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Scientific articles

Análisis descriptivo de la Motivación Académica (EMA) en estudiantes de educación telesecundaria en Sonora

Descriptive analysis of Academic Motivation (EMA) in telesecundaria education students in Sonora

Análise descritiva da Motivação Acadêmica (MA) em estudantes de ensino à distância no Sonora

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Resumen

El presente estudio tuvo por objetivo describir el estado de la motivación académica de los estudiantes de tercer grado de telesecundaria, así como establecer diferencias por sexo. Se trata de un trabajo cuantitativo de tipo transversal y alcance descriptivo. Los participantes fueron 53 estudiantes de telesecundaria de un municipio del sur del estado de Sonora, México. Se utilizó un cuestionario sociodemográfico y la Escala de Motivación Académica (EMA). Los hallazgos muestran niveles medios a muy altos de motivación académica, tanto de manera global como en cada una de sus dimensiones, además de mejores puntuaciones en todos los casos para las mujeres. Asimismo, se destaca la motivación extrínseca como la dimensión con mayor puntuación y la que incide en mayor medida en el desempeño motivacional de los estudiantes. Asimismo, la amotivación fue la dimensión con mayor variabilidad en sus puntuaciones, lo que representa un indicador al que se debe prestar atención antes de derivar en apatía o indiferencia académica. Por último, respecto a las diferencias por sexo, se identificaron resultados estadísticamente significativos en las dimensiones de motivación intrínseca y amotivación, con mejores valoraciones para las mujeres.

Palabras clave: Escala de motivación académica (EMA), factores externos, motivación extrínseca, motivación intrínseca, telesecundaria.

Abstract

The objective of this study was to describe the academic motivation of third-year telesecundaria students and to examine differences by gender. This is a quantitative, cross-sectional study with a descriptive design. The participants were 53 telesecundaria students from a municipality in the southern part of the state of Sonora, Mexico. A sociodemographic questionnaire and the Academic Motivation Scale (AMS) were used. The findings show average to very high levels of academic motivation, both overall and in each of its dimensions, as well as higher scores in all cases for women. Likewise, extrinsic motivation stands out as the dimension with the highest score and the one that has the greatest impact on students' motivational performance. Likewise, amotivation was the dimension with the greatest variability in scores, which represents an indicator that should be addressed before it leads to apathy or academic indifference. Finally, with regard to gender differences,

statistically significant results were identified in the dimensions of intrinsic motivation and amotivation, with better ratings for women.

Keywords: Academic motivation scale (AMS), external factors, extrinsic motivation, intrinsic motivation, telesecundaria.

Resumo

Este estudo teve como objetivo descrever a motivação acadêmica de alunos do terceiro ano do ensino fundamental II e identificar diferenças entre os gêneros. Trata-se de um estudo quantitativo, transversal e descritivo. Os participantes foram 53 alunos do ensino fundamental II de um município no sul de Sonora, México. Foram utilizados um questionário sociodemográfico e a Escala de Motivação Acadêmica (EMA). Os resultados mostram níveis de motivação acadêmica de médios a muito altos, tanto no geral quanto em cada uma de suas dimensões, com as alunas obtendo consistentemente pontuações mais altas. A motivação extrínseca foi a dimensão com a maior pontuação e a que apresentou maior impacto no desempenho motivacional dos alunos. A amotivação foi a dimensão com maior variabilidade em suas pontuações, representando um indicador que deve ser monitorado antes que se desenvolva em apatia ou indiferença acadêmica. Por fim, em relação às diferenças de gênero, foram identificados resultados estatisticamente significativos nas dimensões de motivação intrínseca e amotivação, com pontuações mais altas para as mulheres.

Palavras-chave: Escala de Motivação Acadêmica (EMA), fatores externos, motivação extrínseca, motivação intrínseca, educação a distância.

