

FACTORIAL STRUCTURE AND RELIABILITY OF A PERCEIVED INFLUENCE

ON SELECTION OF A SPECIALIZED PLAN OF STUDIES, IPEP,

IN SECONDARY SCHOOL STUDENTS OF CHILLAN, CHILE

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Abstract

The process of vocational election is influenced by internal and external factors. However, there is no evidence of the influences on the election process of a specialized plan of studies that secondary students have to cope in the tenth year of the Chilean educational regular system.

To evaluate these factors, the scale of perceived influences on the election of a specialized plan of studies, IPEP, was built and in this study its factorial structure and reliability were evaluated. The instrument was applied to 115 students, chosen by quote sampling. They were students of a subsidized private secondary school from the city of Chillan, Chile.

An exploratory factorial analysis identified eight factors in the scale IPEP: Academic projection, Personal development, Maintenance of the social environment, Academic

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requirements, Satisfaction of others' expectations, Vocational information, Image of the plan and Family pressure.

The results present an initial factorial structure, that empirically and theoretically adequate, whose factors were reliable and conceptually useful. These factors distinguish psychogenic and sociogenic aspects of the vocational process, and allow to initiate diagnostic and investigative actions in relation to this early vocational election that is established in secondary schools of the Chilean educational system.

Keywords: Vocational choice – Vocational choice determinants – Secondary school students – Specialized plan of studies.

Adolescence and career choice

Adolescence is usually presented as a transition period between childhood and adulthood, in which the individual fully integrates to society as he begins to work and initiates his career (Ribas, 2003). In this direction, Erikson (1971), referring to central tasks in adolescence, in first place identified identity search, then separation from origin family and, in third place, the necessity of structuring a definition of identity in terms of vocational and career choice. Here, it is important to highlight that the process initiates when the adolescent starts to relate his past, present and future life, setting his plans and projects.

In our culture, adolescence is precisely where the necessity of occupational projection arises, and therefore more clearly delineates the conflicts for access to the adult world in vocational terms (Boholavsky, 1975). This vocational process is reprocessed, through findings, confusions, satisfactions and frustrations, into a synthesis that is expressed as a decision.

Despite this, it is currently known that career choice making ceased to be a circumscribed process at a given time, since it accompanies people through their lifetime (Vidal & Fernández, 2009; Teixeira & Dias, 2011). Nevertheless, it is in adolescence when the individual must face several tasks, like achieving maximum personal development, completing his socialization and accomplish a functional independence in his career scenario (Rivas, 2003). In this direction, Romero (1998) sustains that vocational development favors autonomy and personal commitment, allowing the individual to transit from external stimulus dependence, to personal autonomy and accountability. Thus, vocational choice would be a key both to achieve and to express the achievements of adolescence.

However, to achieve a vocational choice or definition, as it has been said, is a process in which a series of exploratory behaviors are implied, that allow the individual to gather information and to reflect on the choices he has, to choose the one that seems more appropriate. Among these behaviors, two directly interrelated dimensions would be included: self exploration, which explores the individual's interests and values, and environmental exploration, which directs his attention to the world of employment and educational opportunities (Teixeira & Dias, 2011). This coincides with the objective that, according to Rivas (2003), has vocational behaviors, through which the individual seeks to settle in a job that simultaneously satisfies individual personal development and social productivity.

Factors influencing vocational choice

Both vocational choice and behavior are product of a complex series of factors (Rivas, 1995; Hilário & Melo-Silva, 2011). According to Rivas (1995), vocational behavior is a result of the interaction between psychogenic and sociogenetic factors. Among the first would be those that are the individual's own, such as personal history, gender, belonging to a minority, vocational interests, expectations, aspirations, personality, skills and decision making. In the second series of factors, would be those that are external to the individual, and with a normative and social nature. These refer to the requirements that involve the tasks he faces, but also includes elements such as the influence of the family, the workplace, the educational system, and situations (Rivas, 1995; 2003).

One of the most studied factors, among the psychogenic, are the individual's vocational preferences. This, considering is it one of the factors that most influence is attributed in the desertion of university careers (Centro de Microdatos, 2008). In this direction, numerous instruments have been created and tested to assess vocational preferences, in order to advise more accurate choice from those who are going to choose a career (Gottfredson & Johnstun, 2009). Some of these instruments are validated in different Spanish-speaking populations (Marín-Ortíz, Ortega & Sierra, 2002; Fogliatto, Pérez, Olaz & Parodi, 2003; Martínez & Valls, 2006; Pérez & Cupani, 2006).

