

## Academic perspectives in high school students in the food and beverage field: Motivations, difficulties and support needs

Torres-Zapata Ángel Esteban<sup>1</sup>,  Zarza-García Addy Leticia<sup>2</sup>,  Castillo-Ortega Sara Esther<sup>3</sup>, 

Acuña-Lara Juana Patricia<sup>4</sup>,  Brito-Cruz Teresa Del Jesús<sup>5</sup>,  Sánchez-Domínguez Juan Pablo<sup>6\*</sup>

<sup>1,2,3,4,5,6</sup>Faculty of Health Sciences. Autonomous University of Carmen. Ciudad del Carmen, Campeche, Mexico; macronutriente@hotmail.com (T.Z.A.E.) azarza@pampano.unacar.mx (Z.G.A.L.) scastillo@pampano.unacar.mx (C.O.S.E.) jpacuna@pampano.unacar.mx (A.L.J.P.) tbrito@pampano.unacar.mx (B.C.T.J.) jsanchez@pampano.unacar.mx (S.D.J.P.)

**Abstract:** Technical preparatory schools in Mexico, particularly those in the food and beverage sector, face challenges such as limited resources and institutional barriers, despite using a competency-based educational model that integrates theory and practice. This research aims to analyze the academic perspectives of high school students in this area, focusing on their motivations, difficulties, and support needs. Using a mixed-methods approach, a validated questionnaire was applied to new students entering a technical preparatory school in Ciudad del Carmen, Campeche, between August 20 and September 20, 2024. Data were analyzed using SPSS 25.0 and Microsoft Office, employing descriptive statistics and qualitative analysis to identify patterns and draw conclusions. Of 108 students, 89.81% completed the assessment satisfactorily, with the majority being women (55.67%) and an average age of 15.03 years. Overall academic performance was rated as “Good,” with Language and Communication being the most preferred subject (52.58%). The most common study methods were reading and summarizing (62.89%). Regarding motivation, 77.32% pursued personal and professional goals, and 62.89% prioritized extracurricular activities. Although 68.04% reported positive well-being, areas for improvement were noted in infrastructure, academic support, and communication, emphasizing the need for a balanced environment. Effective high school education requires personalized teaching methods and emotional support.

**Keywords:** Academic performance, Comprehensive educational support, Emotional well-being, Innovative pedagogical methodologies, Student motivation.

### 1. Introduction

Technical high schools in Mexico, such as the Center for Industrial and Services Technology Studies (CETIS), play a crucial role in training students in the food and beverage sector, a sector aligned with the demands of the labor market. These institutions operate under the General Directorate of Industrial and Services Technology Education (DGETI) and, since the implementation of the comprehensive reform of upper secondary education (RIEMS) in 2008, have adopted a competency-based approach. This model seeks to integrate both academic knowledge and practical training, preparing students to face the challenges of a highly dynamic work environment [1]. However, despite the progress, students face various situations that impact their performance, such as limited resources and institutional barriers that hinder their academic and professional development. This highlights the urgent need to strengthen institutional support in terms of infrastructure and pedagogical strategies to improve educational outcomes [2].

Students' academic perspectives are strongly influenced by their motivations, difficulties, and support needs, factors that directly impact their performance and their adaptation to the educational

environment [3]. Students, in addition to facing the challenge of developing technical and theoretical skills, must adapt to the demands of the labor field and academic demands. In this context, personal motivation plays a crucial role, as they drive the effort and dedication necessary to overcome obstacles. However, they also face difficulties such as lack of resources, lack of knowledge about career guidance options, and the need for greater support in their learning processes [4, 5]. Identifying these difficulties is essential to design pedagogical interventions that respond to students' needs and promote a more inclusive and effective learning environment.

Motivation is one of the key factors in academic performance. According to Deci and Ryan [6] motivation can be intrinsic, when an activity is performed for personal satisfaction, or extrinsic, when an external reward is sought. In this sense, achievement motivation and emotions related to self-esteem and emotional intelligence have a profound impact on how students face academic challenges. Various investigations have shown that students with high intrinsic motivation, that is, those who enjoy the learning process for its own sake, tend to have better academic performance. In addition, the ability to organize and manage their time effectively, influenced by motivation, is essential to achieve educational success [7].

However, the difficulties faced by students at the high school level are evident, especially around food and beverages, where the traditional educational model can limit the understanding and full development of discipline. The lack of adaptive pedagogical approaches and the rigidity of the educational system are factors that contribute to more serious learning problems, such as school failure and dropout. These problems, in fact, are worrying phenomena within high school education in Mexico [8].

