key factors in biology learning.

Introduction

Understanding how motivation and learning strategies shape biology learning is essential in today’s changing educational context. This study compares high school and university students using the DSML framework to explore how self-efficacy, course utility, and study strategies interact. The findings aim to support more effective teaching approaches and smoother transitions between educational levels.

Material and method

- Sample:** 128 Romanian students (65 high school, 63 university)
- Tool:** DSML questionnaire assessing motivation and learning strategies Test Anxiety, Self-Efficacy, Course Usefulness, Self-Regulation, Study Skills, Source Diversity
- Data collection:** Online, with informed consent and anonymity
- Aim:** Describe motivational and strategic profiles and examine their relationships (no causal claims)

Results and discussions

- High school students:** High Self-Efficacy, Course Usefulness, Diversity of Sources; Low Self-Regulation, high Test Anxiety → challenges in autonomous learning and emotional management
- University students:** High Self-Efficacy and Diversity of Sources; Moderate Self-Regulation → more balanced profile
- Key finding:** Motivation, strategy use, and anxiety are interrelated

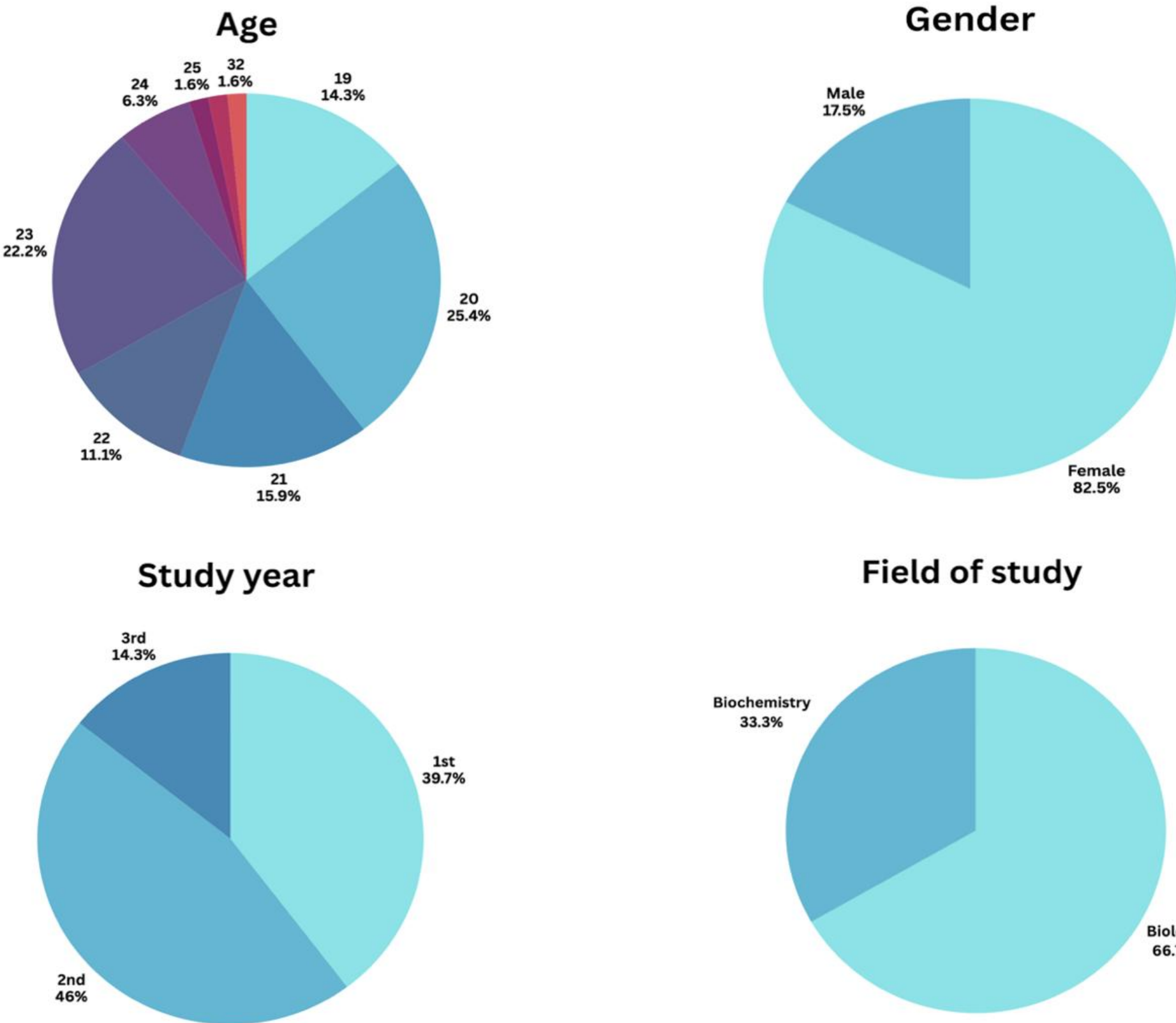


Figure 2. Demographic characteristics of the university students participants

Dependent variable	Independent variable	Highschool students		University students	
		F	P (Sig.)	F	P (Sig.)
Self-regulation	Test anxiety	2.117	.017	1.862	.042
	Self-efficacy	1.089	.398	1.033	.460
	Diversity of resources	1.089	.398	1.556	.109
	Course utility	1.872	.038	1.133	.361
	Learning strategies	2.007	.025	2.612	.004
Test anxiety	Self-regulation	2.310	.009	2.852	.002
	Self-efficacy	.919	.576	.652	.853
	Diversity of resources	.645	.868	1.085	.399
	Course utility	1.145	.344	1.225	.282
	Learning strategies	1.076	.408	1.718	.068
Self-efficacy	Self-regulation	3.514	.000	1.559	.123
	Test anxiety	1.770	.068	1.325	.226
	Diversity of resources	1.387	.191	1.927	.044
	Course utility	3.326	.001	1.439	.169
	Learning strategies	1.144	.346	.906	.563
Diversity of resources	Self-regulation	1.009	.492	2.269	.020
	Test anxiety	1.413	.179	.583	.856
	Self-efficacy	2.516	.008	1.156	.339
	Course utility	2.901	.003	.847	.611
	Learning strategies	1.577	.116	1.047	.425
Course utility	Self-regulation	3.314	.001	1.030	.439
	Test anxiety	3.422	.001	1.486	.157
	Self-efficacy	3.552	.001	1.445	.173
	Diversity of resources	2.378	.014	.440	.946
	Learning strategies	2.106	.030	.799	.658
Learning strategies	Self-regulation	1.723	.084	2.065	.030
	Test anxiety	1.560	.129	1.414	.180
	Self-efficacy	1.739	.081	1.222	.290
	Diversity of resources	.979	.484	1.361	.206
	Course utility	2.275	.019	2.017	.034

Table 1. ANOVA analysis for university and high-school students

Conclusions

The study revealed distinct motivational and strategic profiles between high school and university biology students, with self-efficacy, test anxiety, and course usefulness influencing learning strategies. Findings highlight the need to tailor teaching to students’ motivational and cognitive levels and suggest interventions targeting both motivation and self-regulation. Further research is needed to generalize these insights.

Figure 1. Demographic characteristics of the high school participants

