

## Self-control and academic performance: a comprehensive review and empirical study



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### ABSTRACT

Self-control, a pivotal determinant in the regulation of human behavior, has consistently demonstrated a strong association with a plethora of advantages, particularly notable in the context of academic accomplishments. This scholarly article presents a comprehensive literature review that delves deeply into the multifaceted construct of self-control, shedding light on its intricate psychological underpinnings. Furthermore, it offers an extensive descriptive study with the principal objective of scrutinizing the interrelationship between self-control and academic performance, as assessed by academic grades, within a carefully selected sample of 161 students pursuing degrees in business engineering. The evaluation hinges on the deployment of the Abbreviated Self-Control Scale. The research findings divulge a moderately robust and positively significant correlation between these key variables, characterized by a Spearman's  $r_s$  coefficient of 0.317, signifying statistical significance at a 99% confidence level. These outcomes undeniably substantiate a meaningful connection between self-control and academic performance, thereby contributing to an enhanced understanding of the profound impact of self-control on academic success. This study constitutes a valuable addition to the existing body of knowledge and paves the way for future research endeavors within this domain.

**Keywords:** Education; Self-Control; Academic Performance; College Students.

## Autocontrol y rendimiento académico: una revisión exhaustiva y estudio empírico

### RESUMEN

El autocontrol, un determinante crucial en la regulación del comportamiento humano, ha demostrado consistentemente una fuerte asociación con una plétora de ventajas, especialmente notables en el contexto de logros académicos. Este artículo académico presenta una revisión de la literatura exhaustiva que profundiza en la construcción multifacética del autocontrol, arrojando luz sobre sus complejas bases psicológicas. Además, ofrece un estudio descriptivo extenso con el objetivo principal de examinar la interrelación entre el autocontrol y el rendimiento académico, evaluado a través de las calificaciones académicas, en una muestra cuidadosamente seleccionada de 161 estudiantes que cursan ingeniería comercial. La evaluación se basa en la aplicación de la Escala Abreviada de Autocontrol. Los hallazgos de la investigación revelan una correlación moderadamente robusta y positivamente significativa entre estas variables clave, caracterizada por un coeficiente de correlación de Spearman de 0.317, lo que indica significancia estadística a un nivel de confianza del 99%. Estos resultados indudablemente sustentan una conexión significativa entre el autocontrol y el rendimiento académico, contribuyendo así a una comprensión mejorada del profundo impacto del autocontrol en el éxito académico. Este estudio constituye una valiosa adición al cuerpo existente de conocimiento y allana el camino para futuros esfuerzos de investigación en este dominio.

**Palabras clave:** Educación; Autocontrol; Rendimiento Académico; Estudiantes Universitarios.

## Autocontrole e desempenho acadêmico: uma revisão abrangente e estudo empírico

### RESUMO

O autocontrole, um determinante crucial na regulação do comportamento humano, tem demonstrado consistentemente uma forte associação com uma miríade de vantagens, particularmente notáveis no contexto de realizações acadêmicas. Este artigo acadêmico apresenta uma revisão da literatura abrangente que se aprofunda na construção multifacetada do autocontrole, iluminando suas complexas bases psicológicas. Além disso, oferece um estudo descriptivo extenso com o objetivo principal de examinar a inter-relação entre autocontrole e desempenho acadêmico, conforme avaliado por notas acadêmicas, dentro de uma amostra cuidadosamente selecionada de 161 estudantes que cursam engenharia de negócios. A avaliação depende da utilização da Escala Abreviada de Autocontrole. Os resultados da pesquisa revelam uma correlação moderadamente robusta e positivamente significativa entre essas variáveis chave, caracterizada por um coeficiente de Spearman  $r_s$  de 0.317, significando significância estatística a um nível de confiança de 99%. Esses resultados indubitavelmente comprovam uma conexão significativa entre autocontrole e desempenho acadêmico, contribuindo assim para uma compreensão aprimorada do impacto profundo do autocontrole no sucesso acadêmico. Este estudo constitui uma valiosa adição ao corpo existente de conhecimento e abre caminho para futuras pesquisas nesse domínio.