Finally, students' support needs are diverse and depend on factors such as learning difficulties, emotional barriers, family and socioeconomic contexts, and health conditions, making an inclusive and personalized approach essential [9]. This support must include emotional accompaniment, use of educational technologies, and adaptation of teaching methods that respond to the individual characteristics of each student. In addition, it is necessary to create an environment of trust and security in which students feel understood, promoting equity in access to education. Teachers, for their part, must be trained to identify the needs of their students and apply interventions that favor inclusion and comprehensive development, guaranteeing quality education for all [9, 10].

Given the context outlined above, the purpose of this research is to analyze the academic perspectives of high school students around food and beverages, focusing on their motivations, difficulties and support needs.

## 2. Research Method

This study adopts a mixed approach, with an exploratory and descriptive scope, and a non-experimental cross-sectional design in the quantitative approach and a qualitative analysis of student perceptions for a comprehensive understanding of the data. The population was composed of students from a technical high school in Ciudad del Carmen, Campeche, Mexico, in the food area. A non-probabilistic convenience sample was used, selecting only new students in that specialty.

To identify academic perspectives (motivations, difficulties and support needs), the "Applied Nutrition and Education" academic body of the Faculty of Health Sciences of the Autonomous University of Carmen designed an ad hoc questionnaire (Table 1). This instrument was subjected to a validation process by a panel of experts, composed of professionals with experience around education and nutrition, who evaluated the relevance, clarity and coherence of the questions in relation to the objectives of the study. Subsequently, the questionnaire was approved by the academic department of food and beverages of the technical high school under study, ensuring its relevance and adequacy for the target population.

**Table 1.**

Instrument.			
A) General information			
Enrollment	Age	Semester	Area of Specialty
B) Academic information			
1. How would you rate your academic performance so far?			
a) Needs improvement (1)	b) Average (2)	c) Good (3)	d) Very good (4)
2. What subjects do you like the most?			
a) Language and communication b) English c) Mathematical thinking I d) Digital culture I e) Matter and its interactions f) Humanities I g) Social sciences h) Socio-emotional resources I			
3. What subjects do you find most difficult?			
a) Language and communication b) English c) Mathematical thinking I d) Digital culture I e) Matter and its interactions f) Humanities I g) Social sciences h) Socio-emotional resources I			
4. What study methods do you usually use?			
a) Reading and summaries b) Group study c) Practices and exercises d) Tutorials e) Videos f) Artificial intelligence g) Others			
C) Goals and motivations			
5. What academic goals have you set for yourself for this semester?			
a) Improve my grades b) Prepare for exams c) Participate in extracurricular activities d) Others			
6) What motivates you to continue studying?			
a) Interest in learning b) Personal and professional goals c) Family expectations d) Others			
D) Support and resources			
7. What kind of additional support do you think you need to improve your studies?			
a) Additional tutoring b) Study materials c) Review activities d) Academic advice			
8. What resources do you use to study and resolve doubts?			
a) School libraries b) Internet c) Study groups d) Help from teachers e) Videos f) Artificial intelligence			
E) School experience			
9. How would you rate your experience at school so far?			
a) Negative (1)	b) Neutral (2)	c) Positive (3)	d) Very positive (4)
10. What aspects of school do you think could be improved?			
a) Academic resources b) Emotional support c) Extracurricular activities d) Communication between students and teachers e) Others			
F) 6. Well-being and balance			
11. How do you manage the balance between your studies and your free time?			
a) Poor (1)	b) Average	(2) c) Good (3)	d) Very good (4)
12. Do you participate in extracurricular activities? Yes No			
13. What extracurricular activities?			
14. How do you feel in terms of general well-being?			
a) Poor (1)	b) Average	(2) c) Good (3)	d) Very good (4)
15. Opinions and suggestions:			

For data collection, the methodology applied by Cedeño Mendoza and Torres-Zapata [11] was followed, where the online survey was digitized through Google Forms. Data collection was carried out between August 20 and September 20, 2024. All administrative protocols were followed to approve the study, ensuring voluntary, anonymous and independent participation. Information consent was obtained from the students, and with the authorization of the teaching staff, the application of the questionnaires was scheduled in an appropriate environment, providing participants with an explanation of the purpose and structure of the survey, with an estimated response time of 20 minutes. The data were analyzed using Microsoft Office and SPSS, version 25.0 for Windows, applying descriptive statistics techniques and for open questions, a qualitative analysis was carried out that included coding the responses, grouping similar themes and interpreting the identified patterns, allowing key ideas to be extracted and understanding in depth the perceptions and expectations of the students.

