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Fatalism, Attributions of Failure and Academic Performance in Mapuche and Non-Mapuche Chilean Students

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Título: Fatalismo, atribuciones causales y rendimiento académico en estudiantes chilenos mapuches y no mapuches.
Resumen: Este estudio investiga el rol del fatalismo como orientación valórica cultural y las atribuciones causales sobre el fracaso en el rendimiento académico de estudiantes secundarios en la región de La Araucanía, Chile. Tres mil trescientos cuarenta y ocho estudiantes Mapuche y no-Mapuche participaron en el estudio. De manera consistente con el modelo sobre cultura y comportamiento que guía la investigación, los resultados del análisis de modelos causales basado en ecuaciones estructurales muestra que el rendimiento académico es en parte una función de variaciones en el nivel de fatalismo, tanto directamente como por medio de los procesos de atribución causal y las emociones relacionadas al fracaso. En términos generales, el modelo propuesto respecto a la estructura de las relaciones entre las variables fatalismo, atribuciones, y emociones relacionadas con el fracaso como determinantes del rendimiento académico explican los datos tanto para estudiantes Mapuche como No-Mapuche. Sin embargo, los resultados muestran que la naturaleza de las relaciones entre algunas de las variables del modelo es distinta para estudiantes de estos dos grupos étnicos. Finalmente, de acuerdo al análisis de modelos causales, el nivel socioeconómico de la familia aparece como el determinante más importante del fatalismo.
Palabras Clave: fatalismo; atribuciones; rendimiento académico; cultura; etnia; mapuche; chile.

Abstract: This study investigated the role of fatalism as a cultural value orientation and causal attributions for past failure in the academic performance of high school students in the Araucania Region of Chile. Three thousand three hundred and fourty eight Mapuche and Non-Mapuche students participated in the study. Consistent with the Culture and Behavior model that guided the research, the test of causal models based on the analysis of structural equations show that academic performance is in part a function of variations in the level of fatalism, directly as well as indirectly through its influence in the attribution processes and failure-related emotions. In general, the model representing the proposed structure of relations among fatalism, attributions, and emotions as determinants of academic performance fit the data for both Mapuche and non-Mapuche students. However, results show that some of the relations in the model are different for students from these two ethnic groups. Finally, according to the results from the analysis of causal models, family SES appear to be the most important determinant of fatalism.
Key words: fatalism; attributions; academic performance; culture; ethnic; mapuche; chile.

Introduction

In Chile 11.11% of the total population belongs to a minority ethnic group, most of whom (84.11%) are Mapuche. In the Region of La Araucanía this ethnic minority represents 31% of the population (National Institute of Statistics [INE], 2012). The Mapuche complete fewer years of study (8.87 years in contrast to 10.48 years in the total population), have a higher illiteracy rate (6.5% in contrast to 3.3% in the total population) and a higher poverty rate (20.5% in contrast to 14.8% in the total population) than the rest of the country's population (National Socioeconomic Characterization Survey [CASEN], 2009).

One of the problems with education among ethnic minorities is that frequently the research that compares groups, when attributing intergroup differences in psychological phenomena to cultural differences, does not identify that aspect of the culture and how it is related to the variations observed in psychological and behavioral issues. This means that cultural aspects responsible for the differences observed between those groups are not identified or measured (Betancourt & Fuentes, 2001; Betancourt, Hardin, & Manzi, 1992; Betancourt & López, 1993). As a result, this encourages the stereotypes and prejudices towards the members of minority groups and often the creation of policies or interventions which are rarely effective.

This study is guided by Betancourt's theoretical model on culture and behavior (Betancourt & Weiner, 1982; Betancourt, Hardin, & Manzi, 1992; Betancourt & López, 1993; Betancourt & Fuentes, 2001; Betancourt & Flynn, 2009). This model (see Figure 1) proposes that it is culture, not necessarily race or other population factors, that most directly influences psychological processes and behavior. As shown in Figure 1, the demographic variables (A) are sources of cultural variation (B), and it is the culture that influences behavior (D) directly and through psychological processes (C).

