

## Research Article

# Future Time Perspective, Procrastination and Academic Motivation in Argentinian College Students during the Pandemic

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## Abstract

Numerous studies have addressed psychological aspects of students' life during the pandemic; however, data related to the role of future time perspective and sociodemographic differences - age and gender- in the relationship with procrastination and motivation is scarce. It was hypothesized that the relationship between future time perspective and procrastination would be negative, but positive with motivation, and that age and gender would have a differential moderating effect on those. This study was online and questionnaire-based. 257 undergraduate Psychology students aged 18–44 from the Catholic Argentinean University took part in the study. The results of moderation analysis allowed accepting partially the hypothesis formulated for procrastination, but for motivation the hypothesis was partially confirmed, since the relationship between future time perspective and motivation was not significant for men or for older students. These findings provide some insight into the role of future time perspective in behavior outcomes, especially in critical contexts like one of the pandemic, and how internal differences might enhance or diminish it. Moreover, the inclusion of certain psychological measures could be taken in order to compensate negative effects that higher procrastination and lower motivation can have in students.

*Keywords:* Future time perspective; motivation; procrastination; students; age; gender; moderation.

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Recent research on the impact of the pandemic of COVID-19 on students has reported lower values of motivation in general (Baber, 2020; Susilawati & Suproyatno, 2020), which leads many of them to avoid carrying out and fulfilling their academic tasks (Demir & Kutlu, 2018; Romash, 2020; Ulgener et al., 2020). A major aspect of students' life is motivation towards career and learning spaces (Baber, 2020). Academic motivation is the general process by which a behavior is oriented towards the achievement of an academic or learning goal, involving behavioral, cognitive and affective variables (Gil-López et al., 2019; LeFebvre & Huta, 2021). Numerous researchers have indicated that intrinsically motivated students -directing an activity based on inherent satisfaction without external reinforcement- present an academic trajectory with greater benefits than those more extrinsically motivated -behavior directed towards achieving a specific goal mainly due to external rewards (Casanova-Rubio et al., 2017; Ryan & Deci, 2020).

Furthermore, this so well-known pattern of avoidance and postponement in activities refers to procrastination. This psychological construct points to the lack of self-regulated performance and the tendency in behavior to postpone the fulfillment of a goal or making a decision (Cerino, 2014; Lin & Bai, 2014), which can lead to experiment subjective discomfort on the behalf of the individual, despite the knowledge that delaying the situation will definitely have a negative



consequence in the future. Consequently, procrastination in the academic field can manifest itself in different ways, such as leaving tasks or studying until the last minute; failure to meet deadlines; and postponing work or readings that are not pleasant (Gil-Tapia & Botello-Príncipe, 2018). These obvious deficiencies in managing time can be considered as one of the main characteristics of academic procrastination (Díaz-Morales, 2019). Moreover, numerous studies have reported an increased in procrastination among students during the pandemic (Jia et al., 2020; Morais-Peixoto et al., 2021; Tezer, 2020), which is in tune to the drastic reductions in social interactions, social communication, and the forced changes in learning formats that might have arose difficulties in how students fulfill their academic obligations.

In this line, higher-level students have sheltered in their homes since the beginning of the pandemic and are currently studying a second completely online academic year, which highlights the need and relevance of carrying out local studies that investigate how students perceive and process time. Within the study of subjective time processing, time perspective stands out, which is conceived as an unconscious process by which the individual encodes, analyzes, and organizes experiences that had taken place in his life, in different time frames: past, present and future (Bodecka et al., 2021; Cernas-Ortiz et al., 2018; Stolarski et al., 2018). The combination of these different time frames, as well as the primacy of some over others, gives the unique style of time perspective that each person has, and establishes specific ways for the individual to remember past and present moments, plan goals, build future scenarios and make decisions (Brenlla et al., 2016). Zimbardo and Boyd (1999) established one of the most widespread models to comprehend time perspective, dividing them into five dimensions: Past-Negative - a negative and aversive personal attitude towards the past, which are generally due to real experiences of unpleasant or traumatic events, the negative reconstruction of benign events or a combination of both, Present-Hedonistic -the search for pleasure in the present, reflecting a hedonistic, risky attitude towards time and life, Future - general orientation to planning, conquering future goals and search for rewards, Past-Positive - a warm, sentimental and positive attitude towards the past, and Present-Fatalistic - reveals a pessimistic experience of the present, revealing a helpless, desperate attitude with negative expectations towards the future and life.