### 3. Result

Of a total of 108 first semester students in the Food and Beverage Preparation specialty, 89.81% (97) satisfactorily completed the assessment, while 11.34% (11) did not complete it. Of the participating

group, 55.67% (54) were women and 44.33% (43) were men, with an average age of  $15.03 \pm 0.79$  years, which reflects a relative homogeneity in the age of the respondents.

According to the students' perception of their academic performance, the descriptive data presented in Table 2 shows a mean of 2.93, which indicates a general assessment of "Good". Regarding the distribution of responses, 56.70% (55 students) rated their performance as good, 22.68% (22) as average, 19.59% (19) as very good and 1.03% (1) considered that it needs improvement.

**Table 2.**

Descriptive analysis of academic performance according to the student's perception.

Statistics	Results
Mean	2.92
Standard error	0.12
Median	3
Mode	3
Standard deviation	0.73
Sample variance	0.54
Kurtosis	0.13
Coefficient of skewness	-0.33
Range	3
Minimum	1
Maximum	4
Sum	105
Count	36
Confidence level (95.0%)	0.25

Table 3 shows the results of the subjects with the highest and lowest preference among high school students, while Table 4 details the most used study methods.

**Table 3.**

Distribution of academic preferences among subjects.

Subjects	Highest preference		Lowest preference	
	<i>f</i>	%	<i>f</i>	%
a) Language and communication	51	52.58	0	0.00
b) English	46	47.42	32	32.99
c) Mathematical thinking I	25	25.77	51	52.58
d) Digital culture I	19	19.59	40	41.24
e) Matter and its interactions f	35	36.08	16	16.49
f) Humanities I	43	44.33	13	13.40
g) Social sciences	45	46.39	0	0.00
h) Socio-emotional resources I	3	3.09	1	1.03

**Table 4.**

Study methods used.

Method	<i>f</i>	%
a) Reading and summaries	61	62.89
b) Group study	8	8.25
c) Practices and exercises	52	53.61
d) Tutorials	13	13.40
e) Videos	36	37.11
f) Artificial intelligence	11	11.34
g) Others	5	5.15

Table 5 presents the results of students' perceptions in relation to their goals and motivations.

**Table 5.**

Presents the results of students' perceptions in relation to their goals and motivations.

Academic goals	<i>f</i>	%
a) Improve my grades	33	34.02
b) Prepare for exams	3	3.09
c) Participate in extracurricular activities	61	62.89
Reason for continuing to study	<i>f</i>	%
a) Interest in learning	17	17.53
b) Personal and professional goals	75	77.32
c) Family expectations	5	5.15

Tables 6 and 7 present the qualitative analysis of the open-ended responses related to the objectives for this semester and the students' motivations for continuing their studies. The responses were categorized, and each category was described and illustrated with the responses.

**Table 6.**

Objectives.

Category	Description	Answers
Specific academic objectives	Focused on passing the semester or achieving high grades	"Pass the semester", "get good grades"
High academic performance	Goals that reflect the desire to obtain outstanding grades	"Get good grades", "higher GPA"
Improved learning	Focused on deeper and more meaningful learning	"Improve my learning", "learn something new"
Personal development and skills	Oriented to acquiring practical skills or improving in specific areas	"Improve my English", "know how to cook"
Academic continuity goals	Related to continuity and progress in studies	"Continue my studies", "get ready"
Schedule change	Focused on improving the school schedule to better adapt to their needs	"Change to the morning", "move to the morning"
Well-being and personal satisfaction	Focused on general well-being and personal satisfaction beyond the academic field	"Be happy", "be satisfied"

**Table 7.**

Motivations.

Category	Description	Answers
Economic motivation	Desire to improve their economic situation, obtain financial independence and have better opportunities	"To have money", "to have a good job", "to be able to help financially"
Learning and personal development	Interest in acquiring knowledge, developing skills, or improving as individuals	"To learn", "I like to learn", "interest in learning"
Family and personal achievement	Desire to meet family expectations, stand out in their environment or be the first to achieve goals	"To be the first in my family to have a college degree", "for my family"
Professional future	Long-term professional goals, such as obtaining a career and achieving job stability	"To have a career", "professional goals", "to find work in my field"
Independence and fulfillment	Aspiration to be autonomous and achieve a state of self-sufficiency and personal fulfillment	"To be independent", "to be someone", "to get there on my own will"
Family support	Motivation to help or reciprocate the support provided by the family	"To help my mom", "my parents", "my mom"
No specific motivation	Students who do not express a clear or specific motivation to continue their studies	"I have no motivation", "none", "no"

Table 8 presents the results related to support and resources used by students. In the resources section, students could select more than one option.