**Palavras-chave:** Educação; Autocontrole; Desempenho Acadêmico; Estudantes Universitários.

## 1. Introduction

The comprehensive exploration of self-control represents a prominent theme within the realm of psychological literature. This exploration primarily stems from the perspective that conceives self-control as a pivotal mechanism. This mechanism serves the purpose of constraining impulsive tendencies while facilitating the alignment of behaviors with societal and cultural norms (Freud, 1913/1991, 1915/1992, 1921/1992, 1930/1992). The foundational construct of self-control is rooted in empirical evidence that underscores individuals' remarkable ability to refrain from engaging in behaviors when confronted with emotionally charged stimuli (Loewenstein, 1996; Del Valle et al., 2019). Moreover, it involves their cognitive capacity to deliberately modify intuitive thought processes (Kahneman, 2003; Bago & De Neys, 2019).

However, the purview of self-control surpasses the confines of mere inhibition. It extends into the realm of constructive discipline, empowering individuals to harmonize their actions with long-term objectives. This empowerment engenders a continuum of value-based and future-oriented behaviors. Notable examples of such behaviors encompass compliance with prescribed speed limits, diligent wealth accumulation via systematic savings, and the pursuit of exemplary academic performance through unwavering commitment to a structured educational curriculum.

The core objective of this scholarly article is to embark upon an extensive exploration of the multifaceted construct of self-control. In order to achieve this objective, we endeavor to delineate two interrelated yet distinct facets that constitute self-control: impulse control, intricately linked to the mitigation of impulsive behaviors, and future-oriented self-discipline, which encompasses the cognitive capacity to meticulously plan and consistently uphold behaviors that harmonize with enduring aspirations. To facilitate this exploration, we have directed our focus toward examining the intricate correlation between self-control and academic performance. Our study cohort consists of students pursuing business engineering, and our methodology incorporates a descriptive research framework.

The quantitative analysis of the data is executed by employing the Spearman correlation coefficient. Additionally, we implement a tailored questionnaire that derives its foundations from the Abbreviated Self-Control Scale formulated by Tangney et al. (2004). This instrument has been thoughtfully adapted for the Spanish-speaking population by Del Valle et al. (2019).

It is imperative to acknowledge the inherent constraints associated with this methodological approach. As a primary consideration, our research findings are confined to the scope of the sampled participants, and thus, the generalizability of our results may be limited. Furthermore, it is essential to underline that our research methodology does not empower us to establish causal relationships. As such, the nature of our inquiry is intrinsically exploratory, with a concentrated focus on the elucidation of the conceivable relationship between the independent variable of self-control and the dependent variable of academic performance.

The preliminary findings emanating from our research inquiry have offered valuable insights into the intricate dynamics of self-control and its intricate interplay with the domain of academic achievements. These preliminary results serve to affirm our underlying hypothesis, robustly establishing the existence of a meaningful relationship between the individual characteristics of self-control and the attainment of academic excellence. The empirical evidence, rigorously analyzed, illuminates a moderately practical and statistically significant correlation that binds these key variables together. This binding is prominently evident through the calculation of the Spearman's  $r_s$  coefficient, which emerges with a significant value of

0.317. This compelling statistical indicator firmly asserts the presence of a significant correlation, thereby endorsing the established statistical significance at a 0.01 significance level, a representation of the highly robust 99% confidence level.

Within this intricate and multifaceted context, the empirical findings we've uncovered serve to highlight and underscore the strength and unwavering consistency of the initially postulated relationship. This, in turn, goes a long way in not only affirming its considerable practical significance but also shedding a more comprehensive light on its importance, especially within the specific milieu of university students who are fueled by an unrelenting drive to excel in their academic pursuits.

These results, which emerge as a testament to the empirical foundation of our research, play a pivotal role in enriching the body of knowledge within the scholarly realm. They contribute to a deeper understanding of the intricate workings of self-control and its profound influence on the attainment of academic success. Moreover, these findings not only provide a valuable steppingstone for future research endeavors within this domain but also underscore the need for continued exploration and inquiry into the nuances of self-control and its impact on the academic landscape.

### **Theoretical framework**

Self-control is understood as repressive operations, a signification associated with the psychoanalytic literary tradition, operating as a restrictive mechanism that inhibits impulses, allowing adaptation to the normative requirements of culture (Freud, 1913/1991, 1915/1992, 1921/1992, 1930/1992). This is supported by evidence concerning the capacity for self-control defined as the abstention from behaviors in the face of emotionally intense stimuli (Loewenstein, 1996; Del Valle et al., 2019). In this sense, it involves a deliberate correction of intuitive processes (Kahneman, 2003; Bago and De Neys, 2019).