Among the sociogenetic factors influencing the decision, we could include those mentioned by Hilário & Melo-Silva (2011): in first place, the social, political, economic and cultural context in which the individual is inserted, and then, in a more specific way, his family, peers, educational training and the world of work. In this regard, and in 1980, Fogliatto, Rovere, Alderete & Hagopían (1980) recognized that vocational choice is influenced by the

norms, values, beliefs and skills valued by each social context in which the individuals are inserted.

In a more circumscribed level, family has been recognized as a second source of influence in vocational decisions, and the effects both of the structural features (socioeconomic status, ethnicity, family configuration, etc.) and dynamic features (parental support, father-son interaction, etc.), have been systematically studied. To this, evidence shows that parents affect in several ways, varying levels of directivity, specificity and intentionality (Carvalho & Taveira, 2010); and, although their interference depends on their educational level, their support can be fundamental for takings and maintaining career choice (Hilário & Melo-Silva, 2011).

Nevertheless, significant others can influence the decisión as well, like teachers that can directly or indirectly influence in interaction with other actors (Carvalho & Taveira, 2010), or friends and social environment, considering that in adolescence individuals are especially vulnerable to external influences (Aberastury & Knobel, 1971).

High school differentiated plans and career choice

As it has been said, vocational decision-making is a process that takes lifetime, but adolescence is a especially relevant moment to face this task. Added to this is that there are times when all individuals are forced to decide, such as the time when they are asked to choose subjects, topics or when high school is over (Rivas, 2003). Despite the fact that this last moment, previous to a technical or professional career choice, has been widely studied, the Chilean educational system has a previous moment that faces students to vocational

choice, and that hasn't received more coverage from the scientific community: the selection of a differentiated plan they enter once in third year of high school.

In the Chilean educational system, since 1998, the high school curriculum reform changed the traditional distinction between general and vocational education, establishing the categories of General Education and Differentiated Education (Mineduc, 1998). Therefore, once students finish the second year of high school, the ones that study in General Education must choose an alternative of differentiated education which the school offers. This alternative addresses the skills and personal interests, and vocational dispositions of the students, harmonizing their individual decisions with the necessity of personal development, in terms of growth, identity and self-affirmation, with the national culture's requirements, and the country's productive, social and citizen development (Mineduc, 1998).

Differentiated education groups the mandatory objectives and contents correspondent to the several differentiation or specialization plans that high school education offers in its two modalities. It starts from third year of high school (eleventh year of schooling), and varies according to the specialization plans that each school offers, in accordance with their curricular definitions and with student's interests and skills. From the personal development point of view, the differentiated education ambit is based in the necessity of serving the skills and personal interests, and vocational dispositions of the students, harmonizing their options with the requirements of productive, social, cultural and citizen development of the country, and of the region or locality.

In the case of Scientific-humanist high school education, differentiated education consists in objectives and curricular contents that expand or deepens subjects of General Education, that involves the dedication of extra time, and that looks to respond to skills, interests or exit expectations of the students. Differentiated education articulates, in every one of its channels or options, a reduced number of subjects.

The aim of this study

Even though high school students will be submitted, once they finish this stage, to an instance in which they must express their vocational choices, will need to anticipate this decision, or at least, rehearse it in the second year of high school, when they choose the differentiated plan to study. However, there is scarce knowledge about what happens to them in this moment, especially regarding the factors that determine their decision, which could or could not be analogous to the ones that are already documented for other moments of vocational decision.

Considering that the factors influencing the choice of a vocational plan may be key to understand this early vocational behaviors, and given that knowing them could benefit promoting, preventive and remedial actions around students' decision-making, decreasing the consequences of a bad choice (dissatisfaction, academic problems, etc.); is of great importance to have tools that allow an accurate and consistent assessment of this phenomenon. In this direction, the present study proposes a self report instrument to identify the factors that, according to the students, influence the vocational plan choice, and evaluates the factor structure and its reliability as initial evidence of its psychometric quality.

METHODOLOGY

The present psychometric study has an analytic-relational scope. It was conducted through a non experimental and transectional design.

Participants: the study addressed students from a private school that attends a high socioeconomic status population in the city of Chillán, Chile. These students were studying, at the moment of the research, third year of high school in a differentiated plan, including students from humanist, biological – mathematical and mathematical plans. Third year was chosen given that these students had already made the plan choice in the previous year. A 115 students sample was surveyed, elected through a non-probability sampling by quotes, of which 61 (53.04%) were men and 45 (46.96%) were women, reporting ages between 15 and 19 years, with a mean age of 16.30 (*S.D.* = 0.50) years.