Fatalism, as a culturally transmitted value orientation, has to do with the balance between human beings and nature or surroundings (Hofstede, 2001; Kluckholn & Strodtbeck, 1961). In this sense the fatalistic value orientation operates in two separated constructs: domination (control over nature) and fatalism (submission to nature). Fatalism has more recently been defined as an overall view that visualizes the events of life as unpredictable and suggests that our individual destiny is beyond our control (Davinson, Frakel & Smith,

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1992). Additionally, researchers in the education field have found indications of a relationship between fatalistic beliefs and negative academic attitudes and low performance in adolescents (Guzmán, Santiago-Rivera, & Haas, 2005; Matute-Bianchi, 1986).

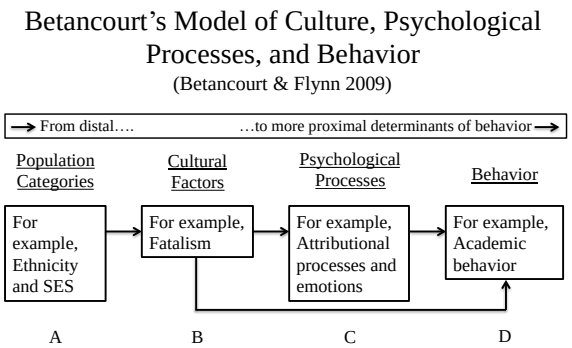


Figure 1. Betancourt's theoretical model on culture and behavior.

Generally, the observations (Powe, 2001; Skinner, Champion, Menon & Seshandri, 2002; Navarrete, 2006) suggest that fatalism is partly a function of factors such as socioeconomic status (SES). For example, it is possible that the experience of living in situations of extreme poverty, where individuals have no control over what happens and cannot change their situation, can result in socially shared fatalistic beliefs and value orientations. This could lead people to attribute difficulties and academic failure to causes perceived as stable and uncontrollable causes, which could produce negative motivational effects, such as learned resignation and expectations of future failure, which in turn can affect professional aspirations (Navarrete, 2005).

Fatalism and Causal Attribution

Weiner's attribution theory of motivation (1979, 1985, 1996) posits that the causes to which people attribute their successes and failures have important psychological consequences, particularly at the motivational level. From this perspective, what really determines motivation are the different interpretations and assessments that the subject makes of his or her own academic results. This theory maintains that academic motivation is partly a function of the causes to which success and failure are attributed. This is to say, it derives from the properties or characteristics: internal-external, stable-unstable and controllable-uncontrollable. What to expect in the future, particularly expectations of success or failure, depends mainly on the dimension stability-unstability. The attributions also made in relation to failure generate emotions associated with these expectations, which also have considerable motivational effects (Weiner, 1985).

In the case of fatalism, it has been observed that students with higher degrees of fatalism tend to attribute their failures in academic issues to more stable causes than those with lower levels. In addition, they indicate more negative emotions that influence academic behavior (Navarrete, 2005).

The aim of this study is to investigate academic performance based on cultural factors and relevant psychological processes in Mapuche and non-Mapuche high school students in the Region of La Araucanía, Chile. Specifically, we investigate the role of fatalism as a cultural value orientation associated with population diversity, ethnic group and SES, and its effect on causal attribution processes of academic failure and emotions as determinants of academic performance (see Figure 2).

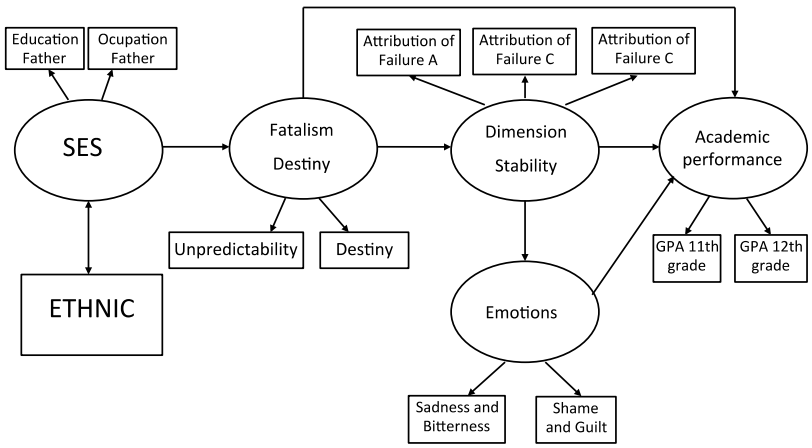


Figure 2. Hypotheses based model.

