



REVISTA

CÁTEDRA

Incidence of procrastination on the academic performance of the subject of Chemistry

*Incidencia de la procrastinación en el rendimiento
académico de la asignatura de Química*

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Abstract

Procrastination is the intentional delay of an activity. This action has negative effects on education and society. In the case of students in the academic field, it can have an impact on their performance during their study activities. During the research, the causes of



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procrastination in learning the subject of chemistry were determined, and subsequently its effects on the subject were verified. The research presented a qualitative-quantitative paradigm with correlational research, and likewise with a socio-educational approach. Techniques such as interview and survey were used to identify the various causes of procrastination. It should be mentioned that the statistical analysis was carried out based on the comparison of the types of procrastination with the academic performance of the first semester. The research presents a negative inverse correlation in passive procrastination, a value of -344 was obtained in Pearson's r and in Bilateral sig. a value of 0.001. Likewise, in decisional procrastination, Pearson's r obtained a value of -221 and in the Bilateral sig. 0.015. In other words, in both cases procrastination has a negative impact on academic performance in the subject of Chemistry. The survey results showed that the main causes of procrastination were emotional stability along with the use of social networks and technological devices. Procrastination is an involuntary act that currently affects the academic performance of students.

Keywords

school failure, procrastination, chemistry, academic achievement, academic routines.

Resumen

La procrastinación consiste en el retraso de una actividad de manera intencionada. Esta acción conlleva efectos negativos en la educación y la sociedad. En el caso de los estudiantes en el ámbito académico puede impactar en el rendimiento durante su actividad de estudio. Durante la investigación se determinó las causas de la procrastinación en el aprendizaje de la asignatura de Química, y posteriormente se verificó sus efectos en la misma. La investigación presentó un paradigma cualitativo-cuantitativo con una investigación correlacional, y así mismo con un enfoque socioeducativo. Se utilizó técnicas como la entrevista y la encuesta en donde se logró identificar las diversas causas de la procrastinación. Se debe mencionar que el análisis estadístico se realizó a partir de la comparación de los tipos de procrastinación con el rendimiento académico del primer quimestre. La investigación presenta una correlación inversa negativa en la procrastinación pasiva, se obtuvo un valor de -344 en la r de Pearson y en sig. Bilateral un valor de 0.001. Así mismo, en la procrastinación decisional en la r de Pearson se obtuvo -221 y en la sig. Bilateral 0.015. Es decir que en ambos casos la procrastinación incide de manera negativa en el rendimiento académico de la asignatura de Química. Los resultados de la encuesta demostraron que las principales causas de la procrastinación fueron la estabilidad emocional junto con el uso de redes sociales y dispositivos tecnológicos. La procrastinación es un acto involuntario que en la actualidad afecta el rendimiento académico de los estudiantes.

Palabras clave

Fracaso escolar, procrastinación, Química, rendimiento académico, rutinas académicas.

1. Introduction

Procrastination is the postponement or delay of activities. In the educational field it is considered as the failure to comply with academic activities. It is an involuntary act, however, with the passage of time it becomes a habit, according to this Atayala and Garcia (2019) argues that "procrastination starts from adolescence and is determined in adulthood" (p. 2). However, in some cases procrastination starts from childhood. Students,



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feeling pressure from parents, tend to feel fear of failure and delay their activities. Each activity requires an established time and order so the student's behavior or emotions are important to comply with the activities, for the same reason, Quan and Sanchez (2012) argue that "behaviors related to the postponement of tasks are related to the student's emotional stability" (p. 6). The emotions that the student presents during classes are essential to understand the topics presented and to adequately perform their activities. Moreover, nowadays, procrastination is progressively increasing, becoming a social problem.

Procrastination in the educational environment affects the student's academic performance; this problem is frequently found in the American continent. According to some figures, Steel (2007) mentions that "around 95% of people recognize that they procrastinate, 25% of the same percentage argue that it is a chronic characteristic" (p. 3). Likewise, Guzman (2013) details that between "80% and 95% of students procrastinate occasionally; of these, 70% consider themselves procrastinators and almost 50% procrastinate consistently and problematically" (p. 2). The percentages with respect to procrastination are high, most procrastinate intensively, students substitute their activities for those of less relevance or importance, so it is important to consider the different causes in the delay of activities.