Several studies have reported a significant and negative relationship between future time perspective and procrastination, especially in students (Ferrari & Díaz-Morales, 2007; Rodriguez & Clariana 2017; Yousef, 2020). Procrastinators, due to a lack of orientation towards

the future and a greater orientation towards the present time, register a greater predisposition to accept a smaller immediate reward than a greater long-term reward. Therefore, the impact that lower levels of future time perspective might have in procrastination behavior is quite patent, and so it is the negative impact that both aspects might have on following academic obligations.

Initially, the relationship between motivation and future time perspective could be interpreted as positive in all cases, at least considering scientific findings (Díaz-Morales, 2019; Kim et al., 2017; Nuttin, 2014; Sirois & Pychyl, 2016), since the accomplishing of goals seems to be directly impaired with the image of an individual perceiving life as a path where to achieve someone's dreams. Nonetheless, a more profound inspection shows that the matter is not as simple as it seems. Future time perspective has been perceived as a multidimensional construct (Nuttin, 2014), comprising a variety of aspects such as extension - length of future time considered by the individual, coherence – degree of organization of the events in the future span, density – the number of events expected in someone's future, that is, goals, hopes, fears, and wishes, directionality – the extent to which the individual perceives him or herself as moving forward from the present moment into the future, and affectivity – extent to which an individual is pleased by anticipated events- (Seijts, 1998). A unique combination of these different aspects that compose a more personal future time perspective will eventually influence the motivational behavior.

Many studies have risen age as a relevant factor that plays a role in academic motivation (Haslach et al., 2018; Kim et al., 2018; Wijnen et al., 2017). It seems, on one hand that older students are more in tune with academic expectations, have a better adjustment to educational climate, and are more autonomous and self-regulated learners (Isik et al., 2018; Eroğlu & Acet, 2017; Mihci-Türker & Pala, 2020), while some investigations have found a negative relationship between age and motivation, which can be explained considering that at an older age people are more interested in rewards away from the academic life, such as, getting a pay increase at work, forming a family, investing in a new career, or in obtaining more respect from peers (Bong, 2009; Eppinger et al., 2013; Seginer, 2009). Furthermore, younger students generally have more time available to dedicate to their studies due to parental economical support, and many of them might get involve in a career because of family pressure (Kim, 2014; Sadiq et al., 2020).

In terms of gender differences in academic motivation, a clear tendency of exhibiting women higher levels of motivation than men can be found (Arias-Gallegos, 2019; D'Lima, 2014; Isik et al., 2018), which goes in line with a widespread social tendency of women developing higher educational expectations than their male peers and comprising most college careers (Wells, 2011). However, several studies have indicated that women are more willing to experience higher level of anxiety and are more stressed and less self-confident than men, factor that could negatively impact on their academic aspirations (Asher et al., 2017; Gao et al., 2020; Helwig & Ruprecht, 2017).

Some studies that explored differences according to age on procrastination have suggested that younger students are more likely to procrastinate (Balkis & Duru, 2019; Steel & Ferrari, 2013), which can be attributed to a lack of self-control in order to repress the desire of an instant and present gratification for a greater reward in the future time (Germano & Brenlla, 2021).

Publications concentrated in differences regarding gender in procrastination have found male students to be more willing to postpone or delay their academic obligations than their female peers (Balkis & Duru, 2018; Zhou, 2020), probably due to being less academically motivated, having poorer levels of self-control and time management skills, and higher levels of impulsivity (Cross et al., 2011; Weinstein & Dannon, 2015; Wittmann & Szelag, 2003).

Research of differences on future time perspective due to age has proven to be one-sided. It can be said that during their youth people tend to experience time in an expansive way, establishing for themselves long-term goals, for example thinking of a future profession, desires of travelling around the world, go through new experiences and meeting new people, while as time goes by, time is perceived as limited and short-term goals such as social connectedness, social support, and emotional regulation are preferred (Carstensen et al., 1999). This theoretical framework is based on previous research of Fraisse (1984), that there is a lack of adjustment between physical time's passage and subjective internal one so that present time orientations are more prevalent at younger age and that future time orientation increases along with age. These assumptions are accompanied by substantial evidence of the development of planning abilities during childhood until they are mature at early adulthood (Unterrainer et al., 2014). Local studies of Brenlla et al. (2016) and Germano and Brenlla (2019) have found that middle-aged adults were more future time oriented than their younger adult peers. However, it is important to mention that changes in future time perspective seem more likely to be attributed

not to the variation of a one demographic data, but to modifications on the set of age-specific goals people establish considering differential content and expectations of what to achieve (Laureiro-Martinez et al., 2017; Seginer, 2009).

The differences in future time perspective according to sex have been less consistent than those for age (Kooji et al., 2018). Some studies have reported women to be more future time orientated than men (Brenlla et al., 2016; Germano & Brenlla, 2020; Kooji et al., 2018), and some others have distinguished that men tend to plan further into the future than women (Green & DeBacker, 2004). Furthermore, men's future goals have been said to be more orientated to career-related issues, whilst women have had more and more diverse goals related to work, family, and leisure time (Kooji et al., 2018).