Method

Participants

3,348 high school seniors (37.5% Mapuche, 62.5% non-Mapuche) belonging to 48 education districts in the Region of La Araucanía in southern Chile participated. Of these, 46.4% were boys and 53.6% girls. The mean age of participants was 17.7 years (SD= 0.8, range= 7), with no significant differences in terms of the mean age based on gender or ethnic group. It should be pointed out that the non-Mapuche designation refers to people who do not belong to the Ma-

puche ethnic group, without discounting the possibility that they may belong to another minority ethnic group. In any case, the Mapuche population represents 99.1% of the indigenous population in the region (CASEN, 2009).

Instruments

Value Orientation Scale for Fatalism (Betancourt, et al. 2010; Flynn, 2005; McMillin-Williams, 2004; Navarrete, 2006). This instrument is made up of two dimensions of fatalism: "unpredictability" (e.g., "Life doesn't give you a break, so it's better to take things day by day") and "destiny" (e.g., "People prefer to go with the flow"). It contains 12 items on a 7-point Likert scale (from "strongly disagree" to "strongly agree"). For the purposes of this study, the language and response format of the scale were adapted, obtaining a Cronbach's alpha of 0.75, maintaining ten of the original 12 items.

*Causal Dimension Scale (*McAuley, Duncan, & Russell, 1992). For this study the scale was translated into Spanish (González, Saiz, & Vizcarra, 1993) and adapted for the Chilean population (González, 1999). The adapted CDSII consists of 16 seven-point semantic differential items through which the respondent evaluates the cause of an event in terms of its attributive properties. For this study only the items of the dimension "stability" were considered (e.g., "Something temporary" "Something permanent"). The internal consistency of this subscale shows a Cronbach's alpha of 0.79.

Social Attribution and Emotion Scale (SAES). This was developed by Betancourt et al. (2004) to assess the attributions of intentionality and controllability as well as the emotions related to the properties of these attributions. The subscale used here is the one that measures emotions (e.g., "Did you feel guilty?"), with a 7-point Likert response scale (from "no" to "very much"). The internal consistency of the SAES estimated by means of the Cronbach's alpha is 0.88.

Procedure

Contact was made with the principals of all the public high schools. Participants were informed about the aim of the study and were asked to respond to a questionnaire. The questionnaire was applied collectively in each class to the students who agreed to participate voluntarily and anonymously. Responding to all the items took the participants approximately 40 minutes. Each participant received an incentive for their participation.

Data analysis

In the first analysis, a Student's t-test was used to contrast the means obtained from the variables of interest: Mapuche vs. non-Mapuche and boys vs. girls (see Table 1). Next, we performed an analysis of covariance (ANCOVA) to examine the relationship between the proposed model as a determinant of academic performance. To do this, we used Bentler's program for the analysis of causal models based on structural equations EQS 6.0 (Bentler, 2005). The indices of fit used were: χ^2 (Tabachnick & Fidell, 1996), CFI (Bentler & Bonnet, 1980) and RMSEA (Browne & Cudeck, 1993). Additionally, the LaGrange and Wald tests were used to assess the convenience of adding or eliminating parameters, respectively. Finally, measurement equivalence tests and a test of invariance were performed to test the degree of invariance of the model parameters for Mapuche and non-Mapuche students. In this case, tests of configural invariance (TCI), measurement invariance (TMI) and structural invariance (TSI) were conducted. If in any of the two last tests a significant $\Delta\chi^2$ is obtained, it is necessary to eliminate a restriction as the Lagrange Multiplier (LM) test indicates, with a $\chi^2 \geq 5.0$ (Scott-Lennox & Lennox, 1995).