The subject of chemistry requires concentration and academic routines on the part of the student. However, learning is delayed by irrelevant actions, which impair academic performance. Therefore, this research aims to determine the causes of procrastination and its effect on academic performance in the subject of chemistry. Currently, academic procrastination is a topic that is considered important due to its consequences in the academic aspect; however, there is little research in the country on procrastination, so this research will serve as a basis for future research that will allow proposing alternative solutions to this problem.

This article consists of a brief introduction, in the theoretical reference the causes, types and models of procrastination will be addressed. In methods and instruments, we will describe how the research was carried out and finally the most relevant results will be analyzed together with their discussion and conclusions.

2 Theoretical reference

2.1 Procrastination

Procrastination is the postponement of activities, and when these involve school activities it is referred to as academic procrastination. Milgram (1992) argues that "procrastination is a disease that nowadays develops easily in first world countries" (p. 84). Students nowadays procrastinate as a matter of course. It should be mentioned that procrastination is involuntary, but, over time it becomes a habit, so it is considered a social problem. In addition, procrastination is also a problem in underdeveloped countries, due to the lack of resources for education. The factors that affect procrastination correspond to different causes. The analysis will range from the social aspect to the technological aspect. Each aspect will then be discussed in relation to the teaching and learning process.

2.2 Social aspect

There are positive or negative factors involved in student academic performance. Cardozo, et al. (2018) state that



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the social context intervenes in the teaching-learning process. The student is immersed in a constant change of experiences that affect him directly or indirectly; these factors can be exogenous, that is, everything that is outside the educational institution, and endogenous, everything that happens within the educational institution (para. 41).

The social context is an important characteristic during learning; personal or social problems diminish the student's concentration, so that the student easily postpones his academic activities. When mentioning the social aspect, reference is made to the family and economic context, and even to the student's emotional stability.

2.3 Familiar context

The family assumes an important role in the student's education. When there is a stable family environment, the student concentrates on his or her activities properly. On the other hand, family conflicts or illnesses prevent the student from concentrating properly on his or her activities, and thus directly affect academic performance. Martínez et al. (2020) state that "the family is the first base in the formation of the human being's personality, where values and principles are fostered" (para. 3). The family has the capacity to influence the development of each person. In addition, it is an important factor in the personal life of each individual, so that a good or bad family relationship directly affects the student.

Generally, conflicts between the student and the family begin in the adolescent stage, due to the physical and emotional changes that he/she presents. Llacsá (2018) mentions that it is "necessary to know the family environment, even more so when they go through the stage of adolescence because of the changes that adolescents go through. Young people go through a process of adaptation to adulthood" (p. 7). At this stage, the student experiences different changes that hinder a correct family environment, which can affect their concentration.

2.4 Economic context

The lack of economic resources in education is a problem; the economy is fundamental for quality education. The World Bank in Ecuador (2022) assures that "the health emergency caused by covid-19 provoked a deep recession that influenced a spike in poverty. This crisis amplified the macroeconomic imbalances that the country had been trying to redress since the middle of the last decade" (para. 1). In Ecuador, economic possibilities are low and in the wake of the 2020 pandemic, the country significantly reduced the education budget, affecting student learning. Most of the students who drop out of school are due to lack of economic resources. In the pandemic this problem was clearly evidenced, there were students who did not have the necessary resources to access classes, both for the lack of technological devices and for the poor or non-existent connectivity available in their homes. These aspects contribute to the student not delivering or not fulfilling their academic obligations in the established time. On the other hand, social investment in Ecuador leaves much to be desired; social investment involves the health, labor, culture, social welfare and education sectors. Education only receives 2.53% of the budget allocated for social investment. Gomez, (2020) mentions that "Ecuador's budget and investment from 2017 to 2020 has decreased in the health and education sectors" (para. 1). A reduced budget has a significant negative impact on education, due to the impossibility of accessing a quality education.



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2.5 Emotional stability in procrastination

The different emotions experienced by the student in class are essential for a correct learning process. When there is emotional stability, students can adequately perform their academic activities. Robayo, (2020) mentions that "students are currently at a stage where their family, school and work environment are unstable, and unexpected events around them can change their mood and impair their concentration in the activities they must perform" (p. 7). Adolescent students are in a vulnerable stage. Their emotions are constantly changing from joy or motivation to sadness or anxiety. These changes affect the emotional stability of students, the same emotions that prevent them from paying attention in class, and procrastinate in their activities. For the same reason, the student must have a stable social and family nucleus that allows regulating the emotions that the student presents.