From what has been stated so far, it can be noted that the relationship among motivation, procrastination and future time perspective is theoretical adequate since the planning and expectations of accomplishing goals within time goes by the hand of being motivated enough to execute a specific course of action to fulfill those goals. Moreover, sociodemographic variables, such as age and gender, could play a significant role in this relationship on account of the existence of different objectives that people tend to have depending on their evolutionary moment of their life, social pressure, and gender roles. Therefore, the future time perspective is especially interesting for investigating motivation and procrastination in college students during the pandemic, which happens to be an unintended fitting scenario to feel less motivated and avid in procrastinating tasks.

Although numerous studies have addressed future time perspective as a predictor of several behaviors during the pandemic (Chang et al., 2021; Grondin et al., 2020; Sobol et al., 2020), procrastination (Morais-Peixoto et al., 2021; Rahimi & Vallerand, 2021) and motivation (Avila & Genio, 2020; Muslimin & Harintama, 2020; Smith et al., 2021) included, the moderating role that age and gender might have in this relationship is yet to be assessed, least to say in local population.

This study aforementioned hypothesizes that:

H1: Age would moderate differently the relationship between future time perspective and procrastination in a way that at lower levels of future time perspective younger students will

procrastinate more than older students and the opposite would happen for higher levels of future time perspective.

H2: Gender would moderate differently the relationship between future time perspective and procrastination such that at lower levels of future time perspective women will procrastinate more than men, conversely, men will procrastinate more than women at higher levels of future timer perspective.

H3: Age would moderate the relationship between future time perspective and academic motivation in a way that at lower levels of future time perspective older students will be more motivated than younger students and the opposite would happen for higher levels of future time perspective.

H4: Gender would moderate the relationship between future time perspective and academic motivation such that at lower levels of future time perspective women will be less motivated than men, conversely, women will be more motivated than men at higher levels of future timer perspective.

## Method

### Participants

A total of 257 students of Psychology (137 women) between the ages of 18 and 44 years ( $M = 23.61$ ;  $SD = 0.57$ ), were recruited through volunteer sampling from the undergraduate community of the Argentinian Catholic University. All the participants lived in urban areas: City of Buenos Aires (93.7%) and its suburbs (6.3%). 46 students were coursing the first year of the career (17.9%), 10 students were in second year (3.9%), 65 students were in third year (25.3%), 51 students were in fourth year (19.8%), and finally, 85 students were in the last year of the career (33.1%).

### Measures

Demographic information: participants completed a questionnaire that collected basic demographic information, such us age, gender, course of degree, and location. Gender was divided into women ( $n = 137$ , 53.3%) and men ( $n = 120$ , 46.7%). Age was segmented considering a previous the mean for age into younger students (aged 18–24;  $n = 183$ , 71.2%) and older students (aged 25–44;  $n = 74$ , 28.8%).

Zimbardo Time Perspective Inventory (ZTPI; [Zimbardo & Boyd, 1999](#)): brief local version by [Germano and Brenlla \(2020\)](#) was used to measure Future time perspective. The ZTPI consists of 29 items distributed among five subscales: Past-Negative scale (7 items, e.g., *I often think of what I should have done differently in my life*), Past-Positive (6 items, e.g., *I enjoy stories about how things used to be in good old times*), Present-Fatalistic (4 items, e.g., *Since whatever will be will be, it doesn't really matter what I do*), Present-Hedonistic (6 items, e.g., *Taking risks keeps my life from becoming boring*), and Future (6 items, e.g., *Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play*). The participants were asked to score on a five-point Likert scale the degree to which each statement referred to him/her (1 = Completely False, 5 = Completely True). In the current study, the Cronbach's alpha for ZTPI FT subscale was  $\alpha = .63$ . The rest of reliability coefficients for the remaining time perspectives, which are not relevant to the objective of this study, are shown in the Appendix Table A.1.

Motivated Strategies for Learning Questionnaire (MSLQ; [Pintrich et al., 1991](#)): local version by [Rinaudo et al. \(2003\)](#) was used to measure one of the two main scales of the instrument, being one motivation (31 items) and the second one, learning strategies (50 items). The scale of motivation is divided into six subscales: intrinsic goal orientation (4 items, e.g., *In a class like this, I prefer course material that really challenges me so I can learn new things*), extrinsic goal orientation (4 items, e.g., *Getting a good grade in this class is the most satisfying thing for me right now*), task value (6 items, e.g., *I think I will be able to use what I learn in this course in other courses*), control beliefs about learning (4 items, e.g., *If I study in appropriate ways, then I will be able to learn the material in this course*), self-efficacy for learning and performance (8 items, e.g., *I believe I will receive an excellent grade in this class*), and test anxiety (5 items, e.g., *When I take tests I think of the consequences of failing*). Participants were asked to respond to a series of statement concerning their motivation and attitudes towards a specific course that they had taken according to a 7-point Likert Scale (1 = strongly disagree, 7 = strongly agree). The Cronbach's alpha coefficient in the present research was  $\alpha = .79$ .