Results

Difference of means

The means, standard deviations and levels of statistical significance are in Table 1. The Mapuche showed a significantly lower SES than the non-Mapuche t = -11.11; gl = 1917.57; p < .001; CI 95%= -0.46-0.32). The level of fatalism-destiny was higher for Mapuche than for non-Mapuche students (t = -3.108; gl = 1917.57; p < .005; CI 95% = -0.25- -0.56). The scores for the dimensions fatalism-unpredictability were higher in the girls than in the boys (t= -2.785; gl = 2868.47; p < .01; CI 95%= -0.20- -0.03). The girls presented lower levels for the dimension stability of the causal attributions than the boys (t = 8.443; gl =2907; p = .000; CI 95% = 0.33-0.53), and manifested more emotions related to academic failure (t = -6.744; gl=2653.15; p < .001; CI 95%= -0.57- -0.31). The Mapuche showed lower academic performance than non-Mapuche t = 5.204; gl =2842; p < .001; CI 95% = 0.62- 1.37), and the boys lower than the girls (t = -10.28; gl =2848; p < .001; CI 95%= -2.19 - -1.49).

Analysis of structural equations

The preliminary analyses showed a significant relation between SES and ethnic group, one also suggested by the LaGrange test in the preliminary analysis of the model. The preliminary analysis did not show a clear relation between ethnic group and fatalism levels, so the Wald test suggests that the path between ethnic group and fatalism be eliminated from the proposed structural equations model. Nevertheless, the data suggest the consideration of "fatalism" with its two dimensions separately; therefore, the parameter between the dimension "unpredictability" and academic yield was eliminated according to the Wald test, achieving a good fit of the model to the data, CFI = 0.99, χ^2 (gl = 67, n = 2914)= 122.66, p = .000, χ^2/gl = 1.831, RMSEA = 0.021, (see Figure 3 and Table 2).

Table 1. Means, standard deviations and statistical significances.

	Mapuche			Non-Mapuche		
	Total	Boys	Girls	Total	Boys	Girls
NSE [a]	4.14 ±0.91	4.13 ±0.93	4.14 ±0.88	3.73 ±0.84	3.75 ±0.83	3.72 ±0.84
Mean Fatalism	4.09 ±1.00	4.06 ±0.95	4.11 ±1.03	3.99 ±1.02	3.97 ±0.98	4.01 ±1.05
Fat. Unpredict.	4.75 ±1.12	4.70 ±1.07	4.79 ±1.14	4.72 ±1.13	4.65 ±1.09	4.78 ±1.16
Fat. Destiny [a]	3.44 ±1.27	3.43 ±1.24	3.44 ±1.29	3.27 ±1.26	3.30 ±1.22	3.24 ±1.29
Stability [b]	2.96 ±1.36	3.12 ±1.34	2.80 ±1.36	2.98 ±1.40	3.24 ±1.38	2.77 ±1.90
Emotions [b]	4.58 ±1.68	4.23 ±1.75	4.86 ±1.56	4.47 ±1.79	4.26 ±1.83	4.64 ±1.73
GPA [a b]	5.46 ±0.49	5.38 ±0.45	5.52 ±0.48	5.56 ±0.49	5.45 ±0.47	5.66 ±0.48

[a] Significant differences between ethnic groups ($p < .005$)
[b] Significant differences between genders ($p < .005$)