**Table 8.**

Support and Resources used by students

<b>Support to improve your studies</b>	<b>f</b>	<b>%</b>
a) Additional tutoring	20	20.62
b) Study materials	19	19.59
c) Review activities	33	34.02
d) Academic advice	25	25.77
<b>Study resources</b>	<b>f</b>	<b>%</b>
a) School libraries	5	5.15
b) Internet	91	93.81
c) Study groups	19	19.59
d) Help from teachers	22	22.68
e) Videos	33	34.02
f) Artificial intelligence	8	8.25

The results on school experience, shown in Table 9, reveal a mean of 3.06, reflecting an overall evaluation of "Positive". In terms of the distribution of responses, 55.67% (54) rated their performance as positive, 24.74% (24) as very positive, 19.59% (19) as neutral, and no students (0%) rated it negatively.

**Table 9.**

Results of the evaluation of the school experience

<b>Statistics</b>	<b>Results</b>
Mean	3.06
Standard error	0.11
Median	3
Mode	3
Standard deviation	0.67
Sample variance	0.45
Kurtosis	-0.67
Coefficient of skewness	-0.06
Range	2
Minimum	2
Maximum	4
Sum	110
Count	36
Confidence level (95.0%)	0.23

Table 10 presents a qualitative analysis of the aspects that students consider could be improved in their school experience. This analysis is based on the open-ended responses provided by students, categorized into different areas covering aspects related to school infrastructure, break time, academic support, social interaction, emotional support, and communication.

**Table 10.**  
Aspects that could be improved according to students' perception.

Category	Description	Responses
Infrastructure and services	Improvements in the facilities and services provided at school.	Cafeteria, bathrooms, classroom, lighting, food quality
Time and rest	Need to adjust the time allocated to breaks and pauses between classes.	Increase break time
Grading and academic support	Improvements in academic performance and updating of academic content.	Improve grades, provide updated information from teachers
Social interaction and extracurricular activities	Promotion of interaction between students and the inclusion of activities outside the classroom.	Extracurricular activities, group activities, improve interaction between students
Emotional support	Need for emotional or psychological support for the well-being of students.	Additional emotional support
Communication	Improvements in the channels of communication between students and academic staff.	Improve communication between students and teachers
Others	General or neutral responses that do not specify clear areas for improvement.	No changes needed, everything is fine or not known what to improve

Table 11 presents statistical data on how high school students manage the balance between their studies and their free time, as well as their perception of general well-being, and Table 12 shows the distribution and percentages of the responses.

**Table 11.**  
Balance between studies, free time and well-being in students

Statistics	Balance between studies and free time	Perception of well-being
Mean	2.61	2.97
Standard error	0.14	0.11
Median	3	3
Mode	3	3
Standard deviation	0.84	0.65
Sample variance	0.70	0.43
Kurtosis	-0.45	1.60
Coefficient of skewness	-0.06	-0.62
Range	3	3
Minimum	1	1
Maximum	4	4
Sum	94	107
Count	36	36
Confidence level (95.0%)	0.28	0.22

**Table 12.**  
Distribution of balance and well-being.

Answers	Balancing studies and free time		Perception of well-being	
	f	%	f	%
Very good	14	14.43	17	17.53
Good	41	42.27	66	68.04
Average	34	35.05	13	13.40
Poor	8	8.25	1	1.03

#### 4. Discussion

At the high school level, students face motivations such as strengthening their identity, achieving autonomy, and socializing, but they also face difficulties such as lack of family support, academic problems, substance abuse, depression, violence, and socioeconomic limitations, which contribute to failure, dropout, and low terminal efficiency [12]. To overcome these challenges, it is crucial to provide

comprehensive support through educational guidance, focused on the development of decision-making skills, school integration, and the strengthening of vocational, social, emotional, and educational aspects, guaranteeing their academic success [13]. In this context, the study analyzes the academic perspectives of high school students around food and beverages, exploring their motivations, difficulties, and support needs.