From this corrective notion, the capacity for self-control would be an evolutionary outcome of human psychology, allowing individuals to adjust their behavior to the opportunities and threats of their environment (Tangney et al., 2004). It is a fundamental part of the human species. However, there is also a complementary concept to this restrictive signification associated with the psychological repression of the self against impulses (Freud, 1915/1992; 1930/1992). This concept refers to the ability to act according to long-term goals in an effective and efficient manner, a behavior of perseverance oriented towards the future, distinct from the process of impulse control in the present (Del Valle et al., 2019; Duckworth and Kern, 2011). In this sense, self-control is not only restrictive or repressive in the face of automatic or unconscious processes, but it is also a productive or creative discipline with a positive signification. For example, it is the ability to maintain a vehicle's speed within rational standards established to contribute to road safety, guided by cultural values that influence decisions based on classification or codification behaviors (Douglas, 1973). Another example is the generation of financial capital through monthly savings planning or achieving academic excellence as a student due to adherence to the educational program.

In this way, there is not only a higher-order cognitive process aimed at controlling stimuli derived from lower-order automatic or intuitive processes, making corrections (Tangney et al., 2004; Kahneman, 2003; Bago and De Neys, 2019), but there is also a deliberative process that operates through mental models that provide sustainability to courses of action (Crusius et al., 2012; Del Valle et al., 2019), composed of a hybrid processing of multiple psychological processes.

From a synthetic notion, self-control is operationalized based on the idea of deliberate self-government or self-regulation, which allows for decision-making based on long-term goals and rationalizations, involving

the alteration of one's own behaviors to align them with long-term interests. This recognition reveals a duality in the processes involved in self-control: a deliberate process that plans and corrects behavior, and automatic processes that generate impulses that can be moderated (Duckworth and Kern, 2011).

The concept of consciousness refers to the ability to think and act under control, facing unconscious impulses. However, it is also understood that consciousness is based on unconscious and automated processes, even generating limits to self-control and structuring behavior in an irrational manner (Freud, 1913/1991), leading to a conflict between conscious and unconscious processes, and diminishing the power of the human distinction as a rational subject from the modern tradition (Descartes, 1637/1937). It is also possible to question the exclusivity of self-control in the face of impulses as a distinctive human rational capacity, as animals, such as chimpanzees, have the capacity to develop rudimentary higher-order mental processes similar to human capacities (Evans, 2008). In this conceptual framework, like in the case of some animals, self-control would involve multiple mental processes that blend logical reasoning, impulse repression, and future thinking, among others, allowing the control of behavior, correction of practices, and the guidance of conduct toward the future based on rational planning and normative standards.

Alongside cognitive processes that repress stimuli, processes based on mental models composed of cultural contents or values are structured, articulated by language and logical thought (Douglas, 1973; Denes-Raj and Epstein, 1994; Evans, 2008; Duckworth and Kern, 2011; Crusius et al., 2012). In this regard, the rational and emotional dimensions of self-control based on moral codes play a prominent role in enabling stimuli such as shame and guilt, which are adaptations of behavior in response to mistakes. This governance is oriented towards normative compliance (Tangney et al., 2004), involving different psychological processes and demonstrating the existence of hybrid processing in self-control.

In this sense, in psychological processes (Hogarth and Reder, 1986), mental models based on cultural realities and mediated by language operate. This type of self-control is rooted in the learning or identification of moral codes, establishing a value-based commitment to normative duty that can lead to rational choices based on motives and the establishment of practices founded on value standards (Kant, 1785/2012; Douglas, 1973; Denes-Raj and Epstein, 1994; Evans, 2008; Duckworth and Kern, 2011; Bago and De Neys, 2019). This creates a psychological operation that guides choices through the identification of legitimate causes or moral duties that justify behavior, independent of whether it is satisfactory or unsatisfactory for the agent and establishes the alignment of behavior with normative parameters that guide human conduct according to a cause-based logic, emphasizing that moral consciousness serves not only to restrain impulses but also to promote valued behaviors.