Instruments: students were administered the scale of Perceived Influences on the Choice of a Differential Plan (IPEP, in Spanish), that aims to identify the internal and external pressure factors that students experimented at the moment they had to define which differentiated plan they would study at third year of high school. The IPEP questionnaire format has 42 items, that submit the feelings, thoughts, opinions and preferences that students experienced the year previous to the plan election, and that throw in different influence sources. For each one of them, the student must answer, choosing one of five alternatives: 0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Frequently and 4 = Almost always. The questionnaire was elaborated by the researchers, considering the types of influences experienced by students according to scientific literature and according a previous exploratory study conducted by the researchers through focus groups of students belonging

to various differentiated plans (Ampuero & Muñoz, 2011). Once the instrument was built, it was stood to experts' trial.

Additionally, students answered a sociodemographic questionnaire, in which they informed their gender, age, academic year, school's exit year, courses failed, parents' educational level and religion.

Procedure: the questionnaire administration was conducted by the researchers, who located students that fulfilled the inclusion criteria, and that belonged to the three differentiated plans that schools offer. Before the administration, each participant must read and sign an informed consent, which indicates the study's general objective, the names and institution of the execution team, the requirements associated to their collaboration, and the guarantee of confidentiality and voluntariness of their participation.

For the processing of the data, the STATA SE 11.0 Statistic Package was used.

RESULTS

First, the feasibility of applying factor analysis to the data was assessed, calculating the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy test and Bartlett's test of sphericity, obtaining a KMO=0.65 and a statistically significant Bartlett test, $Chi^2(861) = 1930.54; p < 0.001$. Both endorsed the adequacy of the analysis.

Then, to estimate the group of factors, the Kaiser-Guttman (eigenvalue) rule (Hair, Anderson, Tatham & Black, 2004) was assessed, finding eight eigenvalues factors above 1.0 (5.30, 4.34, 2.79, 1.85, 1.78, 1.53, 1.21 y 1.19, respectively), that would explain 81.51% of the items' total variance.

Complementarily, and given the limitations identified with the previous method (Buja & Eyuboglu, 1992), the Horn's Parallel Analysis was calculated, based on 5000 random samples, which also pointed to the existence of eight eigenvalues factors (5.30, 4.34, 2.79, 1.85, 1.78, 1.53, 1.21 y 1.19) over 95% of random samples obtained (being the 95th percentile in these cases: 1.80, 1.69, 1.51, 1.36, 1.31, 1.20, 1.17 and 1.02.)

These results obtained, the decision to evaluate the eight factor solution was made, since it coincided two criteria. Nevertheless, when assessing the items' organization in this factorial structure, which was assessed through the configuration coefficients calculated with AEP applying Oblimin's oblique rotation, the item 12 ("I realized that everyone in my family have the same likes and skills") was identified as having factor loads below the 0.30 threshold, considering the appropriate minimum to define the relevance of an item to a factor (Hair et al., 2004). For this reason, given that the item's biggest load was 0.29 in the factor 6, and that its statement points more to a student's conclusion than to the perception of external pressure, it was decided to eliminate the item and to perform the analysis anew with the remaining 41 items. With this new 41 items set, a 0.66 KMO statistic was obtained, and a statistically significant Bartlett test, $Chi^2(820) = 1878.14$; $p < 0.001$, endorsing again the realization of the analysis.

In estimating the number of factors, the Kaiser-Guttman criteria once again identified eight eigenvalues factors above 1.0 (5.29, 4.23, 2.78, 1.82, 1.72, 1.48, 1.20 y 1.18, respectively), that would explain 83.08% of the items' total variance, and Horn's Parallel Analysis, based on a 5000 random samples, coincided again in the heptafactorial structure, by identifying that 8 of the calculated factors in the scale's correlations matrix had eigenvalues (5.29, 4.23, 2.78, 1.82, 1.72, 1.48, 1.20 y 1.18) above the 95% of the eigenvalues obtained in the

random samples (being the 95th percentile in these cases: 1.92, 1.59, 1.50, 1.36, 1.27, 1.15, 0.99 y 0.92).

Given these results, the organization of the 41 items in a structure of 8 factors was assessed, calculating the configuration coefficients for each item in each factor, through Principal Axis Analysis, applying Oblimin's oblique rotation, Tables 1 and 2.