High school students go through a crucial stage in their development, middle adolescence, characterized by psychological changes and a growing need for independence. In this context, academic performance is influenced by a combination of personal and external factors [14]. Teachers' and students' perceptions of the educational environment play a key role in academic performance. A positive school environment, based on healthy interpersonal relationships and adequate support, is closely related to better academic performance and more balanced socio-emotional development [15].

In this study, students mostly rated their academic performance as “good,” with an average of 2.93. The statistics show a moderate dispersion in the responses, with a median and mode of 3, and a variance of 0.54 indicating limited diversity. This pattern is supported by the distribution of responses: 56.70% of participants rated their performance as “good,” suggesting that most students perceive that they are reaching an adequate level of competence. In addition, 19.59% of students rated their performance as “very good,” implying that a significant portion of the student population considers their performance to be outstanding. This result could be influenced by factors such as intrinsic motivation, the implementation of effective study strategies, and adequate pedagogical support.

However, 22.68% of students rated their performance as “regular”, which shows that, although the majority perceive their performance positively, there is a group that faces academic challenges. In addition, 1.03% rate it as unsatisfactory, highlighting the need to implement personalized interventions, such as tutoring or specific pedagogical strategies, as noted by Moreno Osella [16].

According to Leiton, et al. [17] high school in Latin America is a fundamental pillar for continuing education, as it encourages the development of self-learning skills and fundamental competencies. This educational level is characterized by its flexibility, incorporating elective subjects that adapt to students' vocational preferences and interests. These subjects give them the opportunity to delve deeper into areas of interest, which contributes to more accurate career guidance and enriching learning. Analyzing student preferences is essential to strengthen the curriculum, optimize academic performance, and promote both motivation and satisfaction in their training process.

The results on subject preferences indicate that students tend to lean more towards Language and Communication (52.58%) and Social Sciences (46.39%), probably due to their more direct connection with everyday life and their relevance to the analysis of the social environment. In contrast, subjects such as Mathematical Thinking I (52.58%) and Digital Culture I (41.24%) are among the least preferred, which could be due to the perception of greater complexity or the lack of a clear link with their practical application. These results highlight the need to rethink teaching methodologies in these areas, as suggested by Delgado, et al. [18] implementing innovative and accessible pedagogical approaches to foster student motivation and improve academic performance in more technical and abstract subjects.

According to Sesento [19] study methods are essential for good academic performance, as they contribute to improving organization, fostering autonomy, and reducing stress. Support in the educational environment is also crucial, although factors such as distractions and limited resources can hinder its application [20, 21]. Regarding the study methods used, reading and summarizing (62.89%) stand out as the most frequent among students, reflecting a traditional approach to individual learning, but also highlighting the need to encourage critical thinking and synthesis. Despite the prevalence of this method, it is relevant to note that only 8.25% of students resort to group study, suggesting an opportunity to promote collaborative strategies that favor the exchange of ideas and joint problem solving. Furthermore, the use of videos (37.11%) and practical activities (53.61%) are also significant methods, indicating that students value visual resources and interactive activities to consolidate their learning. However, the low use of tutoring (13.40%) and artificial intelligence (11.34%) suggests that



these more personalized and technological academic support tools are being underutilized, opening space to explore their potential and better.

The goals and motivations for continuing to study significantly influence the teaching-learning process. It is essential that students clearly define their aspirations and reasons, as this constitutes a key element to optimize their academic performance [22]. Likewise, teachers must focus on skills, attitudes and cognitive factors, essential aspects for personal and academic growth [23].

Two objectives stand out in this study. The first, with 62.89%, focuses on participating in extracurricular activities, evidencing an interest in a comprehensive education that goes beyond grades; the second, with 34.02%, prioritizes improving academic performance, suggesting that, although relevant, it is not the only driver of their performance. The qualitative analysis reveals that high school students have varied goals, such as obtaining high grades, improving learning, and developing practical skills. Many seek to pass the semester or excel academically, but they also value learning something new or perfecting specific skills, such as mastery of English. In addition, some expressed the desire to adjust their school schedule, which underlines the influence of the educational environment on their academic experience.

Regarding motivations, 77.32% of students feel driven by personal and professional goals, especially by the search for a career and job stability, which highlights the orientation towards the future and the desire for professional success. However, the interest in learning as motivation is less frequent (17.53%), which could indicate that, although many value knowledge, it is not always the main driver of their academic effort. A small fraction (5.15%) is influenced by family expectations, indicating that some students feel pressured to comply with the wishes of their family environment. The qualitative analysis of student motivations shows that the predominant reasons for continuing their studies are related to socioeconomic factors, such as improving their financial situation and seeking economic independence. Likewise, the interest in achieving professional goals and meeting family expectations stands out. A significant proportion of participants express interest in acquiring knowledge and skills that favor their comprehensive development, while others indicate that their main motivation is supporting their families or achieving personal autonomy.