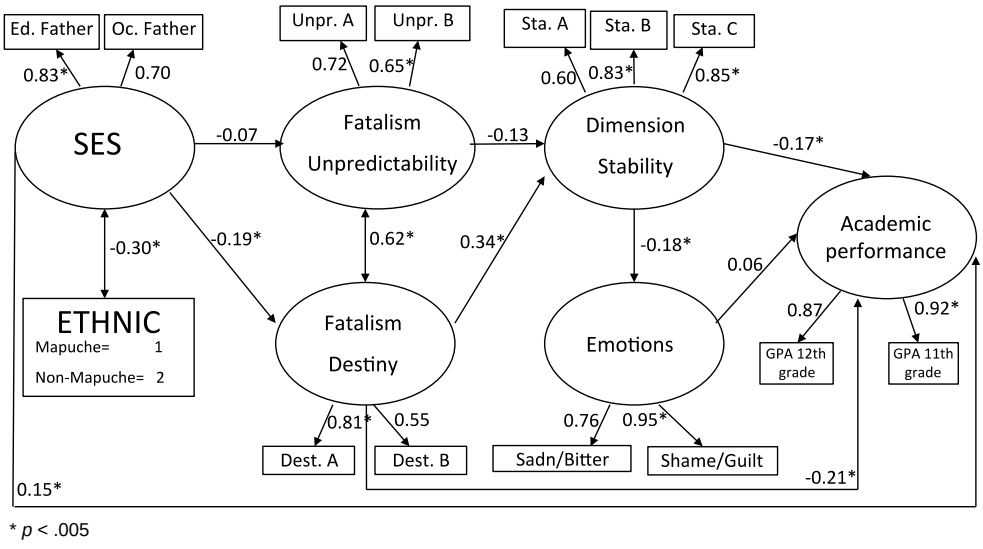


Figure 3. Final model.

Table 2. Correlation matrix and covariance associated with the final model.

		Ethnic group	Ed. Father	Oc. Father	Fat. Unpr.	Fat. Dest.	Estab.	Emot. Sa/B	Emot. Sh/G	GPA 12th grade
Ed. Father	*r*	-.25**								
	Covariance	-.20								
Oc. Father	*r*	-.12**	.36**							
	Covariance	-.10	.10							
Fat. Unpr.	*r*	.01	-.04*	-.02						
	Covariance	.00	-.08	-.04						
Fat. Dest.	*r*	.06**	-.11**	-.06**	.43**					
	Covariance	.04	-.23	-.12	.62					
Estab.	*r*	-.01	-.05**	-.03	.03	.17**				
	Covariance	-.01	-.12	-.07	.05	.30				
Emot. Sa/B	*r*	.03	-.03	-.01	.02	-.01	-.13**			
	Covariance	.03	-.09	-.03	.04	-.02	-.31			
Emot. Sh/G	*r*	.02	-.03	-.01	.02	-.3	-.16**	.72**		
	Covariance	.02	-.09	-.02	.03	-.06	-.38	2.10		
GPA 12th grade	*r*	-.08**	.13**	.05*	-.10**	-.19**	-.21**	.10**	.10**	
	Covariance	-.19	1.17	.47	-.63	-1.25	-1.58	.97	.89	
GPA 11th grade	*r*	-.11**	.15**	.05*	-.10**	-.19**	-.19**	.05**	.06**	.77**
	Covariance	-.27	1.27	.43	-.58	-1.22	-1.30	.47	.51	2.14

The results of the structural analysis of the proposed model show that SES is associated with lower levels of fatalism in its two dimensions "unpredictability" and "destiny". In addition, the influence of SES on fatalism levels occurs in both Mapuche and non-Mapuche students, to the point that the role of SES as a source of variation in fatalism appears as a more important factor than ethnic origin. At the same time, the fatalism level influences academic performance through the perception of stability of the causes to which failure is attributed in its two dimensions, "unpredictability" and "desti-

ny". Considering the two dimensions of fatalism, only one ("destiny") is directly related to academic performance, i.e., the stronger the relation between fatalism and destiny, the lower the academic performance.

The attribution of failure to more stable causes is associated with lower academic performance, and when the stability of the causes to which failure is attributed is greater, the emotions related to failure are less intense (sadness, bitterness, shame and guilt). High levels of these emotions are associated with better academic performance. Finally, a direct influence of SES on academic performance is observed, such that the higher the SES, the higher the academic performance, independent of the role of the other variables in the model.