Tuckman Procrastination Scale (TPS; [Tuckman, 1990](#)): the TPS is a one-dimensional measure of the tendency to waste time, postpone or delaying in doing things that should have been already finished. The local version by [Furlan et al., \(2012\)](#) was used, which comprised of 15 items (e.g., *I put off projects until the last minute; I frequently find myself putting important deadlines off*). Participants were asked to rate with a 5-point Likert scale the degree of



frequency they would engage in the described behaviors (1 = Never, 5 = Always). The Cronbach's alpha coefficient in the present research was  $\alpha = .76$ .

### Procedure

Participants were contacted by an email advertisement in which the main purpose of the study was explained; all of them were provided with the online versions of the techniques utilized in this study along with an informed written consent that they had to accept prior to answering any questionnaire. Results confidentiality and anonymity were assured. A power analysis conducted in G\*Power 3.1 determined that the sample size was adequate to detect a small effect of partial  $R^2$  increase of 0.05 ( $\alpha = 0.05$ ) with a power of 0.95 (Faul et al., 2009; Faul et al., 2007). The research was conducted in accordance with the principles expressed in the Declaration of Helsinki (World Medical Association [WMA], 2001). The average time for survey completion was approximately 20 min.

### Data analysis

In order to test the hypothesis formulated, analysis was conducted using IBM SPSS 25.0.0.2 for Windows employing regression analysis with bootstrapping method using Andrew F. Hayes PROCESS 3.2.01 macro (Hayes, 2018).

## Results

Table 1 shows descriptive statistics, the correlation matrix for relationships between measures, and the results of differences tested for age and gender in future time perspective, motivation, and procrastinations scores. A larger table containing all the correlations and descriptive statistics for all study variables including the rest of the time perspectives of ZTPI can be seen in the Appendix Table A.2.

As it was expected, future time perspective was positively related to motivation and negatively to procrastination. Also, motivation was negatively related to age. However, the association of motivation and procrastination even though followed a negative pattern, did not achieve significant statistical level.

In terms of differences in mean values of the main variables, only motivation was found to be higher in younger students than in older students at a statistically significant level and with a

large size effect. Moreover, women exhibited higher levels of motivation compared to men with a large size effect. Additionally, women also score higher than men in future time perspective with a moderate size effect.

Table 1.

*Correlations Between Variables, Means, Standard Deviations in the Sample and Within Age and Gender, and Results of T-Test for Age and Gender Differences in Variables.*

	Age	FT	MT	PR
Age	-	-	-	-
FT	.052	-	-	-
MT	-.388**	.243**	-	-
PR	-.039	-.585**	-.105	-
<i>M</i> general	23.60	3.78	4.83	2.99
<i>SD</i> general	4.62	.56	.57	.59
<i>M</i> younger students	21.20	3.80	4.97	2.98
<i>SD</i> younger students	1.62	.60	.55	.66
<i>M</i> older students	29.53	3.76	4.49	2.99
<i>SD</i> older students	4.27	.45	.48	.40
<i>t</i> (255)	-22.645	.478	6.476	-.115
<i>p</i>	.000	.633	.000	.909
Hedge's <i>g</i>	3.12	.071	.904	.016
<i>M</i> women	21.58	3.87	5.16	2.94
<i>SD</i> women	3.04	.57	.51	.70
<i>M</i> men	25.90	3.69	4.45	3.03
<i>SD</i> men	.503	.53	.37	.45
<i>t</i> (255)	-8.430	2.502	12.591	-1.202
<i>p</i>	.000	.013	.000	.230
Cohen's <i>d</i>	1.03	.372	1.590	.166

Note: Gender was coded as 1 = female, 2 = male. Age was coded as 1 = younger students, 2 = older students. FT = Future time perspectives; MT = Motivation; PR= Procrastination. Hedge's *g* was calculated for age differences since sample size were unbalanced. Cohen's *d* estimated for gender differences since sample size were similar. \*\**p* < .01; \**p* < .05.

The main hypothesis of the present study was tested by using regression models with a bootstrapping method for procrastination and motivation as dependent variables in four separated models. Future time perspective was included in the models as the predictor in all cases, while age and gender were introduced as moderators. Tables 2 and 3 show the main coefficients with 95% CI for the four models tested.