On the other hand, although most students report having defined objectives, some do not express clear motivations, which could indicate a lack of precision in their academic purpose or the need for interventions designed to identify and strengthen their educational goals. This finding is consistent with that reported by Guzmán-Camacho and Mendoza-González [24].

Arevalo-Vargas and Domaure-Romero [25] highlight that teachers face challenges in the use of teaching resources, which are essential to promote meaningful experiences in the teaching-learning process. However, traditional methods and the lack of innovative resources limit their effectiveness. The results presented in relation to study resources show a clear preference among students for the use of digital resources, such as the Internet (93.81%) and videos (34.02%), indicating a trend towards autonomous learning and the use of technologies to support their education. This inclination towards digital resources may reflect the convenience and accessibility they offer, as well as the variety of materials available online. In comparison, the use of more traditional resources, such as school libraries (5.15%), is considerably low, suggesting that students do not see libraries as an essential tool in their learning process, or do not have access to or preference for them.

Recent research highlights that the correct use of teaching resources, such as concept maps, timelines, documentaries and technologies, has a positive impact on students' motivation, attitude and academic performance. It also promotes teamwork and improves interaction between teachers and students [25-27]. This highlights the need to incorporate innovative methodologies, reinforce pedagogical skills and make accessible resources available to ensure meaningful learning.

Regarding academic support, review activities (34.02%) and academic counseling (25.77%) are the options most selected by students, highlighting the importance of feedback and knowledge reinforcement for their performance. Additional tutoring, although selected by only 20.62% of students, also suggests that some seek more personalized attention to resolve doubts or delve deeper into content.

The fact that only 8.25% of students use artificial intelligence as an educational resource could indicate that, although technology is advancing rapidly, its integration into students' learning strategies is still limited. This opens an opportunity to explore how more innovative tools can be incorporated into pedagogical processes to support students more effectively.

The quantitative analysis of the school experience, with a mean of 3.06, indicates a "Positive" overall assessment, as most students (55.67%) rated their performance positively, while 24.74% considered it very positive. This data suggests a favorable trend towards the academic environment, as no negative ratings were recorded. The distribution of responses and the low standard deviation (0.67) reinforce the consistency of the ratings, although the slight negative asymmetry (-0.06) indicates a slight inclination towards the more positive responses. On the other hand, the qualitative analysis revealed that students consider key areas to improve their school experience. The most mentioned aspects include infrastructure (cafeterias, bathrooms and quality of services), the need for more break time and updating academic content. The integration of extracurricular activities and emotional support were also highlighted areas, which underlines the importance of a school environment that promotes not only academic performance, but also the overall well-being of students.

Regarding the balance between studies and free time, the results show an average of 2.61, indicating that most students perceive a regular or satisfactory balance, although with room for improvement. This perception is confirmed by observing the distribution of responses in Table 12, where 42.27% of students rated their balance as "Good" and 35.05% as "Fair." This data suggests that many students feel they can manage their academic responsibilities, but there is also a segment that experiences difficulties in time management.

In terms of well-being, the mean of 2.97 reflects an overall positive perception, with 68.04% of students indicating that they feel "Good." However, the presence of 13.40% who feel "Fair" and 1.03% who report feeling "Poor" indicates that there are factors that could affect the emotional and physical health of some students, which underscores the importance of continuing to strengthen emotional supports and overall well-being within the school environment. These findings underscore the need to implement improvements in both academic support and emotional well-being, in order to offer a more balanced and satisfying school experience for all students.

## 5. Conclusion

High school is a key stage in the academic and personal development of students, characterized by diverse motivations and challenges that impact on their performance and well-being. Although the general perception of academic performance is positive, with subjects such as Language and Communication and Social Sciences standing out, others such as Mathematical Thinking require innovative pedagogical strategies to better capture interest and facilitate understanding. The most common study methods, such as reading and summaries, together with the moderate use of digital resources, indicate the need for more dynamic educational approaches that adapt to their interests and needs. In addition, aspects such as school infrastructure, the balance between studies and free time, and emotional support are key areas that directly influence the educational experience. It is essential to integrate technological tools, strengthen academic programs focused on personal and professional goals, and create an environment that combines academic demands with socio-emotional well-being, to foster autonomy, reduce school dropout, and improve terminal efficiency. In this way, we will contribute to the training of competent individuals who are better prepared for future challenges.

## Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

## Acknowledgements:

The authors would like to express their gratitude to the Center for Industrial and Service Technology Studies No. 20 "Melchor Ocampo" (CETIS 20) for the facilities provided for the completion of this work. We also acknowledge the valuable methodological support provided by the academic body "Applied Nutrition and Education" (Applied Nutrition and Education) and extend our gratitude to all participants for their collaboration and trust, which made it possible to successfully complete this research.

## Copyright:

© 2025 by the authors. This open-access article is distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## References

- [1] E. Ruiz, "The Mexican industrial technological baccalaureate. A hinge between academic training and technical training," *Mexican Journal of Educational Research*, vol. 25, no. 84, pp. 61-89, 2020.
- [2] Á. Torres, J. Matos, J. Rivera, and J. Acuña, "Performance on a standardized test as a reference for compliance with the nutrition graduation profile," *Journal of University and Society*, vol. 13, no. 1, pp. 292-299, 2021.
- [3] Á. E. Torres-Zapata, J. Rivera Domínguez, P. Flores López, M. d. P. García Reyes, and D. A. Castillo Trejo, "Failure, a symptom of dropping out of school in the Bachelor's Degree in Nutrition at the Autonomous University of Carmen," *RIDE. Revista Iberoamericana para la Investigación y el Desarrollo Educativo*, vol. 10, no. 20, p. e009, 2020. <https://doi.org/10.23913/ride.v10i20.602>
- [4] B. Alemán, O. Navarro, R. Suárez, Y. Izquierdo, and T. Encinas, "Motivation in the context of the teaching-learning process in medical sciences courses," *Electronic Medical Journal*, vol. 40, no. 4, pp. 1257-1270, 2018.
- [5] M. Velázquez, M. Velasteguí, M. Luzuriaga, and V. Luzuriaga, "Exploring post-covid career guidance in high school in Ecuador: A university perspective on the current reality," *Conrado*, vol. 19, no. 93, pp. 280-287, 2023.
- [6] E. L. Deci and R. M. Ryan, *Intrinsic motivation and self-determination in human behavior*. New York: Springer, 1985.
- [7] F. Barreto and J. Álvarez, "The dimensions of achievement motivation and its influence on academic performance of high school students," *Teaching and Research in Psychology*, vol. 2, no. 1, pp. 73-83, 2020.
- [8] V. Silva and J. Barrios, "Main difficulties in learning mathematics in upper secondary students," *CIE Academic Journal*, vol. 1, no. 2, pp. 63-82, 2022.
- [9] Á. E. Torres Zapata, J. J. Matos Ceballos, T. d. J. Brito Cruz, J. Rivera Domínguez, and O. E. Mato Medina, "Comprehensive training of university students in the Bachelor's Degree in Nutrition. A case study from Mexico," *Revista Universidad y Sociedad*, vol. 13, no. 5, pp. 330-338, 2021.
- [10] R. R. G. Cota, S. F. Gamboa, Ó. M. H. Ruíz, and D. E. R. Toledo, "Teacher attitudes towards the teaching-learning process in students with specific educational support needs at the high school level: Chapter 2," *Editorial Idicap Pacífico*, pp. 26-40, 2022. <https://doi.org/10.53595/eip.006.2022.ch.2>
- [11] F. M. Cedeño Mendoza and Á. E. Torres-Zapata, "Impact of ICT on teaching-learning: Case study in the Information Technology program at the Technical University of Manabí," *RIDE. Revista Iberoamericana para la Investigación y el Desarrollo Educativo*, vol. 15, no. 29, p. e737, 2024. <https://doi.org/10.23913/ride.v15i29.2099>
- [12] C. C. Norzagaray Benítez, "Design and validation of a scale for the detection of educational guidance needs in high school students," *Orientación y Sociedad*, vol. 23, no. 2, p. e062, 2023. <https://doi.org/10.24215/18518893e062>
- [13] Á. Torres-Zapata, J. Moguel-Ceballos, and T. Brito-Cruz, "Self-esteem in university students around nutrition," *Contemporary dilemmas: Education, Politics and Values*, vol. 11, no. 3, pp. 1-19, 2024. <https://doi.org/10.46377/day.v11i1>
- [14] A. G. Arista, C. A. Torres-Segoviano, and C. E. V. Olmedo, "Academic performance and perception of school climate in high school students," *Revista de Psicología de la Universidad Autónoma del Estado de México*, vol. 13, no. 37, pp. 223-238, 2024. <https://doi.org/10.36677/rpsicologia.v13i37.24138>
- [15] R. Tafur, R. Soriano, and S. Huamán, "Perceptions of teachers from two educational institutions in metropolitan Lima about their interpersonal relationships," *Horizon of Science*, vol. 11, no. 21, pp. 151-164, 2021. <https://doi.org/10.26490/uncp.horizonteciencia.2021.21.902>
- [16] E. M. Moreno Osella, "Design of inclusive interventions through tutoring in final degree projects," *Innovación Educativa (México, DF)*, vol. 18, no. 76, pp. 127-147, 2018.
- [17] D. R. L. Leiton, M. A. A. Cruz, J. G. S. Suarez, A. R. A. Cruz, and J. I. P. Galdea, "Unified general high school curriculum: Conceptions of the students of the Jorge Yunes educational unit," *Ciencia Latina Revista Científica Multidisciplinar*, vol. 7, no. 3, pp. 5300-5313, 2023. [https://doi.org/10.37811/cl\\_rcm.v7i3.6552](https://doi.org/10.37811/cl_rcm.v7i3.6552)
- [18] E. Delgado, B. Lema, and A. Lema, "Innovative pedagogical strategies for the development of meaningful learning in higher education," *Prohominum*, vol. 6, no. 1, pp. 80-88, 2024. <https://doi.org/10.47606/ACVEN/PH0228>