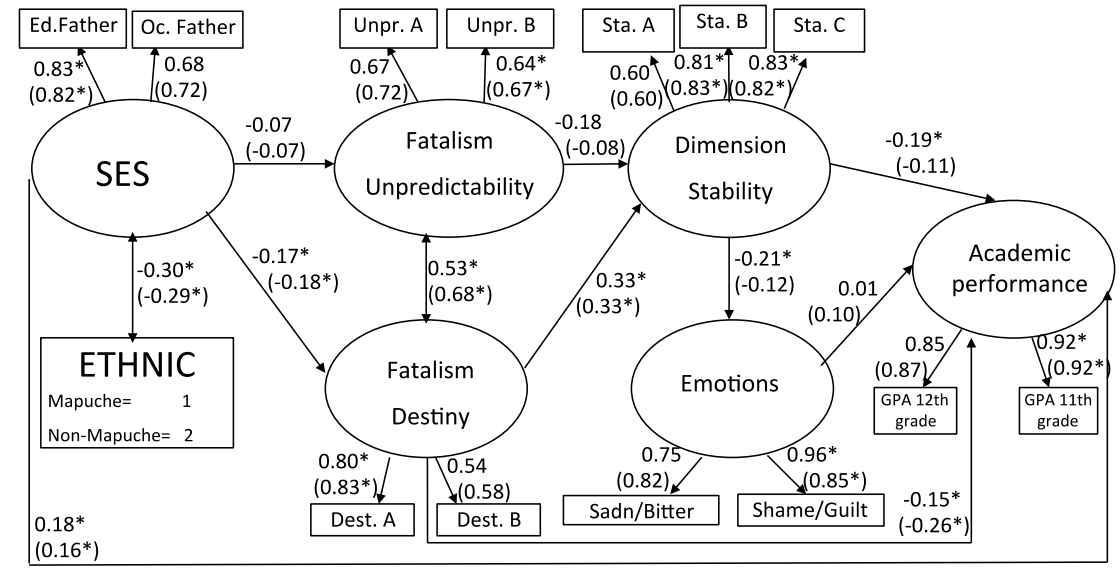
Analysis of invariance of the model for the data on boys and girls

The TCI (Model 1, see Table 3) suggests the same factors must be considered for both boys and girls. The TMI (Model 2, see Table 3) indicates that the fit of the restricted model of measurement was also good, being complemented with a non-significant $\Delta\chi^2$ and a positive ΔCFI (see Table 3, Model 3). The TSI shows that the effect of some factors on others varies based on whether it is applied to the sample of boys or girls, showing a good fit with a non-significant $\Delta\chi^2$ and a positive ΔCFI, indicating that the paths considered are adequate for both groups (see Figure 4).

Table 3. Summary of the model for the TCI, TMI and TSI for gender.

Models	χ^2	*gl*	CFI	RMSEA	90%CI	Contrast	$\Delta\chi^2$	Δ*gl*	ΔCFI
Model 1 Configural Unlimited	197.74	134	0.99	0.02	0.02-0.03	---	---	---	---
Model 2 Measurement (Factors related to gender)	200.81	141	0.99	0.02	0.01-0.03	2 vs. 1	3.07	7	0.00
Model 3 Structural (With 16 structural paths)	211.45	150	0.99	0.02	0.01-0.03	3 vs. 1	13.72	16	0.00

* p<.05; †= p<.1



* p < .005

Figure 4. Model for boys/(girls).