On the other hand, in comparison with the regulation of behavior by moral duties described in the previous paragraph (Kant, 1785/2012), it is possible to contrast a second model of rational choice that controls behavior based on effects and interests, without the need to consider prescriptive norms. These processes are referred to as instrumental or utilitarian (Bentham, 1836; Anderson, 1983; Greene, 2007) because behavior is instrumentally governed by expected results and interests associated with satisfaction, without the need to consider moral motives that legitimize behavior. This orientation is towards outcomes, subordinating behavior as a means to a happy and reasonable end (Mill, 1831; Bentham, 1836; Mill, 1863/1891). While both processes can function together, the moral and the instrumental, their contents differ and are mutually independent. Controlling behavior for moral reasons associated with normative duty implies accepting undesirable or unsatisfactory consequences from an instrumental perspective because decision-making is not based on self-interest. Choosing rationally to control behavior due to interests associated with the consequences of control, i.e., the effects of behavior such as satisfaction or



future benefit, does not require reflection on normative moral motives or duties that guide and validate behavior. Therefore, utilitarian choices have cognitive motives centered on achieving objectives, justified by the consequences of actions, establishing the foundation of behavior and decision-making as satisfactory outcomes for which behavior is exclusively a convenient means, without the need to resort to a moral motive a priori or considering what is morally right based on the achievements in satisfaction resulting from behavior.

The ramifications of this comprehensive theoretical contemplation extend to the recognition of a binary framework within the domain of self-control, entailing two interrelated facets: 1) the domain of impulse control, intricately connected with automatic or emotionally charged processes; and 2) the domain of behavior control, characterized by self-discipline and a future-oriented perspective. In parallel to these facets, there manifest two distinct categories of purposive regulatory mechanisms: 1) behavior governed by moral principles that operate as a priori underpinnings justifying the choices made; and 2) behavior steered by instrumental objectives, rationalizing conduct through the gratifying outcomes it engenders, thereby eliminating the necessity for normative directives. These multifaceted determinants collectively orchestrate the intricate landscape of self-control, generating hybrid and nuanced mechanisms in the process (Duckworth and Kern, 2011).

The scope of our research endeavors finds its anchorage within the expansive conceptual framework delineated above. Our foremost aim is to embark upon a comprehensive expedition, driven by the pursuit of in-depth inquiry into the intricate interconnectedness that characterizes the amalgamated processes within the ambit of self-control. We posit a conjecture that posits a correlative propensity between elevated levels of self-control and the augmentation of academic performance, thus unequivocally accentuating the promise of a positive and affirmative relationship within this domain.

The intellectual voyage upon which we now embark stands as a pivotal and foundational cornerstone, underpinning forthcoming empirical inquiries and scholarly pursuits that are poised to unfold. This initial exploration not only constructs the scaffolding for an enhanced understanding of the intricate and multifaceted interplay between self-control and the realm of academic accomplishments, but also presages a forward-looking and sagacious examination. This foresighted perspective illuminates the path for subsequent investigations, which will plumb even greater depths in the intricate network of interrelations shaping the landscape of self-control and its impact on academic achievements. Consequently, it presents an arable and promising expanse for burgeoning research endeavors, acting as the driving force propelling the field ahead with novel insights and revelations.

## **2. Methodological framework**

This descriptive research endeavor employs quantitative research methodologies, primarily characterized by the application of structured questionnaires as data collection instruments. In the context of this study, the quantitative method involves the utilization of the Likert scale questionnaire, further complemented by the robust Spearman correlation coefficient as a statistical tool applied to the dataset. The principal objective of this research is to explore and unravel discernible associations within the context of the Abbreviated Self-Control Scale, a psychometric instrument originally developed by Tangney et al. (2004). This scale has been thoughtfully adapted to the Spanish language by Del Valle et al. (2019) and methodically validated for research purposes within this specific academic inquiry by Duckworth and Kern (2011).

The core research aim is to scrutinize the intricate relationship between the self-control variable and academic performance, primarily delineated through students' academic grades. The overarching research

hypothesis underpinning this investigation centers on the interpretative assumption of causality, positing that self-control, as an independent variable, exerts a consequential impact on academic performance, a variable assumed to be dependent in this context. The choice of the Spearman correlation coefficient was deliberate, as it is tailored to accommodate data that does not adhere to a normal distribution pattern, which was the case with the academic performance variable, as confirmed by the Shapiro-Wilk normality test.

However, it is incumbent upon us to exercise prudence and recognize the inherent constraints associated with the methodological paradigm we have embraced. Firstly, it is imperative to acknowledge that the findings emerging from this study are inherently delimited in their applicability, encapsulated within the confines of our select cohort of participants. Consequently, the extent to which our findings can be extrapolated to a broader population is inherently circumscribed. It is a fundamental facet of this pragmatic approach that it refrains from embarking on the quest to establish causal relationships, as the very essence of our investigative pursuit is unequivocally exploratory in nature.