Table 2.

*Models Predicting Procrastination Based on Future Time Perspective and Age or Gender.*

	Procrastination model								
	<i>B</i> [95% CI]	<i>SE</i>	<i>T</i>	<i>p</i>		<i>B</i> [95% CI]	<i>SE</i>	<i>T</i>	<i>p</i>
FT	-1.04 [-1.38; -.70]	.17	-6.02	.000	FT	-1.05 [-1.38; -.73]	.16	-6.37	.000
Age	-1.33 [-2.37; -.29]	.52	-2.53	.011	Gender	-1.15 [-1.98; -.33]	.41	-2.76	.006
FTxAge	.35 [.07; .62]	.13	2.53	.012	FTxGender	.30 [.08; .51]	.10	2.75	.006
R <sup>2</sup>	.35				R <sup>2</sup>	.36			
<i>F</i> (3,253)	47.106				<i>F</i> (3,253)	47.72			
<i>p</i>	.000				<i>p</i>	.000			

Table 3.

*Models Predicting Motivation Based on Future Time Perspective and Age or Gender.*

	Motivation model								
	<i>B</i> [95% CI]	<i>SE</i>	<i>T</i>	<i>p</i>		<i>B</i> [95% CI]	<i>SE</i>	<i>T</i>	<i>p</i>
FT	.59 [.23; .96]	.18	3.26	.001	FT	.62 [.32; .91]	.15	4.12	.000
Age	.68 [-.41; 1.79]	.55	1-23	.219	Gender	.54 [-1.98; 1.28]	.37	1.44	.150
FTxAge	-.30 [-.59; -.01]	.14	-2.08	.038	FTxGender	-.32 [-.52; -.13]	.09	-3.28	.001
R <sup>2</sup>	.20				R <sup>2</sup>	.42			
<i>F</i> (3,253)	22.18				<i>F</i> (3,253)	65.55			
<i>p</i>	.000				<i>p</i>	.000			

As can be seen from data, all the models predicted a significant amount of variance in the dependent variables. The results also indicated that future time perspective was negatively related to procrastination and positively related to motivation. Furthermore, for all models age and gender were coded identically, that is, younger students were coded 1, and older students were coded 2, and women were coded 1 and men were coded 2. This procedure allows interpretation of the data in a dissimilar approach; thus, a positive relationship for procrastination would indicate that the sample coded as 1 scored higher in procrastination than the sample coded as 2, but a negative relationship would indicate that the sample coded as 1 scored higher in motivation than the sample coded as 2.



In the procrastination models, the interactions were all significant for age (younger students VS older students) and for gender (women VS men) as well. Analyzing simple slopes (Figure 1) showed that age exhibited a moderator role in a way that older students with lower future time perspective scored lower in procrastination than younger students, but higher in procrastination when future time perspective levels were higher. The opposite took place for younger students, who exhibited higher procrastination at a lower future time perspective, but lower procrastination when future time perspective scored higher.

Similarly, when gender was a moderator, the impact of future time perspective on procrastination was higher in men than in women considering lower levels of future time perspective, but at higher levels of future time perspective, the impact was higher in women than in men, exhibiting the first ones lower levels of procrastinations than the second ones.

Inspecting the motivation models a positive relationship was found between future time perspective and motivation in younger students and negative for older students (Figure 2). However, despite that the interaction effect was statically significant, it was only significant for younger students but not for older students (Table 3).

Analogously, when gender was a moderator the relationship between future time perspective and motivation was positive for women, and negative for men. Nonetheless, the interaction effect was significant only for women but not for men.

The results enable to accept the hypothesis in the case of procrastination but, in the case of motivation, the hypothesis was only partially confirmed, since the relationship between future time perspective and motivation was not significant for older students and for men.