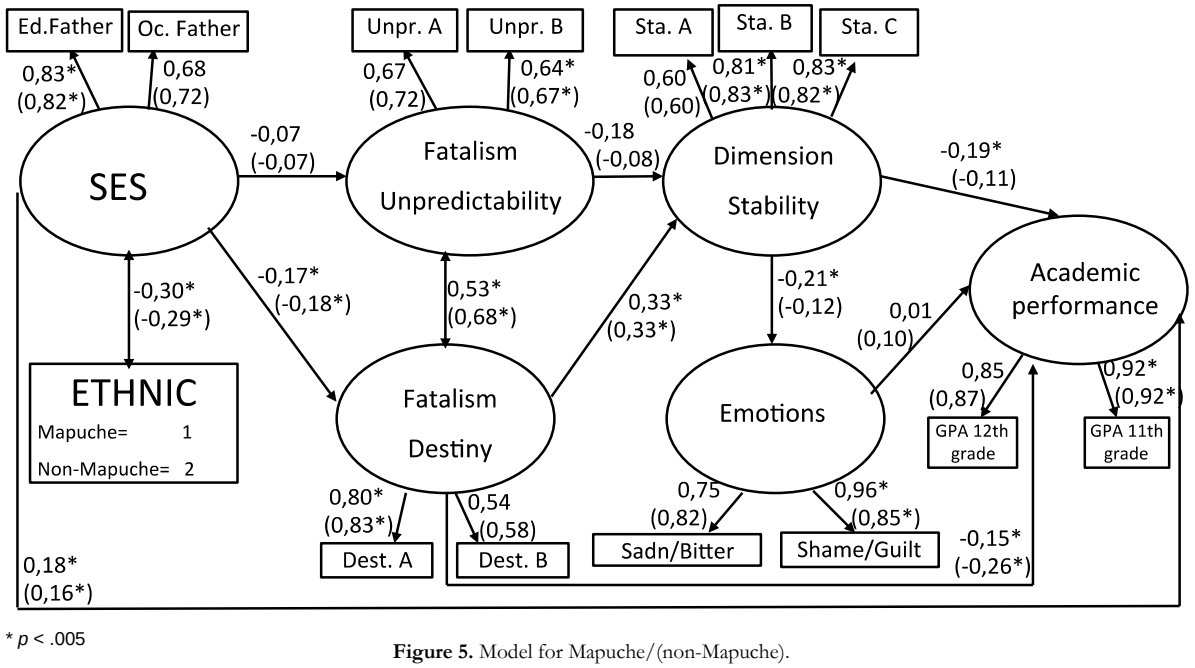
Analysis of invariance Mapuche and non-Mapuche

The TCI (see Table 4, Model 1) indicates that the number of factors and their loading are adequate for Mapuche and non-Mapuche. The TMI (see Table 4, Model 2) shows a good fit of the restricted model of measurement, with a non-significant $\Delta\chi^2$ and a positive ΔCFI. The TSI (see Table 4, Model 3a) shows a reduction in the fit, which suggests changes in the path restrictions. The Lagrange test revealed significant differences between the groups on the path from fatalism (destiny) to SES, LM χ^2 (*gl*= 9) = 6.05, p < 0.02 (see Table 4, Model 3b), as well as on the path from emotions to academic performance, LM χ^2 (*gl*= 15) = 4.80, p < 0.05 (see Table 4, Model 3c). The identified paths were released sequentially (see Table 4, Model 3b and 3c). The final test of invariance was excellent and comparable to the model of measurement with a non-significant difference, indicating that releasing the additional paths achieved the adequate fit (see Figure 5).

Table 4. Summary of the model for the TCI, TMI and TSI for ethnic group.

Models	χ^2	*gl*	CFI	RMSEA	90%CI	Contrast	$\Delta\chi^2$	Δgl	ΔCFI
Model 1 Configural Unlimited	164.11	111	0.99	0.02	0.02-0.03	---	---	---	---
Model 2 Measurement (Factors related to ethnic group)	167.60	118	0.99	0.02	0.02-0.03	2 vs. 1	3.50	7	0.00
Model 3a Structural (With 16 structural paths)	187.57	127	0.99	0.02	0.2-0.03	3a vs. 2	23.47*	16	0.00
Model 3b Structural (With 15 structural paths, NSE → Fat. Dest. released)	181.38	126	0.99	0.02	0.01-0.03	3b vs. 2	17.27†	15	0.00
Model 3c Structural (With 14 structural paths, Emotion → Performance released)	176.34	125	0.99	0.02	0.01-0.03	3c vs. 2	8.74	14	0.00

*= p< .05; †= p< .1



* p < .005

Figure 5. Model for Mapuche/(non-Mapuche).