The overarching research query that has steered the trajectory of our data collection process can be succinctly articulated as follows: “What facets comprise the comprehensive characterization of the intricate psychological processes that underpin self-control decisions, in tandem with the academic performance grades they yield?” This research inquiry unfurls systematically, commencing with a scrupulous scrutiny of the undergirding theoretical frameworks. This theoretical groundwork is the bedrock upon which we erect the empirical phase of our study. This empirical segment is meticulously crafted to furnish empirical substantiation to the conjectured correlations.

Indeed, we remain steadfast in our commitment to the prescribed methodological parameters, positioning this research within the distinct paradigm of a case study. The carefully selected sample, composed of 161 students specializing in the field of commercial engineering, has been meticulously culled from the vast landscape of higher education institutions. This exacting process of participant acquisition was facilitated through the deliberate adoption of a purposive and convenient sampling methodology, a choice predicated on the proactive willingness of individuals to participate in our scholarly exploration.

It is crucial to emphasize that the criteria guiding this judicious participant selection were deeply rooted in practical considerations, foremost among them being the accessibility of pertinent data. These pragmatic choices were underscored by an overarching aspiration – an aspiration that underpins the fundamental thrust of our research endeavor. We are resolutely dedicated to making a substantial contribution to the enhancement of academic performance. We envisage the realization of this noble aspiration through a comprehensive understanding of the direct and profound interconnections that underlie the intricate relationship between self-control and academic achievement.

Within the broader contours of our chosen methodological framework, we wholeheartedly embrace the principles of research-action. This paradigm, steeped in the ethos of disseminating research findings, is uniquely poised to not only advance the boundaries of academic scholarship but also to foster a deeper and more nuanced comprehension of the multifaceted interplay between self-control and academic performance. Our commitment is firmly anchored in the idea that the participants themselves, who form the bedrock of this study, are best positioned to benefit from an enriched understanding of this complex relationship.

This approach, rooted in the active engagement of participants in the research process, creates a dynamic feedback loop that facilitates a co-creation of knowledge. By involving the very individuals whose expe-

riences and behaviors we seek to comprehend, we not only ensure the relevance and applicability of our findings but also empower these participants to take an active role in shaping the discourse and outcomes. It's a collaborative endeavor that bridges the gap between theory and practice, allowing for a holistic exploration of self-control within the real-world context of academic pursuits.

In essence, the research-action paradigm, as we embrace it, embodies a commitment to not only expanding the horizons of scholarly knowledge but also to making a meaningful and positive impact on the lives of those who contribute to the rich tapestry of our study. It's a synergistic journey towards a deeper and more comprehensive understanding of the intricate dynamics that underlie academic success, with the ultimate goal of enhancing the well-being and achievements of the individuals involved.

### **3. Results analysis**

The obtained findings encompass a body of evidence extracted from a deliberately chosen sample of 161 students specializing in commercial engineering. The data collection process encompassed the methodical administration of a survey to individuals who, while remaining anonymous, were registered in specific courses within the commercial engineering program at three distinct higher education institutions situated in Santiago, Chile.

This procedure entailed the meticulous implementation of the Abbreviated Self-Control Scale, a construct developed by Tangney et al. (2004). In tandem, data was also compiled pertaining to academic performance, chiefly in the form of grade reports, which were diligently provided by the participating students. In total, 163 willing participants were actively engaged in this data collection process. Nevertheless, it is imperative to note that two individuals were subsequently excluded from the analytical dataset. Their exclusion was necessitated by either their non-responsiveness or by the presence of unsuitable responses within the administered instrument.

As an initial step, the amassed data was subjected to the Pearson correlation coefficient, which was deemed the suitable statistical approach. However, upon detailed examination, it was discerned that the variable associated with academic performance did not adhere to a normal distribution, rendering the chosen parametric test unsuitable for this specific context. Consequently, the analytic approach transitioned towards the more appropriate non-parametric Spearman correlation test, as executed through the utilization of the SPSS software. It is essential to emphasize that this research, by virtue of its descriptive nature, does not aspire to attain a level of generalizability. Furthermore, the specific analytical framework is fundamentally exploratory, focusing on establishing the existence of a relationship between the self-control level as the independent variable and academic performance as the dependent variable. It is essential to underscore that future research undertakings should be positioned to definitively corroborate this hypothetical causal relationship.