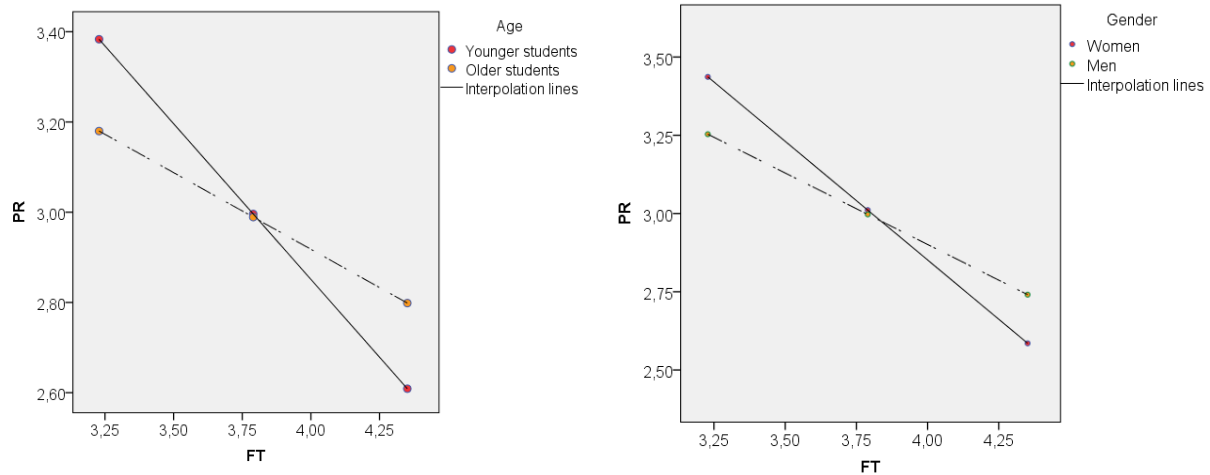


Figure 1. Moderating Role of Age (Simple Slope Analysis). Simple Slope Analysis for Procrastination Model (left). Moderating Role of Gender (Simple Slope Analysis) (Right)

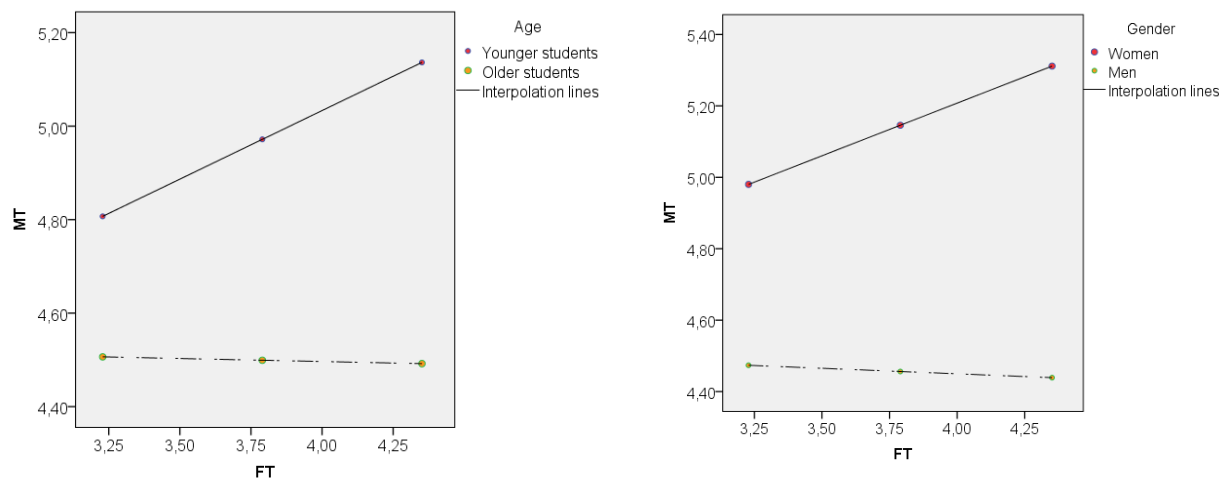


Figure 2. Moderating Role of Age (Simple Slope Analysis). Simple Slope Analysis for Motivation Model (Left). Moderating Role of Gender (Simple Slope Analysis) (Right).

## Discussion

The aim of this study was to explore age and gender differences in the relationships between future time perspective and procrastination or motivation during the specific pandemic context of COVID-19 in Argentinian undergraduate Psychology students.



Four independent models for future time perspective predicting procrastination and motivation were tested. In all cases these variables were strongly related, which is in line with previous studies (Díaz-Morales, 2019; Ferrari & Díaz-Morales, 2007; Kim et al., 2017; Nuttin, 2014; Rodriguez & Clariana, 2017; Sirois & Pychyl, 2016; Yousef, 2020).

This study was performed during the first semester of year 2021 in City of Buenos Aires where the universities have been shut down since March 2020 up to date, forcing higher education to be completely online. Researchers have demonstrated the negative impact on students' life, especially in terms of being academic motivated and reducing procrastination (Avila & Genio, 2020; Morais-Peixoto et al., 2021; Muslimin & Harintama, 2020; Rahimi & Vallerand, 2021; Smith et al., 2021).

The first set of data analyses determined that age and gender moderated the relationship between future time perspective and procrastination, such that younger students and women scored higher in procrastination than older students and men at lower levels of future time perspective, while at higher levels of this time perspective, older students and men procrastinated more. Additionally, it seems that the relationship between future time perspective and procrastination was not only statistically significant since in both groups the effect was also significant and in the same direction (negative) but also quite strong (the amount of variance explained by the models reached 35% and 36%). Interestingly, these differences were observed despite that *t* tests only showed a statistically significant difference in future time perspective according to gender but not for the rest of the groups.