Table 1. IPEP Scale Configuration Matrix (without item 12), obtained through Principal Axis Analysis with Oblimin rotation.

Nº	Item	I	II	III	IV	V	VI	VII	VIII
1	Sentía deseos de elegir un plan donde estuviera cerca de mis amigos (as). [<i>I wished to choose a plan in which I could be close to my friends</i>].	-0.024	-0.027	0.705 ^a	-0.164	-0.005	-0.022	0.092	0.008
2	Algunos familiares me sugerían que estudiara un plan en lugar de otro. [<i>Some of my relatives suggested me to study one plan in place of another</i>].	-0.087	0.032	0.073	-0.113	-0.103	0.249	0.189	-0.481
3	Me preocupaba quedar lejos de mis amigos (as) en el plan que elegí. [<i>I was concerned about being distanced from my friends in the plan I chose</i>].	0.010	-0.011	0.660	-0.174	0.089	0.121	0.005	0.175
4	Creía que era importante elegir un plan que fuese bien visto por los demás. [<i>I thought that it was important to choose a plan that was well regarded by others</i>].	-0.016	-0.104	0.338	0.003	0.208	0.113	0.425	-0.021
5	Creo que las conversaciones que tuve con mis padres influyeron en mi elección del plan. [<i>I think that the conversations I had with my parents influenced my choice of plan</i>].	-0.009	-0.157	0.069	-0.049	0.637	0.163	0.099	-0.186
6	Era muy importante para mí que mis padres apoyaran mi elección del plan. [<i>It was very important to me that my parents supported my plan election</i>].	-0.065	0.044	0.001	-0.023	0.518	0.059	-0.011	-0.005
7	Ignoraba los comentarios de mi familia sobre la elección de planes. [<i>I ignored my family's comments about plans election</i>].	0.140	-0.095	0.035	-0.014	0.452	-0.088	-0.084	-0.044
8	Las actividades vocacionales realizadas en el colegio (charlas, ferias, etc.) fueron de ayuda para elegir el plan. [<i>The vocational activities carried in my school (speeches, etc.), helped me choose a plan</i>].	0.062	-0.152	-0.059	-0.014	0.023	0.769	-0.072	0.012
9	Las conversaciones con los profesores me ayudaban a aclarar mis dudas vocacionales. [<i>The conversations I had with my teachers helped me clarify my vocational doubts</i>].	-0.029	-0.125	0.024	0.076	-0.020	0.686	0.186	-0.121
10	Las opiniones que mis amigos (as) tenían sobre mi elección fueron fundamentales para mi decisión final. [<i>The opinions that my friends had about my choice were</i>	-0.073	0.143	0.494	0.228	0.229	-0.061	0.119	0.032