2.6 Technological devices

Nowadays, there is constant mention of technological devices in education and their positive impact. Each technological resource presents different characteristics that allow students to access learning in a more dynamic way. Rodriguez et al. (2021) point out that "technological tools have brought changes to the educational landscape, creating innovative teaching methods that can be used inside and outside the classroom to improve educational knowledge" (p. 2). During the pandemic, technological resources enabled virtual learning, however, not all students had the necessary resources. Therefore, without adequate technological resources, students did not have proper access to education, impairing their academic performance.

On the other hand, the problem is exacerbated when technological devices consume too much of the user's time. A student in class spends more time interacting with their technological devices than with their classmates or the teacher, ignoring the activities they should be doing. Carrillo and Valencia (2020) state that "around more than 50% of students have a technological device, so they are always in constant communication" (p. 17). Currently, most children have access to at least one technological device, so they are always in constant interaction with them. Technological devices become distracters that can ultimately affect academic performance.

2.7 Procrastination and social networks

Nowadays, social networks play an important role in society; however, due to the 2020 pandemic, social networks became more relevant thanks to the ease of communication. In turn, in the educational field, students and teachers obtained educational information. However, the problem lies in its misuse. Muñoz et al. (2023) argue that "adolescents create certain dependence compatible with patterns of addiction to different platforms or applications such as social networks, which can lead to a somewhat dangerous situation" (p. 3). Nowadays, students spend more time on social networks interacting with mobile devices than with the people around them.

On the other hand, in the educational environment, the excessive use of social networks causes students to present scattered attention or low concentration, affecting their academic performance. The learning process is interrupted by the excessive use of social networks. Valencia (2019) argues that "currently these networks have managed to attract the attention of young people by taking their use to the extreme, as they capture more of their attention than any other activity" (p.2). In classrooms, students pay more attention to social networks than to teacher-led classes. Young people and even children participate in



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them to the point of staying in permanent contact not only with friends but also with strangers. Even the inappropriate use of digital platforms can become a distractor rather than an educational resource.

2.8 Procrastination and social networks

There are models of procrastination that help define the personality or characteristics of the person who procrastinates or delays academic activities.

2.8.1 Psychodynamic model

People are driven by the fear of failure despite having enough opportunities, thinking they are not capable and analyzing the motivations around them. This model connects people's behavior with the reasons for academic procrastination. Atalaya-Laureano and García-Ampudia (2019) argue that "procrastination comes from childhood; since, at this stage a very important role is played in the development of adult personality and the influence of unconscious mental processes and internal conflicts on behavior" (p. 8). Personality is formed in childhood; childhood traumas persist into adulthood. Therefore, since there is a fear of failure from an early age, students tend to consecutively postpone their social and educational activities. Emotions are also involved in the psychodynamic model. Fear of failure causes students to constantly procrastinate.

2.8.2 Motivational model

The person is motivated and committed to carrying out activities and achieving success in a way that avoids procrastination. For this reason, Atalaya and Garcia (2019) mention that:

The motivational model indicates that procrastinating students are unmotivated, and are prone to adopt a position of dissatisfaction in relation to the objectives they intend to accomplish or become discouraged when obtaining an achievement involves effort and dedication; therefore, they are more likely to choose to suspend or postpone the start or progress in their tasks. (p. 9)

An unmotivated student is more likely to procrastinate, delaying their educational activities. Thus, by not completing their schoolwork on time, their academic performance decreases. Students who are always motivated and determined are less likely to procrastinate.

2.8.3 Cognitive Model

Students in this model represent intrusive thoughts for the actions they need to take. Carrasco (2022), states that "procrastinators tend to think in terms of procrastination, so they are especially susceptible to exhibiting obsessive thought patterns when they cannot complete a task or are close to a deadline" (p. 10). Fear of failure and social isolation cause people to delay learning. In addition, these individuals analyze whether or not to fulfill their roles.

2.9 Types of Procrastination

It is assumed that the types and models of procrastinators are the same due to the characteristics, however, they are different aspects. Ayala et al. (2020) mention that there are the following types of procrastinators:



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Passive procrastinators: They delay the completion of tasks or decisions, they delay until the end of the established deadlines, and they cannot make decisions quickly.