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Introduction

Education is key to individual and collective development. It requires a framework that promotes both learning and motivation. In particular, in distance learning secondary education, motivation is a critical element for student development, given its rural, vulnerable context and generally limited access to educational and technological services. Furthermore, this system faces various challenges that extend beyond the school setting and go beyond simply having educational resources. It requires a combination of academic instruction, genuine adolescent interest in studying, and the family and social expectations of the environment in which they live.

In this sense, one of the main challenges has been demotivation in the school environment, which, although it has always been present, has increased in recent years as a consequence of the pandemic, which is evidenced in the decrease in grades and in the loss of the sense of responsibility and effectiveness in learning (Zambrano-Montero & Yarce-Pinzón, 2023).

As a result, students perceive school more as an obligation than an opportunity for growth, further diminishing their interest in academics (Abiétar & Navas, 2017; Benavides-Lara, 2020). Furthermore, external factors contribute to this problem. In the case of distance learning secondary schools, a large proportion of the students come from disadvantaged backgrounds (particularly rural and highly marginalized areas) where they must prioritize other responsibilities (such as agricultural work, caring for others, animal husbandry, cleaning stores or workshops, and packaging products) before or after attending school (Santillán-Hernández & Vargas-Sánchez, 2022). In some cases, economic hardship or family problems affect their regular attendance, even leading them to enter the workforce at a young age (for example, working to be able to study) (Estrada-Ruiz & Cruz-Estrada, 2024). Another worrying factor is the impact of social problems such as drug addiction within the school environment, which represents an additional obstacle for students to focus on their studies (López Sauceda et al., 2023). These factors, taken together, generate demotivation and directly harm the perception of academic achievement.

In this sense, motivation is a complex and variable concept, given that it adapts to the environment in which the educational process unfolds and in which the dynamics that drive, guide, and seek the fulfillment of different educational goals change. In the context of distance learning secondary education, where students often face unique challenges, understanding the theoretical foundations and explanatory models of motivation is essential for designing effective interventions (González & Rueda, 2020).

In Mexican high schools, a study by Carrillo et al. (2020) indicates that academic motivation has significantly decreased in recent years, leading to increased dropout rates. Specifically, the use of outdated or unappealing materials, limited technology use, and reduced instructional time are factors that diminish students' enthusiasm and dedication to their studies. Furthermore, the contexts in which telesecundaria schools are located contribute to this demotivation, as students face additional obstacles to continuing their education due to the obligation to work and study simultaneously, or a lack of family support. As a result, telesecundaria, which originally represented an innovative and accessible

educational alternative in rural communities, has lost effectiveness in the academic training and holistic development of students (Zambrano-Montero & Yarce-Pinzón, 2023).

Empirically , studies conducted with adolescent populations have observed that females tend to show significantly higher levels of intrinsic motivation than males, even in culturally diverse groups (Domínguez-Alonso & Pino-Juste, 2014; Korpershoek et al., 2019; Rossi et al., 2020; Vallerand et al., 1992). These scores reflect indicators of mastery (effective learning) and social relationships (group learning and peer support). Males, on the other hand, appear to be more influenced by extrinsic motivation, primarily focused on external recognition, even though their academic performance is generally lower (Rossi et al., 2020; Stenberg et al., 2025; Korpershoek et al., 2019; Vallerand et al., 1992).

Theories and models of motivation

Deci & Ryan 's (1985) *Self-Determination Theory* proposes that intrinsic motivation develops when three basic psychological needs are met: *autonomy, competence, and relatedness to others* . They explain that *autonomy* refers to students' ability to feel responsible for their decisions and actions. For example, in the classroom, this is reflected in the selection of study topics, the implementation of new learning methods, and the choice of assessment criteria. Thus, when students feel they have control over their learning, they are more likely to be intrinsically motivated. In this sense, intrinsic motivation results from a personal desire to learn and progress, translates into independent and autonomous work, and leads to academic success.

