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Locus of control among second-year secondary school students: a study in light of selected variables

ABSTRACT

This study aimed to examine the locus of control among second-year secondary school students in relation to gender and academic specialization. The research utilized a descriptive-analytical design, applying Rotter's Internal-External Locus of Control Scale to a sample of 713 students (297 males and 416 females) from schools in Relizane Province, Algeria. The findings revealed no statistically significant differences in locus of control based on gender or academic specialization (scientific vs. literary). These results suggest that, in contemporary educational settings, locus of control is a stable trait that is not determined by gender or specific academic pathways, but rather by broader sociocultural and educational reinforcement mechanisms. The study concludes that the internal-external orientation is a fundamental aspect of student personality that appears to be uniformly fostered across different academic disciplines. Future research should investigate the longitudinal stability of these orientations and their potential interaction with broader psychological adjustment factors.

Keywords: Locus of Control, Secondary School Students, Gender, Academic Specialization.

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El locus de control en los estudiantes de segundo año de educación secundaria: un estudio a la luz de algunas variables

RESUMEN

El presente estudio tuvo como objetivo examinar el locus de control en estudiantes de segundo año de secundaria en relación con el género y la especialidad académica. La investigación utilizó un diseño descriptivo-analítico, aplicando la Escala de Locus de Control Interno-Externo de Rotter a una muestra de 713 estudiantes (297 varones y 416 mujeres)

de escuelas en la provincia de Relizane, Argelia. Los hallazgos revelaron que no existen diferencias estadísticamente significativas en el locus de control según el género o la especialidad académica (científica frente a literaria). Estos resultados sugieren que, en los entornos educativos contemporáneos, el locus de control es un rasgo estable que no está determinado por el género ni por vías académicas específicas, sino por mecanismos de refuerzo sociocultural y educativo más amplios. El estudio concluye que la orientación interna-externa es un aspecto fundamental de la personalidad del estudiante que parece fomentarse de manera uniforme en diferentes disciplinas académicas. Se recomienda que futuras investigaciones indaguen sobre la estabilidad longitudinal de estas orientaciones y su potencial interacción con factores de ajuste psicológico más amplios.

Palabras clave: Locus de control, Estudiantes de secundaria, Género, Especialidad académica.

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Locus de controlo em alunos do segundo ano do ensino secundário: um estudo à luz de algumas variáveis

RESUMO

O presente estudo teve como objetivo examinar o locus de controle em alunos do segundo ano do ensino secundário em relação ao género e à especialidade académica. A investigação utilizou um desenho descritivo-analítico, aplicando a Escala de Locus de Controle Interno-Externo de Rotter a uma amostra de 713 alunos (297 rapazes e 416 raparigas) de escolas na província de Relizane, Argélia. Os resultados revelaram que não existem diferenças estatisticamente significativas no locus de controle com base no género ou na especialidade académica (científica versus literária). Estes resultados sugerem que, nos ambientes educativos contemporâneos, o locus de controle é um traço estável que não é determinado pelo género ou por vias académicas específicas, mas sim por mecanismos de reforço sociocultural e educativo mais amplos. O estudo conclui que a orientação interna-externa é um aspeto fundamental da personalidade do aluno que parece ser fomentado de forma uniforme nas diferentes disciplinas académicas. Recomenda-se que futuras investigações investiguem a estabilidade longitudinal destas orientações e a sua potencial interação com fatores de ajustamento psicológico mais amplos.

Palavras-chave: Locus de controle, Alunos do ensino secundário, Género, Especialidade académica.

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INTRODUCTION

The concept of locus of control, a pivotal construct originating from Julian Rotter's social learning theory, has evolved into a cornerstone of psychological research. It defines the degree to which individuals perceive the outcomes of their lives as contingent upon their own behaviors, known as an internal locus, or upon external forces such as chance, luck, or powerful others, termed an external locus (Rotter, 1966). This generalized expectancy serves as a filter through which individuals interpret their experiences, influencing motivation and decision-making processes across a multitude of life domains (Abu Nahia, 1989).