The results of this comprehensive analysis unveiled a statistically significant positive correlation, signified by  $r_s = 0.317$ , 99% confidence level, linking the aggregated item scores to academic performance. This observed correlation, while manifesting as moderately positive, is slightly lower than the initial expectations elucidated within the research hypothesis. Nonetheless, it establishes a robust foundation for an interpretation that aligns with the core proposition postulated in this research, suggesting that higher levels of self-control are demonstrably linked to superior academic performance.

In this nuanced and intricate academic context, a comprehensive and meticulous examination of the relationship between self-control capacity, as assessed by Tangney et al.'s (2004) Abbreviated Self-Control



Scale, and Academic Performance, as diligently reported by the participating students, reveals a noteworthy deviation in the distribution pattern of the academic performance variable from the typical normal distribution. In light of this non-normative distribution, our analytical approach required recalibration, and the non-parametric Spearman correlation emerged as the most suitable method to explore the interconnectedness of these variables. This analytical recalibration resulted in the identification of a robust, moderate, and statistically significant positive relationship, as indicated by an  $r_s$  coefficient of 0.317, denoting the strength of the correlation.

The statistical significance of this relationship was established at a 0.01 significance level, thus establishing a solid 99% confidence level.

**Table 1:** Correlation between Abbreviated Self-Control and Academic Performance

Correlations				
			Academic Performance	Self-Control
Spearman's Rho	Academic Performance	Correlation coefficient	1,000	,317**
		Sig. (two-tailed)	.	,000
		N	161	161
	Self-Control	Correlation coefficient	,317**	1,000
		Sig. (two-tailed)	,000	.
		N	161	161
**. The correlation is significant at the 0.01 level (two-tailed).				

Source: Author's own work.

In the process of data collection for this research procedure, the Abbreviated Self-Control Scale by Tangney et al. (2004) was systematically administered. This scale is composed of 13 items that are extracted from the Complete Self-Control Scale, which is a comprehensive 36-item instrument designed to assess an individual's distinct capacity to alter or interrupt specific behaviors. It is noteworthy that this instrument has undergone rigorous critical reviews and adaptations for the Spanish language (Duckworth and Kern, 2011; Del Valle et al., 2019), and the insights from these processes were meticulously incorporated into the methodology adopted for this research.

The instrument encompasses a set of attitudinal statements, and each respondent is tasked with evaluating their degree of identification or rejection regarding the object or concept elucidated within the particular item's sentence. To facilitate this evaluation, a five-point Likert scale, as introduced by Likert (2017), was employed. In this context, the number 1 serves to denote an absolute absence of identification by the survey participant with the conveyed attitudinal statement. On the other end of the scale, the number 5 is employed to signify a strong or full identification with the statement. In parallel, a declarative assessment of academic performance was structured, with a specific focus on scholastic achievements, particularly in terms of grades. The assessment hinged upon an attitudinal statement that emphasized academic excellence, which was also evaluated by the respondents through a binary identification or rejection of the statement using a numerical scale, ranging from 1 to 5. This approach mirrors the methodology applied in the Self-Control Scale instrument. As an illustrative example, one of the items in this section articu-

lates: “I have very good grades,” thereby directing attention towards the identification of individuals who acknowledge their exemplary academic performance, particularly with regard to their grades.

The empirical data gathered through the application of the *Abbreviated Self-Control Scale* instrument was meticulously recorded within a data matrix implemented in the SPSS software. Notably, for ease of interpretation and analysis, the attitudinal items were subjected to an inverse recoding process within the table. This deliberate recoding procedure was undertaken to ensure that higher scores on these items correspond to elevated levels of self-control across all dimensions. The adaptation of the *Abbreviated Self-Control Scale* to the Spanish language context involved a selective reduction of two items, a modification in alignment with the recommendations provided by Del Valle et al. (2019). As a result of this adaptation, the dataset under analysis was structured around a total of 11 items, each of which is thoughtfully delineated in the following Table 2, further noting their original sequential designations from the comprehensive 36-item version of the scale:

**Table 2:** *Abbreviated and Adapted Self-Control Scale in Spanish*

Número Original	Oración constitutiva del ítem
1	Soy bueno o buena para resistir tentaciones
3	Soy haragán, vago o vaga.
4	Digo cosas inapropiadas.
6	Si me gustan o me divierten, hago ciertas cosas, aunque sean malas para mí.
17	Me gustaría tener más autodisciplina.
22	La gente diría que tengo una autodisciplina de hierro.
28	El placer y la diversión a veces evita que haga mi trabajo.
29	Tengo problemas para concentrarme.
30	Soy capaz de trabajar eficientemente con metas de largo plazo.
31	A veces no puedo dejar de hacer ciertas cosas, incluso si sé que están mal.
32	Usualmente actúo sin pensar bien en todas las alternativas.