Furthermore, the same authors refer to the concept of *competence* to explain that students are capable and effective when performing their academic tasks. At this point, the teaching staff promotes the development and consolidation of competencies through positive feedback, establishing achievable goals for each student and setting new objectives that challenge them based on their own abilities. It should be noted that when students experience and observe their own progress, their intrinsic motivation increases and they value their effort. Thus, self-efficacy and self-perceived competence are key elements in the learning process.

Likewise, another need stated by Deci & Ryan (1985) is the *relationship with others*, alluding to The need for students to feel connected to and accepted by their peers and teachers. A welcoming, healthy, and respectful learning environment can increase intrinsic motivation and a sense of belonging.

Factors that influence motivation

According to Schunk & Zimmerman (2022), internal factors of motivation are those that reside within the student and influence their desire and willingness to learn. They point out that *personal interests* find meaning in what students learn and their level of engagement, while having an interest in a topic inherently implies paying closer attention and actively participating in class. Regarding *academic goals* , these allow students to remain focused and motivated toward both short-term objectives (completing assignments, presentations, projects, and exams) and long-term objectives (the desire to attend university). Furthermore, they add *self-efficacy* as another internal factor; for example, confidence in one's own abilities, that is, believing in oneself, allows students to better face challenges, strive, and give their best to achieve their goals.

On the other hand, when describing external factors of motivation, they refer to those elements of the environment that affect students' interest and willingness to learn. For example, the *relationship with teachers,* who at the school level are the most direct and closest actors to the students and can show interest in their achievements and encourage them to continue. Similarly, the *school environment* is an external factor that promotes or hinders learning. Finally, *family support* reinforces school motivation and is a crucial element when it comes to providing support, encouragement, and valuing their children's learning and progress.

Strategies to Foster Motivation in the Classroom

Several authors propose multiple strategies to enhance student learning and engagement. Specifically, González- Sanmamed et al. (2020) refer to collaborative learning among students to establish a sense of community, strengthen content comprehension, and increase motivation through peer support. Similarly, Bonilla et al. (2020) mention gamification as a strategy that introduces playful elements such as rewards and challenges, making activities more engaging and stimulating active participation.

Furthermore, setting clear and achievable goals is fundamental to maintaining student focus and commitment, since when students understand teacher expectations and observe their own progress, their motivation increases significantly (Duckworth, 2016). Likewise, frequently providing constructive feedback is essential for recognizing areas for improvement and strengths. In this regard, Muñoz-Chávez et al. (2022) indicate that this

reinforcement not only acknowledges effort but also provides a sense of accomplishment by visualizing their progress.

Furthermore, pleasant, healthy, inclusive, and positive environments should be promoted. Specifically, working in these types of environments maintains an atmosphere of well-being, good humor, and camaraderie, leading to more enjoyable and productive learning experiences (Rodríguez et al., 2018).

Taking the above into account, important questions arise that need to be answered, such as: What is the state of motivation among telesecundaria (distance learning secondary school) students? Are there gender differences in the state of motivation among telesecundaria students?

Aim

The objective of the research is to describe the state of motivation of third-grade telesecundaria students and to analyze the differences by sex.

Methodology

Design

The research falls within the quantitative approach and maintains a cross-sectional and descriptive design (Hernández Sampieri et al., 2018). Specifically, this study seeks to describe the levels of academic motivation of third-grade students at Telesecundaria 103, located in the Rosales neighborhood of Navojoa, Sonora.

Population and sample

The study population was the students of the Telesecundaria 103 school. The census-type sample consisted of 53 third-grade students aged between 14 and 16 years ($M_{age} = 14.35_{years}$; SD = 0.52), of which 50.9% were male (n = 27) and 49.1% female (n = 26), who expressed living with their parents (58.8%), only one of the parents (21.5%), grandparents (15.7%) or uncles (4%).

Tools

Ad hoc sociodemographic questionnaire. Developed by the research team to obtain data related to the student's sex, age, family situation (with whom they live) and their main motivation for attending school.