- [19] L. Sesento, "Study habits in young people at the upper secondary level using the CHTE instrument," *Electronic Journal of Secondary and Higher Education*, vol. 11, no. 21, pp. 1-13, 2024.
- [20] A. Zarza-García, M. Kent-Sulu, Á. Torres-Zapata, T. Brito-Cruz, and J. Moguel-Ceballos, "Influence of teaching strategies on the learning of biochemistry in students from a university in southeastern Mexico," *International Journal of Innovative Scientific Research and Studies*, vol. 7, no. 3, pp. 1301-1307, 2024. <https://doi.org/10.53894/ijisrs.v7i3.1307>
- [21] Á. E. Torres-Zapata, T. D. J. Brito-Cruz, A. Zarza-García, J. Moguel-Ceballos, and H. Priego-Álvarez, "Didactic intervention in the metabolic biochemistry course in undergraduate nutrition students," *Contemporary Dilemmas: Education, Politics and Values*, vol. 12, no. 1, 2024. <https://doi.org//10/dilemas.v12>
- [22] R. Triviño and R. Zambrano, "Study motivation and academic performance of high school students," *Ciencia Latina Multidisciplinary Scientific Journal*, vol. 8, no. 2, pp. 76-88, 2024. [https://doi.org/10.37811/cl\\_rcm.v8i1.10351](https://doi.org/10.37811/cl_rcm.v8i1.10351)
- [23] J. C. Gaxiola Romero, A. Pineda Domínguez, S. González Lugo, and E. Gaxiola Villa, "Resilience and academic commitment in high school students," *Psicumex*, vol. 12, no. 1, p. e504, 2022. <https://doi.org/10.36793/psicumex.v12i1.504>
- [24] J. A. Guzmán-Camacho and B. Mendoza-González, "Profile of high school students based on their learning style and description based on their teachers' teaching style," *Revista RedCA*, vol. 5, no. 15, pp. 10-28, 2023. <https://doi.org/10.36677/redca.v5i15.20742>
- [25] N. Arevalo-Vargas and K. Domaure-Romero, "Didactic media for the teaching-learning of Social Studies. Ninth year of Basic Education," *Science & Society Journal*, vol. 3, no. 2, pp. 163-177, 2023.
- [26] J. Torres, "Effectiveness of educational technology in improving the academic performance of secondary education students," *Boacencia Journal Education and Social Sciences*, vol. 3, no. 1, pp. 51-68, 2023.
- [27] A. Pérez, C. Estrada, T. Brito-Cruz, J. Villanueva-Echavarría, and Á. Torres-Zapata, "Exploring the use of artificial intelligence in the academic training of university students: A case study with chatgpt in the resolution of clinical cases," *Nursing Horizon*, vol. 35, no. 2, pp. 608-620, 2024. [https://doi.org/10.7764/Horiz\\_Enferm.35.2.608-620](https://doi.org/10.7764/Horiz_Enferm.35.2.608-620)