Active procrastinators: This type of procrastinators work better under pressure, their tasks are always left until the end of the established deadline.

Decisional procrastinators: They make the decision not to carry out academic activities until the end of the established deadlines (p. 8).

Each student is a different world, so there are different types of procrastination that define each student's behavior. However, this does not prevent students from procrastinating. Not completing assignments or not turning in assignments on time is detrimental to academic performance.

2.10 Academic Performance in the Subject of Chemistry

In education, academic performance allows assessing the student's progress within the development of the teaching-learning process. The activity that the teacher performs in this area is paramount, in this regard Estrada (2018) indicates that "it is the reflection of the learning coming from the didactic and pedagogical interaction between the teacher and student" (p. 224). Student learning is the result of the way in which the teacher teaches, the same that makes use of a methodology and didactic resources to achieve that end.

The academic performance of students in the subject of chemistry is determined through formative and summative activities. Sometimes the performance in the subject is obstructed by various factors that distract the student. The subject of Chemistry is a science that requires adequate concentration on the part of the student to avoid procrastination. The factors mentioned in the theoretical reference such as technological devices and social networks are elements of distraction during classes. When there is constant distraction, the student does not understand and is not able to relate the topics presented in class, so that their academic performance is impaired.

3. Methods and instruments

The research was correlational, the relationship between the variable of procrastination and academic performance in the subject of chemistry was identified, resulting in an inverse correlation, i.e., the higher the level of procrastination, the lower the academic performance. On the other hand, the research presented a socio-educational approach, since it was in charge of investigating the different social and academic problems that directly or indirectly affect academic procrastination.

The type of research was bibliographic, a search for information was conducted in theses and scientific articles, which served as theoretical support to substantiate that procrastination influences academic performance in the subject of chemistry. The instruments used were a survey and an interview. The survey was directed to 120 students of the "Abdón Calderón" Educational Unit corresponding to the first year of General Unified High School. The design of the questionnaire was based on the indicators of the research variables, which allowed a correct approach to the established problem. The instrument consisted of 8 structured questions of the independent variable and 8 structured questions of the dependent variable. The answers to verify the causes of procrastination ranged from 1=Always to 5=Never, the answers to determine academic performance ranged from



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1=Excellent to 5=Unsatisfactory. Likewise, the interview was conducted with the teacher in charge of Chemistry in the first year of high school. The interview guide consisted of 6 open questions corresponding to the dimensions of the independent variable and 6 open questions responding to the dimensions of the dependent variable.

As for the selected sample, the students in this period presented the necessary characteristics for the research. Students at this level are approximately 15 to 16 years old, they are going through a transition stage from childhood to adolescence, this process alters their concentration during classes and increases procrastination.

The academic performance of the first term of the subject was analyzed. The topics addressed in this period constitute the basis of Inorganic Chemistry such as: atomic models, periodic table, electronic configuration and formation of chemical compounds. Therefore, the academic performance in this period is fundamental since it constitutes the basis for more complex topics such as stoichiometry, solutions and chemical equilibrium. In relation to the temporality, the research was transversal, so it was carried out in a determined period of time. The depth of the research was explanatory, in such a way that the causes and consequences of procrastination were analyzed in order to create a critical thinking with respect to the subject.

3.1 Data processing and analysis techniques

The processing and analysis of the surveys were carried out using Microsoft Excel 2021. The information collected from the respondents was used to create statistical tables, tabulate data and create figures for analysis. In addition, the SPSS 2022 program was used to perform the correlational analysis between academic performance and the types of procrastination derived from the applied survey. The results were obtained through Pearson's correlation using a significance level of 0.01 and box and whiskers figures that allowed analyzing the relationship between procrastination and academic performance in the subject of chemistry.

4. Results

From the results obtained in the survey, the causes that students mention as important factors in procrastination are emotional stability and the use of technological devices along with social networks. 88.33% mention that emotional stability is important in the teaching and learning process. Motivation, and feeling cheerful contribute to their concentration in schoolwork. In relation to the use of social networks, 65.01% of students affirm that they spend 7 to 10 hours during the course of the day on platforms such as Facebook, WhatsApp and Tik Tok, for the same group investigated, the social and economic context do not represent important factors in procrastination. Only 25.83% of students affirm that these aspects interfere in the performance of their activities. During the research, passive and decisional procrastination obtained greater relevance in the students.