Beyond its theoretical roots, the construct has demonstrated profound implications for mental health and emotional well-being. Research has consistently highlighted that individuals with an external orientation often exhibit higher levels of anxiety and a lower tolerance for ambiguity (Watson, 1967). Furthermore, longitudinal studies have investigated the link between this perceived lack of control and depressive symptoms, suggesting that an externalized orientation may exacerbate feelings of hopelessness in the face of life's challenges (Benassi et al., 1988).

These cognitive frameworks are deeply intertwined with motivational dynamics and the individual's inherent desire for mastery. When individuals perceive that their actions directly influence positive outcomes, they are more inclined to persist in goal-directed behaviors (Paquet, 2006). Conversely, the inability to link actions to reinforcements can lead to heightened states of anticipatory stress, where the lack of control appraisals complicates the efficacy of traditional coping mechanisms in stressful environments (Peacock & Wong, 1996).

In the educational sphere, locus of control has been identified as a critical predictor of academic success. Meta-analytic findings indicate a robust relationship between internal locus of control and improved academic achievement, as these students are more likely to take responsibility for their learning outcomes (Findley & Cooper, 1983). Recent literature further supports this, showing that locus of control, alongside self-esteem, serves as a significant correlate of academic performance, particularly within secondary education systems (Ughasoro & Anyamane, 2023; Olaoye & Olaoye, 2018).

The relevance of this construct extends into the professional and technical realms, where it influences performance across various dimensions. For instance, studies have shown that locus of control is a primary factor in organizational settings, impacting performance and efficiency (Blau, 1993). Additionally, this orientation affects how educators and professionals manage burnout and stress, with internal controllers often demonstrating greater resilience in high-pressure institutional environments (McIntyre, 1984). It even impacts the acquisition of new skills, such as computer literacy (Kay, 1990).

Furthermore, the influence of locus of control permeates deeper psychological processes, including personality development and interpersonal dynamics. Research suggests that attachment styles and alexithymia—the difficulty in identifying and describing emotions—are significantly related to an individual's locus of control, shaping their relational health (Hexel, 2003). Such nuances demonstrate that this construct is not merely an isolated variable, but a fundamental mechanism guiding human adaptation and socioeconomic success in the labor market (Cobb-Clark, 2015).

Despite this extensive body of knowledge, there is a continued need to examine how specific demographic variables, such as gender and academic specialization, interact with locus of control among secondary students. While the literature establishes a strong baseline, understanding these specific variations is essential for developing tailored educational interventions. This study seeks to bridge these gaps, contributing to a deeper understanding of how these factors influence the developmental trajectories of students in their second year of secondary school.

Research Problem

Locus of control is a central concept in educational psychology, clinical psychology, and sociology, as it relates directly to expectations about the future and the perception of control over life events. Rotter introduced this concept within the framework of social learning theory, which aims to explain the complexity of human social behavior and the reasoning behind specific behavioral choices. Given the importance of these expectations in guiding individual actions, it is imperative to examine how these orientations manifest and interact with other influential academic variables. Accordingly, the present study seeks to address the following questions:

- Are there statistically significant differences in locus of control attributed to gender (male–female) among second-year secondary school students?
- Are there statistically significant differences in locus of control attributed to academic specialization (scientific–literary) among second-year secondary school students?

Study Hypotheses

- There are statistically significant differences in locus of control based on gender (male–female) among second-year secondary school students.
- There are statistically significant differences in locus of control based on academic specialization (scientific–literary) among second-year secondary school students.

Study Objectives

This study aims to:

- Identify differences in locus of control between male and female students.
- Identify differences in locus of control between students in scientific and literary specializations.

Concepts of the Study:

Theoretical Framework

The construct of locus of control, as defined by Al-Zayyat (1990) and supported by Bouksara (2008), posits a clear dichotomy between internal and external orientations regarding life outcomes. Empirical evidence consistently validates this construct, specifically demonstrating its prevalence and variation among secondary students (Aicha et al., 2025). This orientation serves as a fundamental mechanism for how individuals process their social and learning environments, essentially shaping their cognitive engagement and psychological readiness for the complex challenges encountered during the adolescent development stage.

Locus of control is intrinsically linked to personality structure, particularly the Big Five traits, which influence an individual's self-perception and emotional stability (Alhoish, 2019; Al-Adamat et al., 2025). Research by Al Otaibi (2012) and Al Ghamdi (2024) indicates that external factors frequently interact with personal freedom, whereas Miller (2025) emphasizes the role of ego identity and self-esteem in modulating this control orientation. These collective personality factors dictate an individual's ability to maintain a stable sense of agency during their formative years.