The Academic Motivation Scale (EMA) (Vallerand et al., 1992; 1993), translated and adapted into Spanish by Torres Bartra (2018), is a psychometric instrument designed to assess the different types of motivation that influence student behavior in the academic context. It consists of 28 items and three related dimensions: intrinsic motivation (e.g., *because I want to prove that I can pass and succeed in my studies*), extrinsic motivation (e.g., *so that it allows me to have a decent job and get ahead*), and amotivation (e.g., *I don't really know why I attend, and frankly, I don't care much*). The response format is a seven-point Likert scale (from *not at all* to *completely*). The authors of the scale report an adequate consistency index *(*α = 0.84), and its reliability has been confirmed in subsequent studies with indices ranging from α = 0.72 to α = 0.92 (Casanova-Valencia et al., 2023; Núñez Alonso et al., 2005, 2006). In agreement, this research corroborates satisfactory internal consistency indices (α = 0.87).

Data collection and analysis procedure

The fieldwork was conducted during the 2024-2025 school year, specifically in May and June, at the designated school. The instruments were administered via *Google Forms* after students had read the ethical considerations and provided informed consent, one by one in class order. In all cases, the teacher's electronic device was used, as not all students have personal devices or internet access to complete the instrument. This method also allowed for greater control over the administration and facilitated addressing any questions that arose during the reading of the items.

The estimated response time was 20 minutes, maintaining the confidentiality of the participant and their responses. No incentives or compensation were offered for participation.

Following data collection, the Excel database was cleaned and organized, and then transferred to SPSS version 27. Descriptive analysis was performed (frequencies, means, and standard deviations were calculated). For the comparison by sex, *Levene's test was used* to determine *homogeneity of variances* . Homogeneity of variances was found for the total score, as well as for intrinsic and extrinsic motivation, while a lack of homogeneity was found for amotivation . In this regard, *Student 's t- test for independent samples* was used after

confirming the normality of the data through the *Shapiro-Wilk test* (*p > .05), and Welch 's test* was applied. in the case of amotivation due to the lack of homogeneity of variances.

Results

To organize the presentation of the results, a descriptive analysis was performed to identify the levels of academic motivation in their total score and their respective dimensions. The mean was used as a measure of central tendency, the minimum and maximum values for the total and for each dimension as reference points, the standard deviation to assess the dispersion of the data, and skewness and kurtosis to confirm the normal distribution of the data (see Table 1).

Table 1. Descriptive results of academic motivation

Variable	Average	Standard Deviation	Minimum values	Values maximums	Asymmetry	Kurtosis
Academic motivation	4.20	0.48	3.10	5.50	0.03	0.24
Intrinsic motivation	4.87	0.96	2.50	6.50	-0.36	-0.58
Extrinsic motivation	5.58	0.92	3.20	7.00	-0.51	-0.69
Lamotivation	2.13	1.25	0.80	5.30	0.82	-0.57

Source: Own elaboration

Overall, the results indicate that both total academic motivation and its intrinsic and extrinsic dimensions show moderate to very high values, exceeding the theoretical mean (M = 3.50). This means that participants maintain interest in activities they enjoy or are personally interested in, and that these activities offer rewards (e.g., academically, good grades). Specifically, in the case of amotivation, although this dimension received the lowest scores, its interpretation should be reversed: as scores decrease, participants maintain a certain degree of motivation toward their activities; that is, they are not completely indifferent. This contrasts with high scores, which indicate apathy or lack of purpose. In the case of this particular dimension, attention should be paid to the highly variable range of scores.

Additionally, it is observable that extrinsic motivation was the highest-scoring dimension and, at the same time, the one that fluctuated from high to very high scores (M = 5.58). This indicates that it is the dimension that most influences academic motivation in general, with external factors driving or supporting academic behavior. Examples include

obtaining good grades, getting along well with teachers, gaining social recognition, or accessing prizes, scholarships, or other rewards. In this sense, the initial purpose of motivation is not learning itself, but rather obtaining short-term rewards and achieving long-term goals.