On one hand, considering these effects, it can be interpreted that younger students find it more difficult to avoid postponing or delaying activities that feel little interest in when their personal orientation towards achieving long-term goals is rather low, a phenomenon that took place for older students with the difference that these would have a better coping mechanism and learning strategies so not to procrastinate that much. This finding is in line with some other studies that demonstrated that procrastination is negatively related with age (Balkis & Duru, 2019; Beutel et al., 2016; Steel & Ferrari, 2013). Conversely, when younger students develop a greater ability to plan at a long term and are more focused to achieve those goals, it is less likely for them to procrastinate than older students at the same amount of future time perspective. This needs to be read pondering several aspects mentioned previously regarding the diversity of goals and responsibilities that an older person might face, such as, raising children,

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supporting a family, studying another career, searching for better employment opportunities, or simply engaging in social and emotional experiences away from the academic scenario (Laureiro-Martinez et al., 2017; Seginer, 2009), which could possibly lead to procrastinating behavior.

On the other hand, a possible explanation for these results could be that when women are scarcely orientated towards establishing goals at a long-term distance, it seems to be more difficult for them to avoid engaging in patterns of postponing and delaying academic tasks completion compared to men at the same level of future time perspective. Contrary, at higher levels of future time perspective men procrastinated more than women, which is in line with other findings that put men as avid procrastinators (Balkis & Duru, 2018; Zhou, 2020), however, the interaction with future time perspective must be considered. Consequently, it has been reported that women generally set for themselves a larger amount and more diverse future goals than men at the same level of future time perspective (Kooji et al., 2018), which could force them to distribute their time, a limited resource, to fulfill those obligations, resulting in the undesired outcome of procrastinating academically. Moreover, lower levels of future time perspective have been associated with anxiety, stress, lower self-confidence, problems that are more prevalent in women, which could lead them to even more procrastination (Asher et al., 2017; Gao et al., 2020; Helwig & Ruprecht, 2017).

The final hypotheses were tested to find that age and gender moderated the relationship between future time perspective and motivation, in a way that younger students and women that scored higher in future time perspective manifested more motivation than older students and women on lower levels of this time perspective. For older students and men, the relationship was inverse -older students and men scoring higher in future time perspective manifested less motivation than older students and men scoring lower in this time perspective-. Surprisingly, the relationship between future time perspective and motivation was statistically significant and direct for younger students and women; however, for older students and men this relationship was inverse but not statistically significant. Also, the amount of variance explained by these models varied considerably between them (20% and 42%). Differences according to age and gender were previously observed in the *t* tests for motivation and future time perspective.

Analyzing the data, these results are partly consistent to numerous studies that demonstrated the positive relationship between motivation and future time perspective (Díaz-Morales, 2019;

Kim et al., 2017; Nuttin, 2014; Sirois & Pychyl, 2016), since the tendency of forecasting future events would work as an enhancer for conquering academic goals. For older students this relationship was negative but not statistically significant, which happens to be an unexpected result; however, several studies have indicated that people at an older age would be more interested in establishing goals that are not academic-related, such as, engaging in social and emotional experiences, forming a family, or getting a better job (Bong, 2009; Eppinger et al., 2013; Seginer, 2009); on the other hand, individuals at a lower future time perspective tend to set fewer goals for themselves (Laureiro-Martinez et al., 2017; Seginer, 2009), so that it might be easier for them to keep motivated if they happen to have just very few goals to accomplish.

And finally, for gender differences, the moderating role seemed also partly in line with the main hypothesis and scientific literature regarding the relationship between gender and motivation, being women generally the most academic motivated students (Arias-Gallegos, 2019; D'Lima et al., 2014; Isik et al., 2018). Nonetheless, this relationship was negative in men but not statistically significant, which can be explained with the fact that men more time future time orientated are more likely to develop goals that differ from the academic scenario, since it has been suggested (Green & DeBacker, 2004; Kooji et al., 2018); at a lower future time perspective, the amount of goals might be low as well, so male students should find it easier to keep themselves motivated.

### **Limitations and implications**

There are several limitations in this research. Firstly, a cross-sectional study design was performed, so the results should be interpreted with caution. Future research should engage in a longitudinal or experimental study design to expand these present findings, especially for the moderating effect of age. Secondly, the fact that self-reported measures were employed could lead to an underestimation of the variables that were tested, given that individuals tend to distort their responses to provide a better image of themselves. Thirdly, participants were recruited by a non-probabilistic sampling method and only Psychology students were assessed, which can hardly be taken to generalize these findings. Students from other careers should be evaluated in future studies. And fourthly, it would be useful to perform similar analysis that included the rest of the time perspectives in order to understand the role that age and gender could play as moderators, particularly in the assessment of future larger samples.