Academic achievement remains one of the most significant areas where locus of control serves as a predictive variable, with internal controllers showing greater autonomy (Akunne & Anyamene, 2021; Suraj et al., 2024). Numerous studies confirm that students with internal orientations consistently demonstrate superior performance across various academic subjects (Ghasemzadeh, 2011; Gifford et al., 2006; Gujjar & Aijaz, 2014). This relationship remains stable across diverse performance dimensions, suggesting that internal belief systems are essential for academic persistence and long-term success.

Furthermore, internal locus of control extends to specific cognitive outcomes and skill acquisition, such as language learning and computer literacy (Vaghei et al., 2025; Kotresh, 2019). Morris and Carden (1981) demonstrated that this orientation interacts with extraversion-introversion to predict academic behavior, while Nwauzoije et al. (2024) highlight that emotional intelligence, when combined with self-efficacy and locus of control, significantly predicts the developmental trajectory of early adolescents in various local government contexts.

Beyond education, health locus of control significantly influences how individuals manage chronic conditions and physiological stress (Kohli et al., 2011; Oyeleke et al., 2023). Clinical perspectives reveal that external orientations often correlate with elevated depression levels (Cvengros et al., 2005), while internal control promotes better mental health outcomes (Aliha, 2015). Understanding these perceptions is crucial for clinicians aiming to improve the quality of life for patients managing severe, long-term health challenges or chronic illness.

This health-related control belief directly impacts treatment adherence, with studies showing that patients who perceive higher personal competence are more likely to follow medical regimens (Gibson et al., 2016; Christensen et al., 1996). Research by Damayanti (2023) and

Christensen et al. (1991) indicates that internal control can mitigate the effects of depression in end-stage renal disease, while Pucheu et al. (2004) and Eslampour et al. (2022) emphasize how causal attributions serve as moderators of quality of life in both peritoneal and hemodialysis patients.

Cognitive Behavioral Therapy (CBT) effectively utilizes these control orientations to mitigate psychological distress and improve mental health (Hofmann, 2014; Mueser & Taylor, 2016). Targeted interventions demonstrate significant efficacy in treating behavioral addictions and enhancing emotional regulation among diverse populations (Hofmann et al., 2012; Mehrtak et al., 2017; Sugara et al., 2024). Furthermore, Schepisi (2024) notes that the role of locus of control is central to evolving cognitive-behavioral classification systems for mental disorders.

In contexts of extreme environmental trauma, such as conflict zones, locus of control acts as a crucial buffer for psychosocial adjustment (Thabet et al., 2018). Research by Thabet and Abdalla (2018) and Khamis (2013) highlights the impact of war-related injuries on the control beliefs of siblings and university students. Additionally, studies by Elbedour et al. (1998), Al-Turkait and Ohaeri (2008), and Tsacoyianis (2021) explore how social disorganization and trauma fundamentally reshape the perceived agency of Middle Eastern adolescents and veterans.

Finally, resilience and psychological adjustment are deeply shaped by these perceptions within broader social environments (Jain & Singh, 2015; Estrada et al., 2006). Successful adjustment often requires specific coping styles mediated by control beliefs (Petrosky & Birkimer, 1991), while the development of hope and psychosocial maturity is inherently linked to these perceptions (Brackney & Westman, 1992; Gilbert, 1976; Turan, 2021). Organizational and political structures, such as national security elites, further reinforce these control patterns within domestic power politics (Rajkumar et al., 2014; Mäkelä, 2023).

METHODOLOGY

Research Design This study adopts a descriptive-analytical approach to examine the locus of control among second-year secondary school students. This design is deemed appropriate given the study's objective to characterize the variable of interest and evaluate differences based on demographic and academic variables without experimental manipulation.

Population and Sample The study population comprises second-year secondary school students in Relizane Province. The initial sample consisted of 740 students. After excluding 27 invalid responses due to incomplete data or non-compliance with scale instructions, the final analytical sample totaled 713 students (297 males and 416 females). The sample was selected using stratified random sampling, ensuring representation across diverse high schools in the region, accounting for both gender and academic specialization (scientific and literary streams).