Discussion

In general terms, the study results show that fatalism was related significantly to the participants' SES, even though ethnic origin determines greatly the nature of the relations between fatalism and the other study variables. Nevertheless, it is important to bear in mind that this occurs within the context of a society where SES is significantly related to a person's ethnic origin. This is to say, the Mapuche in Chile are fundamentally represented at the lowest socioeconomic status, which highlights the importance that the comparative study between individuals of the dominant group and non-dominant ethnic minorities must take into account the complexity of the relation between ethnic origin and social class as behavioral determinants. What makes the results of this study even more interesting is that the Mapuche present a higher SES than the non-Mapuche, perhaps because the sample is to a large extent from the lower SESs in the region, where when contrasting the two groups the Mapuche are favored in terms of their SES.

The relation between SES and fatalism becomes even more complex when the psychological factors are considered, which according to the theoretical model that guided this study represent influences very close to the behavior. For example, according to the results, individuals with a lower SES have a lower academic performance. However, the effect of SES on behavior essentially occurs through its influence on the cultural variable "fatalism" and the psychological factors that are most directly related to academic performance, which is fulfilled when the model is tested. Nevertheless, the direct path observed in the results suggests that in addition to this effect there are aspects related to SES that affect academic performance, independent of the role of the cultural and psychological variables.

In the case of the girls, the direct link of attribution to academic performance is mediated by emotions, a consider-

ably smaller relation in the boys. This is consistent with the literature on traditional cultures, where a greater expression of feelings by women is observed (Brody & Hall, 2000; Alcalá et al., 2006; Inglés et al., 2011). Such observations are important from both a conceptual and an applied perspective, since according to these results, work or intervention with students of a different cultural origin should take into account not only the ethnic origin but also SES, gender, and probably other population factors that may influence academic performance or similar behaviors, either directly or by means of their relation with the cultural and psychological aspects closest to the behavior.

It is of great relevance to ascertain the cultural and psychological aspects that influence the behavior of young Mapuche people, as these can determine a situation of self-exclusion or decline in academic achievement. This not only incorporates new information, but also allows the production of explanatory models from which more effective intervention strategies can be designed that help reverse the inequalities in education. It is important to consider that the current education curriculum puts the students from a minority ethnic group at a disadvantage, as there is information regarding indigenous young people who go to high school having adjustment difficulties and experiencing disadvantages in secondary education (Sepúlveda, 2006; Enesco et al., 2011). This shows a persistence in education differences, reproducing the inequalities of the social classes and making adequate preparation for higher education difficult.

Conclusions

We can conclude that the results of this study demonstrate the suitability of the theoretical model and its utility to study academic performance from a cultural perspective, adapted to a socioeconomic reality of high instability or unpredictability. It is important to consider that the present study has only included and measured fatalism, which appears to be one of the cultural variables that can influence academic performance, but there could be other population factors that can provide information about academic performance, such as SES or ethnicity. Future investigations could identify and test the potential effect of such cultural variables and their population origins, including SES, ethnic group, religion or region for both Mapuche and non-Mapuche, boys and girls. It is worthy of note that there are aspects of fatalism as well as cognitive and emotional factors that operate particularly for Mapuche and non-Mapuche, boys and girls. For example, the same factors and the same structure of the relations between the variables predict academic performance for the two ethnic groups. There are some factors, however, that influence academic performance in Mapuche and non-Mapuche students differently, which highlights the importance that future investigations should systematically examine the apparently moderating role that ethnic origin may play. This could imply, for example, that even though poverty levels or fatalism are the same for Mapuche and non-Mapuche students, these could affect students from one or the other ethnic group differently. The same could also hold in the case of boys and girls.

Finally, among the limitations of the present study, it is important to emphasize that the participants self-identified as Mapuche or non-Mapuche. It would be interesting to be able to corroborate whether the ethnic origin stems from both parents, as well as the level of ethnic identity that the participants exhibit. Finally, some characteristics of the sample have to do with the fact that most of the participants belong to a lower middle SES, which limits the possibilities of analysis.

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