4.1 Passive procrastination

Passive procrastinators delay the completion of their academic activities; for the normality test, the Kolmogorov-Smirnova test is applied, due to the fact that the sample is larger than 30 students. Table 1 shows the normal values for applying Pearson's correlation.



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Normality tests				
Passive Procrastination		Kolmogorov-Smirnov ^a		
	Statistician	gl	Sig.	
Academic Performance	1	0.138	25	.200*
	2	0.105	55	.200*
	3	0.064	40	.200*

Table 1. Normality tests of passive procrastination.

In the three levels of procrastination the Sig value is .200, that is, the data are normal. The existence of high levels of procrastination or delay in activities is detrimental to students' academic performance. In the second level there is a high number of students who affirm that they perform passive procrastination, it should be mentioned that it is not intentional, normally students at this point postpone their activities for causes such as social and even economic context.

According to Figure 1, the levels of passive procrastination do have an impact on academic performance (See Figure 1).

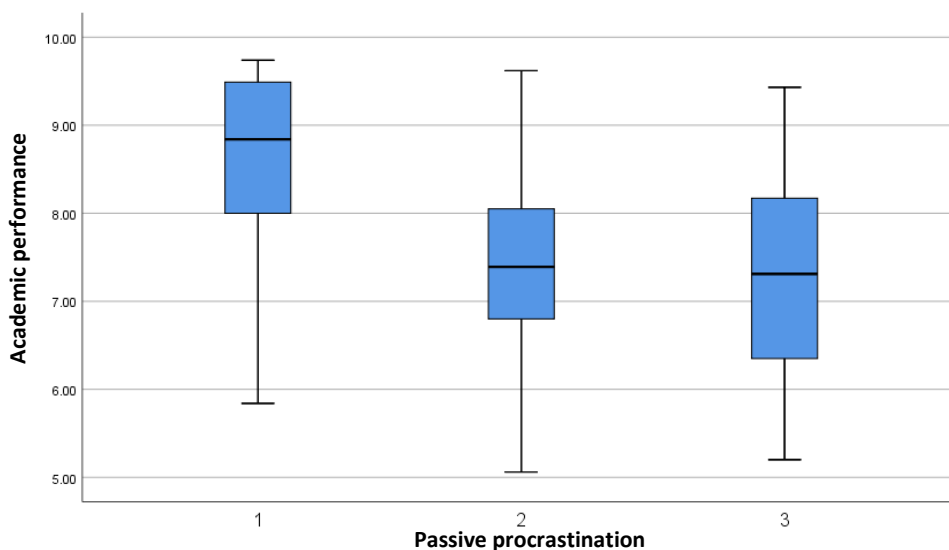


Figure 1. Box and whisker plot: Passive procrastination and academic performance.

In the first level of procrastination it is observed that students normally obtain grades of 8 to 9, therefore, the lower the procrastination, the higher the academic performance. In levels 2 and 3 of procrastination the grades that students obtain are 7 to 8, in exceptional cases the grades range from 5 to 6, in this part it is evident that the higher the procrastination, the lower the academic performance. The students' procrastination frequently affects their academic performance in the subject of chemistry.

Table 2 shows the Pearson correlation on passive procrastination.



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Correlations			
		Academic Performance	Passive Procrastination
Academic Performance	Pearson correlation	1	-.344**
	Sig. (bilateral)		0,000
	N	120	120
Passive Procrastination	Pearson correlation	-.344**	1
	Sig. (bilateral)	0,000	
	N	120	120

** . Correlation is significant at the 0.01 level (bilateral).

Table 2. Correlation of passive procrastination.

The Pearson's r statistic value is $-.344$, that is, there is an inverse correlation, moreover, this correlation is highly significant. Therefore, it can be affirmed with 99% confidence that in the field of study there is a negative correlation between the variable procrastination and the variable academic performance, because the value of Sig, bilateral is 0.000 which is below the required 0.01.

Since there is an inverse correlation, it is argued that passive procrastination does affect academic performance. Students tend to postpone academic activities until the end of the established deadline. In passive procrastination, the fear of failure prevents students from performing their activities correctly.

4.2 Decisional procrastination

Decisional procrastinators make the decision to postpone their academic activities. In the normality test, the Kolmogorov-Smirnova test is applied, due to the fact that the sample is larger than 30 students. Table 3 shows the normal values for applying Pearson's correlation.