Source: Tangney et al., 2004; Del Valle et al., 2019.

The findings obtained from the questionnaire, administered using the *Abbreviated Self-Control Scale* adapted for the Spanish-speaking population, were subjected to correlation analysis in relation to self-reported data employed to evaluate academic performance. However, it is worth noting that the observed positive correlation, while present, exhibits a moderate strength. The anticipated magnitude for this study was set at an  $r_s$  value exceeding 0.5, yet the actual correlation stands at a Spearman's  $r_s$  of 0.317, coupled with a significant correlation level of 0.000 at the 0.01 (99%) threshold. In light of these results, it is evident that the identified relationship, though somewhat below initial expectations, is both discernible and statistically significant.

Interpreting these outcomes within the context of future-oriented self-discipline reveals key insights. Specifically, items 3, 17, and 22 manifest the most substantial correlations, signifying the exertion of effort, perseverance, and the maintenance of specific behaviors. These findings are possibly linked to moral principles or instrumental interests. However, the observed correlation results do not permit a causal analysis. The absence of an established cause for self-control prevents endorsement of the hypothetical relationship between the dependent and independent variables. Consequently, this gap in causation analysis may influence the interpretation of the observed effects on academic ratings. Nonetheless, these findings

facilitate an exploratory interpretation, suggesting the presence of a relationship supported by existing literature. This, in turn, provides exploratory support for the research proposition, implying a connection between self-control attributes and academic performance, as indicated by formative evaluations.

In this context, the significance of this correlation extends to the opportunity it offers for a more profound understanding of the self-control construct. The adapted abbreviated instrument identifies two core factors that constitute self-control: firstly, self-discipline, defined as the capacity to work efficiently and commit to personal objectives, and secondly, impulse control, which pertains to an individual's general ability to manage behaviors and impulses (Del Valle et al., 2019). This supports the theoretical differentiation between psychological processes (Hogarth and Reder, 1986) oriented towards guiding behavior based on external parameters such as moral obligations or expected outcomes, and processes designed to moderate impulses originating from automatic mechanisms linked to instincts or emotions. Nonetheless, it is essential to highlight that when measuring these factors independently in relation to academic performance reports, the correlation values exhibit a significant decrease. This underscores the relative importance of future-oriented self-discipline when considered independently, in comparison to impulse control. While this is an interpretative insight, it does not provide a conclusive confirmation, underlining the notion that self-control's effectiveness is rooted in the integration of both these factors.

It is of paramount importance to emphasize and delve into the inherent limitations associated with the utilization of the Likert scale (Likert, 2017) within the realm of scientific research pertaining to the complexities of human behavior. A particularly salient limitation concerns the intricacies of numerical coding. Owing to its mathematical form, the Likert scale is frequently and inaccurately misconstrued as affording interval data properties, thereby engendering the potential for extensive mathematical manipulations. Nevertheless, it is imperative to recognize that when addressing the magnitudes of the Likert scale within the context of gauging subjective attitudes, they should steadfastly be categorized as ordinal data, as opposed to interval data. This categorical distinction underscores the fact that the Likert scale constitutes an ordered series without a genuinely quantifiable interval that demarcates disparate response options. As a plausible alternative to numerical coding, the adoption of a nominal coding system is a viable approach. In this system, letters (e.g., A-B-C-D-E) are employed in lieu of numerical values (1-2-3-4-5). This strategic shift, while precluding extensive mathematical computations, retains the scale's descriptive attributes. Consequently, the Likert scale, if correctly construed as interval data, would imply an equivalent quantitative distance between each response category. However, a more nuanced understanding reveals that the actual separation between these options is better elucidated as a qualitative disparity, as opposed to a quantitative differential. Thus, this qualitative perspective renders the Likert scale more suitable for nominal or ordinal scaling, as opposed to interval or ratio scaling. It is imperative to underscore that this elucidation should not be misconstrued as implying that the data is unsuitable for rigorous statistical analyses. This assertion is substantiated by the outcomes of the conducted study, which yielded significant and conclusive findings pertaining to the correlation under investigation.