Finally, regarding intrinsic motivation, the values obtained are moderately high (M = 4.87), which indicates a certain degree of satisfaction and enjoyment in learning itself. This is driven by school activities that cause pleasure, interest, or satisfaction, without external rewards. Specifically, activities that involve overcoming challenges, seeking information of interest, learning new things, or performing well whenever required.

Furthermore, regarding the comparison by sex, once the criterion of *homoscedasticity was verified* , assuming homogeneity of variances through *Levene 's test* ($p > .05$) for both academic motivation and the intrinsic and extrinsic dimensions, as well as the absence of the same in the case of the amotivation dimension, the comparison was carried out through the t test for independent samples, confirming statistically significant differences in the *intrinsic motivation dimension* (t (51) = -2.41, $p < .05$, d = 0.66, 95% CI [0.10 - 1.21]) and *amotivation* (t (41.85 [a]) = 3.13, $p < .05$, d = 0.85, 95% CI [0.28 – 1.42]) between men and women, where the scores indicate better indicators of *intrinsic motivation* and *amotivation* for women.

Table 2. Academic motivation by sex

Variable	Men		*Women*		*t*	*gl*	*p*	*d*
	M	*OF*	*M*	*OF*				
Academic motivation	4.19	0.44	4.21	0.52	-0.14	51.00	.888	0.03
Intrinsic motivation	4.57	0.98	5.18	0.84	-2.41	51.00	.020	0.66
Extrinsic motivation	5.35	0.94	5.81	0.85	-1.84	51.00	.071	0.50
Lamotivation	2.61	1.41	1.63	0.81	3.13	41.85 [a]	.003	0.85

[to] Due to the lack of homogeneity of variances, the Welch adjustment was used.

Source: Own elaboration

Discussion

The objective of this study was to describe the motivational status of third-year middle school students and analyze gender differences. The main finding is that, despite the challenges they face, students exhibit adequate levels of academic motivation, ranging from moderate to very high, with a higher valuation of the extrinsic motivation dimension in the overall score. In this sense, although students enjoy what they learn to some extent, they depend primarily on academic reward and incentive systems, that is, on external factors (Vallerand et al., 1992).

Regarding the academic environment and how it motivates students, Abiétar & Navas (2017) point out that the pedagogical task, in relation to the academic environment that motivates students, usually follows the immediate environment in which it develops and takes different forms depending on the context. That is, it can enhance the possibilities for learning or be limited depending on the focus of attention, and, consequently, promote or discourage motivation, without losing sight of the fact that most secondary school students perceive school more as an obligation than as an opportunity for growth.

Another relevant finding is the variability in scores obtained for the amotivation dimension , which, from a descriptive perspective, was the lowest-scoring dimension and also showed the greatest dispersion. While, in general, it can be interpreted that students still maintain a certain level of academic commitment without yet reaching indifference or apathy, it represents an indicator that requires attention. In this sense, it is crucial that teachers implement strategies that foster both intrinsic and extrinsic motivation.

It is also relevant to add that the lack of academic motivation is largely conditioned by the socioeconomic level and situations in which the students develop, for example, living in adverse contexts, prioritizing other types of responsibilities over academic ones, working in addition to studying, or having to deal with personal or family problems of addiction or disinterest towards studies (Estrada- Ruiz & Cruz-Estrada, 2024; López Sauceda et al., 2023; Santillán-Hernández & Vargas-Sánchez, 2022; Schunk & Zimmerman, 2022; Zambrano-Montero & Yarce-Pinzón, 2023).

Specifically, the results are consistent with Deci & Ryan's (1985) Self-Determination Theory, which posits that the satisfaction of basic psychological needs for autonomy, competence, and relatedness is fundamental to the development of intrinsic motivation. In this study, it could be argued that, although students find satisfaction in their learning, their reliance on extrinsic motivation suggests that barriers still exist that limit their autonomy. In

this sense, the predominance of extrinsic motivation over intrinsic motivation is observable, suggesting a greater influence of external factors on this specific group.