Normality tests				
Decisional Procrastination		Kolmogorov-Smirnov ^a		
		Statistician	gl	Sig.
Academic Performance	1	0.065	63	.200*
	2	0.122	38	0.169
	3	0.090	19	.200*



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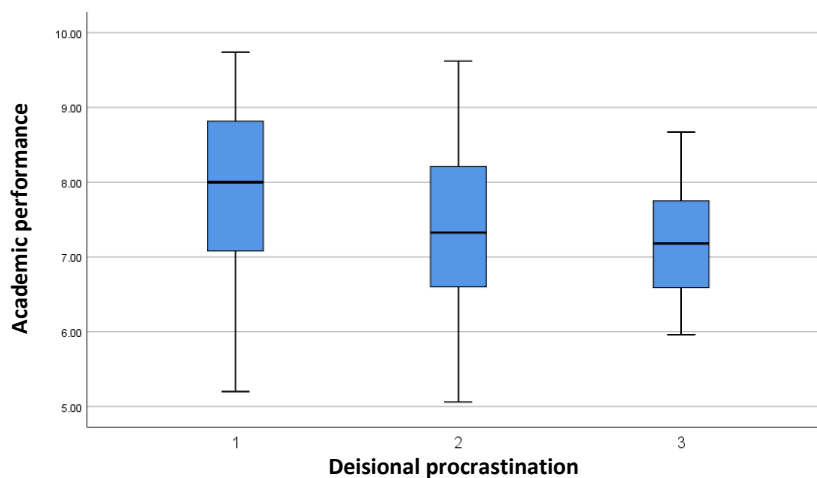
*. This is a lower limit of true significance.

a. Lilliefors significance correction

Table 3. Normality tests of decisional procrastination.

In the first and third levels of procrastination the Sig is .200 and in the second level 0.169, that is, the three are normal data because their value is greater than 0.05. Thus, being normal values allows us to affirm that decisional procrastination does affect the student's academic performance. Students sometimes decide not to perform academic activities of their own free will. This is due to different factors such as emotional stability, family context or economic context that prevent them from performing the activities and even lack of interest in the subject.

According to Figure 2, the levels of decisional procrastination do have an impact on academic performance (See Figure 2).



Box-and-whisker plot: Decisional procrastination and academic performance.

Taking into account the average levels in the first level of procrastination, it is observed that students normally obtain grades of 8, therefore, the lower the procrastination, the higher the academic performance. In levels 2 and 3 of procrastination the grades obtained by the students are from 7 to 8. In exceptional cases the grades reach 6, in this part it is evident that the higher the procrastination, the lower the academic performance. However, it should be noted that in level three there are few students who practice decisional procrastination.

Table 4 shows the Pearson correlation on decisional procrastination.



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Correlations		Academic Performance	Decisional Procrastination
Academic Performance	Pearson correlation	1	-.221*
	Sig. (bilateral)		0.015
	N	120	120
Decisional Procrastination	Pearson correlation	-.221*	1
	Sig. (bilateral)	0.015	
	N	120	120

*. The correlation is significant at the 0.05 level (bilateral).

Table 4. Correlation of decisional Procrastination

The Pearson's r statistic value is -.221, that is, there is an inverse correlation. Furthermore, this correlation is significant, so it can be affirmed with 95% confidence that in the study area there is a negative correlation between the procrastination variable and the academic performance variable, because the bilateral Sig value is 0.015, which is below the 0.05 required.

Since there is an inverse correlation between decisional procrastination and academic performance, it can be affirmed that the greater the procrastination, the lower the academic performance. Although it should be mentioned that sometimes procrastination is involuntary and over time it can become a habit. Procrastination is detrimental to the student's academic performance.

5. Discussion

Procrastination is a social and academic problem that has become normalized over time. Students postpone their academic activities for those that have less relevance or importance, thus affecting their academic performance. One of the causes is the use of technological devices and the use of social networks. This is what Guamán and Ticsalema (2022) state in their research, where they mention that:

Internet addiction is a maladaptive behavior characterized by the deterioration in the control of Internet use, manifested through a set of cognitive, behavioral and physiological symptoms, generating negative consequences whose impact is mainly in the personal, family, social and school context (p. 102).