Instrumentation The research utilized Rotter’s Internal–External Locus of Control Scale. This instrument consists of 23 forced-choice items paired with 6 filler items to mitigate social desirability bias. A score of (1) is assigned for external orientation and (0) for internal orientation. The instrument’s psychometric integrity was verified through internal consistency tests, yielding significant correlations for all items (ranging from 0.288 to 0.506) and confirmed stability through reliability coefficients (Test-retest: 0.63; Cronbach’s Alpha: 0.57).

Statistical Analysis Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics (means and standard deviations) were calculated to describe the central tendencies of the sample. To test the hypotheses regarding gender and academic specialization, independent sample t-tests were employed to determine the significance of differences between group means at a confidence level of $\alpha = 0.05$.

Methodological Procedures

Research Design

The study employed the descriptive-analytical method, as it is considered the most appropriate for characterizing the study variables and analyzing the relationships between gender, academic specialization, and locus of control in the selected sample.

Population and Sample

The study population consisted of second-year secondary school students in Relizane Province. The initial sample comprised 740 students; after excluding 27 invalid responses due to incomplete data or non-compliance with the scale instructions, the final analytical sample totaled 713 students (297 males and 416 females).

The detailed distribution of the main study sample is presented in the following table:

Table 1.

Distribution of the main study sample by schools, specialization, and gender

Secondary Schools	Scientific (M/F)	Literary (M/F)	Total Students	Percentage
Lazab Ahmed High School (Jdiouia)	28 / 44	20 / 26	118	16.54%
November 1, 1954 High School	34 / 44	23 / 33	134	18.79%
Ahmed Francis High School (Hammadna)	31 / 39	17 / 28	115	16.12%
Hammadna Bourkeba High School	25 / 37	16 / 20	98	13.74%
Hamri High School	30 / 40	18 / 28	116	16.26%
Warizan High School	32 / 46	23 / 31	132	18.51%
Total	**180 / 250**	**117 / 166**	**713**	**100%**

Exploratory Sample (Pilot Study)

To verify the psychometric properties of the instrument, a random sample of 50 students was selected and distributed as follows:

Table 2.

Characteristics of the exploratory sample by gender and specialization

Gender	Scientific	Literary	Total
Male	13	12	25 (50%)
Female	12	13	25 (50%)
Total	**25 (50%)**	**25 (50%)**	**50 (100%)**

Study Instrument

The research utilized Rotter's Internal–External Locus of Control Scale. This instrument consists of 23 forced-choice items, each containing two statements (one representing an internal orientation and the other an external orientation), along with 6 filler items to reduce social desirability bias. A score of (1) is assigned for external control and (0) for internal control.

Psychometric Properties of the Instrument

- **Internal Consistency Validity:** Pearson correlation coefficients were calculated between each item and the total score.

Table 3.

Correlation between each item and the total score of the scale

Item	Corr.	Sig.	Item	Corr.	Sig.
01	0.435	0.01	13	0.409	0.01
02	0.403	0.01	14	0.357	0.05
03	0.334	0.05	15	0.308	0.05
04	0.506	0.01	16	0.325	0.05
05	0.383	0.01	17	0.438	0.01
06	0.344	0.05	18	0.439	0.01
07	0.334	0.05	19	0.419	0.01
08	0.305	0.05	20	0.313	0.05
09	0.442	0.01	21	0.288	0.05
10	0.331	0.05	22	0.369	0.01
11	0.488	0.01	23	0.323	0.05
12	0.393	0.01	-	-	-

- **Extreme Group Validity:** Comparisons were made between upper and lower groups (n=13 each).

Table 4.

Results of the T-test for differences between extreme groups

Group	Mean	SD	T-value	Sig.
Upper Group (n=13)	14.30	1.93	25.34	0.01
Lower Group (n=13)	5.92	1.44	-	-

- **Reliability:**

Table 5.

Reliability coefficients

Scale	Test-Retest	Cronbach's Alpha
Locus of Control	0.63	0.57

Statistical Analysis

Data were processed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were applied to analyze central tendencies. To test the hypotheses regarding gender and academic specialization, an independent samples T-test was employed, with a confidence level of $\alpha = 0.05$.