Despite the limitations described above, this research has some significant implications. Firstly, these findings might increase the understanding of time perspective and its relationship with other constructs in the educational area to extend and develop the increasing scientific niche of the psychological aspects of time perception. Secondly, it is important that parents, educators, and psychologists that work on the educational field share some knowledge on future time perspective, academic motivation, and procrastination and the impact the pandemic had on them. And thirdly, based on the information provided in this research, professionals could create strategies to enhance the development of future time perspective and balance them with the rest dimensions of time perspective to enhance motivation and reduce procrastinating behavior, such as, growing more insightful and healthy studying habits in the place of activities such as working on academic assignments or preparing for final examinations. Also, these strategies should consider the existence of differences according to age and gender in the variables assessed.

## Conclusion

The purpose of this study was to explore age and gender differences in the relationships between future time perspective and procrastination or motivation during the specific pandemic context of COVID-19 in Argentinian undergraduate Psychology students. In order to do so, four independent models for future time perspective predicting procrastination and motivation were tested. In all cases these variables were strongly related, and the amount of variance explained by the models was relatively high. Furthermore, age and gender moderated the relationship between future time perspective and procrastination, such that younger students and women scored higher in procrastination than older students and men at lower levels of future time perspective, while at higher levels of this time perspective, older students and men procrastinated more. In the case of the age and gender moderating the relationship between future time perspective and motivation, it was found that younger students and women that scored higher in future time perspective manifested more motivation than older students and women on lower levels of this time perspective. For older students and men, the relationship was inverse -older students and men scoring higher in future time perspective manifested less motivation than older students and men scoring lower in this time perspective-. Surprisingly, the relationship between future time perspective and motivation was statistically significant and direct for younger students and women; however, for older students and men this relationship was inverse but not statistically significant. In conclusion, the research hypotheses were partially

confirmed for younger and female students, but not for older and male students in all hypothesized cases.

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The authors have declared that no competing interests exist.

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## Appendices

Table A.1.

*Cronbach 'S Alpha Reliability of All Scales and Subscales in the Study.*

Scale/subscale name	Cronbach 's alpha reliability
MSLQ Motivation scale	.79
MSLQ Intrinsic goal orientation	.45
MSLQ Extrinsic goal orientation	.51
MSLQ Task value	.61
MSLQ Control Belief about learning and performance	.55
MSLQ Self-Efficacy for learning	.66
MSLQ Test anxiety	.49
TPS	.76
ZTPI past negative	.80
ZTPI past positive	.60
ZTPI present fatalistic	.66
ZTPI present hedonistic	.74
ZTPI future	.63

Table A.2.

*Correlations between Variables, Means and Standard Deviations in the Sample and Within Age and Gender.*

	Age	FT	MT	PR	PN	PF	PH	PP
Age	-	-	-	-	-	-	-	-
FT	.052	-	-	-	-	-	-	-
MT	-.388**	.243**	-	-	-	-	-	-
PR	-.039	-.585**	-.105	-	-	-	-	-
PN	-.102	-.147*	.084	.306**	-	-	-	-
PF	-.076	-.202**	-.037	.210**	.422**	-	-	-
PH	-.031	-.120	.028	.227**	.137*	.272**	-	-
PP	-.241**	.178*	.367**	-.109	-.250**	-.175**	.096	-
<i>M</i> general	23.60	3.78	4.83	2.99	2.85	2.29	3.05	3.54
<i>SD</i> general	4.62	.56	.57	.59	.78	.68	.68	.63
<i>M</i> Younger students	21.20	3.80	4.97	2.98	2.88	2.30	2.88	3.65
<i>SD</i> Younger students	1.62	.60	.55	.66	.75	.69	.75	.59
<i>M</i> Older students	29.53	3.76	4.49	2.99	2.78	2.25	3.02	3.27
<i>SD</i> Older students	4.27	.45	.48	.40	.85	.68	.50	.66
<i>M</i> women	21.58	3.87	5.16	2.94	2.79	2.24	3.10	3.75
<i>SD</i> women	3.04	.57	.51	.70	.79	.68	.76	.58
<i>M</i> men	25.90	3.69	4.45	3.03	2.93	2.33	2.99	3.30
<i>SD</i> men	.503	.53	.37	.45	.75	.68	.56	.60

Note: PN = Past-Negative time perspective; PF= Present-Fatalistic time perspective; PH = Present-Hedonistic time perspective; PP = Past-Positive time perspective. \*\* $p < .01$ ; \* $p < .05$ .



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