In the educational environment, the excessive use of technological tools predisposes students to academic procrastination. The student is easily distracted and postpones his tasks, putting at risk his teaching-learning process. Likewise another cause in procrastination are the emotional factors presented by the student, for this reason Camacho (2018) in his research argues that the "emotional conflicts that the student perceives generate negative moods, decreasing their concentration and increasing academic procrastination" (p. 123). Emotional stability is important in academic performance. The



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student when presenting a negative attitude limits his abilities and skills, easily postpones his academic activities in a way that decreases his academic performance.

With respect to the relationship between procrastination and academic performance, Zumárraga and Cevallos (2022) affirm that:

Academic procrastination produces a negative and significant effect on academic performance ($\beta = -.22$; $p < .001$). Implying that students who procrastinate more frequently, in relation to their academic tasks and activities, tend in turn to report worse academic performance (p. 8).

The results obtained in the research related to passive procrastination are $-.344$ in Pearson's r and the Bilateral sig. a value of 0.000 , likewise in decisional procrastination in Pearson's r it has a value of $-.221$ and in the Bilateral sig. a value of 0.015 , the values agree with the results shown by Zumárraga and Cevallos when demonstrating that procrastination affects academic performance.

Likewise, Paucar (2021) in his research states that "in students there are high and medium levels of procrastination, the same levels that affect academic performance, determining that there is a negative correlation between these indicators" (p. 90). The above findings allow reinforcing and verifying the results obtained in the present research, the incidence of procrastination on academic performance. The higher the level of procrastination, the lower the academic performance or vice versa; the lower the level of procrastination, the higher the academic performance.

Procrastination is the delay of academic activities, currently students procrastinate their activities normally. However, procrastination is an involuntary act that over time becomes a habit that is considered normal by students. To support this theory, there are different models and types of procrastination that define each person. On the other hand, academic performance in the subject of chemistry is determined by quantitative and qualitative activities. Each student learns differently, so the teacher must implement different strategies to evaluate academic performance. It should be taken into account that chemistry is an experimental subject, which allows the teacher to explain the contents through laboratory practices or experimental demonstrations. In addition, students acquire specific skills and abilities by performing experiments.

The relationship between procrastination and academic performance in the subject of chemistry arises when the student postpones or postpones his academic activities, impairing his academic performance. Among the causes of procrastination, the family context, the economic context, technological devices, social networks and emotional stability are evident. These elements turn out to be distractors for the student during the learning of chemistry.

Regarding social networks and technological devices Valencia (2019) in his research argues that.:

Approximately 25% of the students who spend more than 5 hours a day using social networks have low academic performance, that is, more than 2 areas with low performance, and these hours spent using this technology include the school day. The 33% of students who spend between 1 and 2 hours a day studying at home do not have any area with



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low performance, while the remaining 67% have lost some area, of which 23.6% have more than 2 areas with low performance (p.11).

Similarly, in the educational institution where the research was conducted, the factors that are most relevant in procrastination are the use of technological devices and social networks. 72.52 % of the students use a technological device during the learning of the subject of Chemistry. The student when concentrating on other activities that are not related to the subject of chemistry tends to delay their academic activities because they do not understand the topics covered. This affects their academic performance.

6. Conclusions

The research determined the incidence of procrastination and its effect on academic performance in the subject of chemistry, obtaining as a result an inverse correlation, i.e., the higher the procrastination, the lower the academic performance. Procrastination arises from different causes, however, the research highlighted the use of social networks and technological devices as they are relevant for students. Nowadays, these tools are important, however, as highlighted by other authors in research related to procrastination and technological devices, young people spend too much time on technological devices, which become distractors. In this way, students at the educational institution where the research was carried out, when they are pending on social networks or cell phones, their concentration decreases, and this eventually affects their academic performance.

The motivation that the student experiences during the course of the class is essential to avoid procrastination. Motivation also comes from their personal perspective, i.e., goals or dreams they set out to accomplish. A student who is unmotivated or sad tends to procrastinate more, not finding the need to perform or fulfill their schoolwork. Based on the present research, it is intended to project alternative solutions to reduce the level and types of procrastination. One of these alternatives may be the use of a digital academic agenda. The objective of the digital academic agenda is that the student organizes his activities in a timely manner, establishing priorities in a dynamic and fun way. This alternative, together with other strategies and resources, could become a basis for qualitative studies related to the reduction of procrastination rates in middle and high school students.

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