DISCUSSION

Analysis of the First Hypothesis: Gender Variable

The analysis of the first hypothesis, presented in Table 7, reveals no statistically significant differences in locus of control based on gender. This finding aligns with the research of Toufik and Suleiman (1995), Abu Sakran (2009),

and Boualif (2010), among others, who observed similar results. Conversely, it contradicts studies by Makki and Meskin (2014) and Djeradi (2016), which identified gender-based disparities in favor of females. This absence of divergence suggests that contemporary secondary students possess relatively similar control orientations. As highlighted by Maamaria (2012), locus of control is a product of social interaction, implying that modern educational and familial environments have standardized reinforcement mechanisms for both male and female students.

Table 7.

Results of the t-test for differences between male and female mean scores

Variable	Gender	N	Mean	Std. Deviation	t-value	Sig.	Significance Level
Locus of Control	Male	297	10.80	2.848	-0.130	0.897	Not significant
	Female	416	10.83	2.839			

The lack of significant difference can be attributed to evolving societal structures and educational practices that have effectively reshaped traditional gender roles. Females are increasingly positioned as active contributors to societal development, competing with males in self-reliance and effort. This shifting landscape means that parental and school-based reinforcement is no longer strictly gender-dependent but focused on academic outcomes such as success or failure. Consequently, the cultural factors identified by Maamaria (2012) act as a primary determinant, fostering a shared belief system where individual competence—rather than gender—defines the perception of control over one's life events and future academic trajectory.

Analysis of the Second Hypothesis: Academic Specialization Variable

Testing the second hypothesis, regarding academic specialization, yielded the results displayed in Table 8. The statistical analysis indicates no significant differences between scientific and literary streams, supporting findings from Al-Affari (2011), Al-Baaj (2011), and Nouioua (2018). These results diverge from those of Boualif (2010), who reported significant differences favoring scientific students. The consistency in these findings across diverse research suggests that the orientation process in secondary school is highly effective. By providing structured academic counseling and clear guidance, institutions ensure that students are placed in specializations that align with their interests, thereby reinforcing a sense of autonomy regardless of the specific academic stream chosen.

Table 8.

Results of the t-test for differences between scientific and literary students

Variable	Specialization	N	Mean	Std. Deviation	t-value	Sig.	Significance Level
Locus of Control	Scientific	430	10.78	2.954	-0.474	0.636	Not significant
	Literary	283	10.88	2.664			

This alignment fosters a consistent locus of control, as students believe their academic progress is driven by their own perseverance. As posited by Cleary (1972), the belief that success is contingent upon personal effort is a critical predictor of achievement. This internal orientation is further bolstered by the educational environment, where teachers and counselors reinforce the link between diligent study habits and positive outcomes. Thus, regardless of whether students pursue scientific or literary disciplines, they develop comparable problem-solving abilities and motivational frameworks. Ultimately, this indicates that the secondary educational environment successfully cultivates internal locus of control as a fundamental trait for academic persistence (Maamaria, 2009).

CONCLUSION

The study concludes that locus of control is not statistically significantly differentiated by gender or academic specialization among the studied second-year secondary school students. This suggests that the internal-external control orientation is deeply embedded within the educational and social reinforcement patterns common to all students in Relizane Province. Consequently, students, regardless of their gender or academic path, appear to share a similar baseline for perceiving personal agency in their academic outcomes. These findings imply that educational interventions aiming to enhance internal locus of control should be generalized rather than targeted at specific demographic groups, focusing instead on the broader school environment.

LIMITATIONS OF THE STUDY

This research was limited to a specific geographical region (Relizane Province) and a single educational level (second-year secondary school students). Future research should expand the sample to include diverse provinces and educational stages to verify the cross-regional stability and generalizability of these findings.

FUTURE STUDIES

Future investigations should explore the relationship between locus of control and additional psychological variables such as resilience, mental health, and the quality of teacher-student interaction. Longitudinal studies are particularly recommended to elucidate how these control orientations evolve over time in response to academic and developmental stressors.

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AUTHOR CONTRIBUTIONS

- **Mustapha Benmeridja:** Conceptualization, methodology, data curation, and original draft preparation.
- **Chalabi Walid:** Validation, formal analysis, and software implementation.
- **Chihane Abdelmalik:** Project administration, supervision, and final review and editing.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this study

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