Nonetheless, it is crucial to approach these outcomes with an understanding that they should be interpreted as preliminary and exploratory in nature. These findings can be further investigated and expounded upon utilizing an array of measures of central tendency, encompassing the median, mode, and mean. Furthermore, augmenting the analytical arsenal with additional tools and interpretive frameworks is essential to bolster and elucidate the research findings. The descriptive nature of this research underscores the revelation of a statistically significant relationship, prominently exemplified by a Spearman's correlation coefficient ( $r_s$ ) of 0.317. This coefficient signifies a noteworthy correlation that attains statistical significance at the 99% confidence level.

In light of these empirical findings, it is both rational and justifiable to maintain the theoretical hypothesis postulating a causal relationship between the two principal variables under scrutiny. Within the confines of this theoretical framework, self-control level assumes the pivotal role of the independent variable, whereas academic performance is assigned the fundamental status of the dependent variable. However, it remains the solemn duty of the academic community to acknowledge and embrace the reality that this theoretical proposition remains unverified and unvalidated. The intricacies and constraints of the statistical instruments employed in this research study preclude the unequivocal establishment of causal relationships. As such, these findings should be duly recognized as foundational and exploratory insights, establishing the groundwork for forthcoming comprehensive investigations into the intricate dynamics that characterize the relationship between self-control and academic performance.

#### **4. Conclusion**

This research study has made substantial and profound contributions to the comprehensive characterization of the intricate relationship existing between self-control and academic performance. The study has cast a discerning light on the multifaceted interplay of diverse psychological processes within this context (Evans, 2008), culminating in a richer understanding of the multifaceted nature of this nexus. Notably, it has meticulously elucidated at least two complementary self-control mechanisms: self-control aimed at ameliorating impulsive behaviors and self-control geared towards regulating behaviors through meticulous planning and future-oriented self-discipline. The strategic employment of a meticulously designed self-control questionnaire has effectively and convincingly substantiated the presence of a notable and statistically significant correlation between varying levels of self-control and the academic achievements of individuals. In so doing, this research underscores the invaluable and tangible benefits that self-control imparts to individuals operating within the academic realm.

The research study findings, through rigorous empirical investigation, have unveiled a compelling and positive inclination between the levels of self-control and academic performance. This is vividly illustrated by the statistically robust Spearman's  $r_s$  coefficient, a meaningful 0.317, and a correlation of high significance at the 99% confidence level. This robust statistical evidence not only supports but underscores the profound connection existing between self-control and academic performance, emphasizing the advantageous role that self-control plays in the academic milieu.

It is important to underscore that, despite the inherent constraints associated with a descriptive study design, the present research has made highly valuable and significant contributions to advancing our understanding of the intricate and multifaceted psychological processes underpinning the relationship between self-control and academic achievement. By providing a more nuanced and clarified comprehension of this intricate nexus, particularly when evaluated through the lens of academic grading, the study has illuminated and emphasized the pivotal role of self-discipline within the broader framework of self-regulation. This finding highlights a moderately strong and empirically supported connection between this particular facet of self-control and academic performance. Within this scholarly framework, we lend our theoretical endorsement to the proposition that human behavior, within the context of self-control, consists of distinct yet intricately interconnected processes (Hirschman and Holbrook, 1982; Denes-Raj and Epstein, 1994; Loewenstein, 1996; Evans, 2008; Duckworth and Kern, 2011; Evans and Stanovich, 2013). Collectively, these processes converge to enhance performance, especially in the academic domain. Fundamentally, the results arising from this empirical inquiry, in conjunction with the scholarly revelations gleaned from this dedicated research undertaking, emphatically underscore the intricate and multifarious nature characterizing the nexus between self-control and academic performance. These findings, while undeniably informative and enlightening, constitute the foundational building blocks upon which

forthcoming research initiatives can be erected, with the primary objective of delving even further into the complexities of the intricate interplay between self-control and academic achievements.

Consequently, this research not only sets the stage for a continuous scholarly exploration but also paves the way for the augmentation of our understanding of the multifaceted and nuanced relationship that underlies the dynamics of self-control and academic success. The robust foundation laid by these findings serves as a beacon guiding future investigations into the multifarious facets of self-control and its profound implications for educational accomplishments. It propels the scholarly community towards a more comprehensive grasp of the intricate web of factors that influence academic achievement, ultimately enriching the scholarly landscape and driving further progress in this field of study.

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