Furthermore, regarding the gender comparison, statistically significant differences were found in both *intrinsic motivation* and *amotivation* , with women exhibiting higher levels of motivation. This aligns with findings reported in multiple studies (Domínguez-Alonso & Pino-Juste, 2014; Korpershoek et al., 2019; Rossi et al., 2020; Vallerand et al., 1992), which highlight that this difference stems from the importance this group places on peer learning and support, demonstrating that both personal interest and finding meaning in school activities are key factors. Likewise, in the context of this research, women obtained higher scores both overall and in each of the dimensions of academic motivation. This finding underscores the need for inclusive pedagogical approaches that consider gender differences and promote an educational environment that fosters motivation in all students.

Conclusions

In conclusion, the analysis of academic motivation in telesecundaria (distance learning secondary school) students has revealed moderate to high levels of both intrinsic and extrinsic motivation in this school context. This suggests continued attention to and promotion of both types of motivation to strengthen students' academic commitment. Regarding amotivation, while students do not perceive themselves as entirely demotivated, it is an aspect that requires ongoing attention, as maintaining low levels of amotivation in school is crucial for preserving interest in learning and school retention.

Furthermore, the importance of external factors influencing students' overall motivation is noteworthy. While these aspects cannot be directly addressed at the school level, it is essential to promote positive environments that involve families, as this support is crucial in strengthening student motivation. Likewise, it is necessary to promote the advantages and benefits of schooling at a societal level, which extend beyond its compulsory nature.

It is also essential that teachers implement strategies that foster both intrinsic and extrinsic motivation. This includes creating a classroom environment that promotes autonomy, competence, and interpersonal relationships, as well as integrating active and technology-based methodologies that make learning more engaging. The way teachers interact with students and the classroom climate can have a significant impact on the motivation of both genders.

In this regard, it is necessary to create inclusive and equitable environments that foster the interest and participation of all students. While gender differences in academic motivation persist, it is important to remember that each student is unique. Teachers should be aware of these trends, but they must also adopt an individualized approach that considers the needs and interests of each student. Fostering a positive and supportive learning environment is essential to maximizing the motivation and success of all students, regardless of gender.

Future Lines of Research

This descriptive study on the academic motivation of middle school students has laid the groundwork for a deeper understanding of motivation within the context of these institutions in our country. Furthermore, it is worth noting aspects that were not fully addressed and that are now on the agenda as topics of interest for future research or for expanding existing lines of inquiry.

Longitudinal analysis of motivation . A longitudinal study could follow middle school students across different school years, either only during their time in middle school or eventually extending to a subsequent educational level, to understand how their levels of intrinsic, extrinsic, and amotivational motivation evolve as they progress in their education. This would allow for the identification of critical points where motivation declines and the proposal of earlier interventions.

Impact of family and socioeconomic factors. While the study identifies that the family and socioeconomic environment influences motivation, it would be valuable to conduct research that quantifies and analyzes in depth family and/or economic variables and their correlation with academic performance.

Effectiveness of pedagogical strategies . This approach would allow for a comparison of motivation and academic performance results between a group receiving these interventions and a control group, which would contribute to validating the practical utility of these methodologies in the context of distance learning.

Influence of technology and internet access. The study mentions that lack of access to technology is a factor that affects motivation. Future research could explore in detail how the quality and type of access to technology impacts student motivation, especially in an educational model that relies on these resources.

Qualitative analysis of amotivation . While it was mentioned that amotivation was the dimension that showed the greatest variability in responses, a qualitative study

(interviews, focus groups) with students exhibiting this tendency could reveal the underlying reasons for their disinterest and lack of purpose in their studies. This would provide a more complete understanding than quantitative data alone.

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