	<i>fundamental for my final decisión</i>].								
11	Los profesores me sugerían que estudiara un plan en particular. [<i>Teachers suggested me to study one plan in particular</i>].	-0.282	-0.046	0.217	0.049	-0.166	0.085	0.343	-0.154
13	Me interesaba que el plan me permitiera profundizar en los temas que me gustan. [<i>I was interested that the plan allowed me to deepen in the subjects I like</i>].	0.689	0.071	-0.075	-0.149	0.075	0.043	0.328	0.190
14	Me interesaba saber si mis amigos (as) apoyaban el plan que había elegido. [<i>I was interested to know if my friends supported the plan I chose</i>].	-0.211	0.243	0.132	0.194	0.323	-0.033	0.274	0.012
15	Me preocupaba el prestigio del plan que iba a elegir. [<i>I was worried about the prestige of the plan I was going to choose</i>].	-0.033	-0.058	0.050	0.246	0.397	0.043	0.379	0.052
16	Me preocupaba lo difícil que sería adaptarme a un nuevo grupo de compañeros. [<i>I was concerned about how hard it would be to adapt to a new group of peers</i>].	0.088	-0.039	0.527	0.060	-0.144	-0.153	0.184	-0.177
17	Me preocupaba quedar con compañeros (as) que me desagradan. [<i>I was concerned about being in the same plan with people I don't like</i>].	0.134	0.013	0.252	-0.128	-0.039	-0.040	0.554	-0.104
18	Mi familia apoyaba mis decisiones en torno a la elección de un plan. [<i>My family supported my decisions regarding a plan election</i>].	-0.106	-0.067	0.038	-0.042	-0.025	0.111	0.013	0.752
19	Mi familia me dio la libertad de elegir el plan que yo quisiera. [<i>My family gave me the freedom to choose the plan I like</i>].	0.036	0.043	0.062	0.063	-0.129	-0.016	0.039	0.738
20	Mi familia me señalaba que les gustaría que yo siguiera con la tradición familiar. [<i>My family told me that they would like me to stay with the family tradition</i>].	-0.104	0.150	0.181	0.159	0.024	0.409	-0.132	-0.117
21	Mis padres me recomendaban planes que se ajustaban a las características que ellos veían en mí. [<i>My parents recommended me plans that adjusted to the features they saw in me</i>].	-0.128	0.331	-0.061	0.014	0.287	0.070	0.072	-0.151
22	Nos poníamos de acuerdo con mis amigos (as) sobre qué plan elegir. [<i>We would agree with my friends about what plan to choose</i>].	-0.043	0.040	0.547	0.049	0.138	0.089	-0.044	0.038
23	Para elegir el plan consideré cuáles eran los puntajes en la PSU que tenían sus egresados. [<i>To choose a plan, I considered the PSU scores their graduated had</i>].	-0.006	-0.070	0.037	0.548	0.079	0.086	0.040	0.088
24	Pensaba elegir un plan con asignaturas que se relacionaran con la carrera que quiero estudiar. [<i>I thought of choosing a plan with subjects that related to the career I want to study</i>].	0.818	-0.062	0.104	0.155	-0.038	-0.075	-0.043	0.012
25	Pensaba elegir un plan que me permitiera alcanzar la carrera que deseo. [<i>I thought about choosing a plan that allowed me to achieve the career I want</i>].	0.740	-0.072	0.071	0.273	0.074	-0.026	-0.229	-0.053
26	Pensaba elegir un plan que me preparara para quedar seleccionado en una buena universidad [<i>I thought about choosing a</i>	0.486	-0.109	0.010	0.452	0.146	-0.088	-0.130	0.019

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*plan that would prepare me to be admitted
into a great university].*

Table 2. IPEP Scale Configuration Matrix (without item 12), obtained through Principal

Axis Analysis with Oblimin rotation (*continuation*).

<i>Nº</i>	<i>Item</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>VI</i>	<i>VII</i>	<i>VIII</i>
27	Pensaba en escoger un plan que estuviese acorde con mis intereses. [<i>I thought about choosing a plan that was consistent with my interests</i>].	0.883	0.019	-0.048	-0.083	0.026	0.136	0.076	-0.086
28	Quería elegir un plan que fuese coherente con mis planes futuros. [<i>I wanted to choose a plan that was consistent con my future plans</i>].	0.786	0.077	0.070	0.022	-0.026	0.009	-0.162	-0.111
29	Quería elegir un plan que me asegurara subir mi promedio de notas de enseñanza media (NEM). [<i>I wanted to choose a plan that assured me I would raise the mean of my high school grades (NEM)</i>].	-0.042	0.402	-0.059	0.065	0.194	0.073	0.016	-0.085
30	Quería elegir un plan que me ayudara a ampliar mis conocimientos en mi área de interés. [<i>I wanted to choose a plan that would help me amplify my knowledge in my interest area</i>].	0.740	0.150	-0.099	-0.009	-0.086	0.087	0.275	0.139
31	Quería elegir un plan que me ayudara a desarrollar hábitos de estudio. [<i>I wanted to choose a plan that would help me develop study habits</i>].	-0.154	0.247	-0.196	0.478	0.153	0.217	0.110	0.077
32	Quería elegir un plan que me diera herramientas para desarrollar mis habilidades intelectuales. [<i>I wanted to choose a plan that would give me tools to develop my intellectual skills</i>].	0.202	0.206	-0.202	0.387	-0.318	0.229	0.201	0.187
33	Quería elegir un plan que me diera herramientas para desarrollar mis habilidades sociales. [<i>I wanted to choose a plan that would give me tools to develop my social skills</i>].	-0.065	0.636	0.008	0.138	0.049	-0.137	0.142	-0.044
34	Quería estar en un plan que me permitiera conocer otras personas. [<i>I wanted to be in a plan that allowed me to meet other people</i>].	-0.087	0.664	0.264	0.113	-0.100	-0.119	-0.005	0.167
35	Quería un plan que me entregara los conocimientos necesarios para tener buenos resultados en la universidad. [<i>I wanted a plan that gives me the required knowledge to have good outcomes in university</i>].	0.141	0.068	-0.111	0.551	-0.284	-0.048	0.014	-0.069
36	Quería un plan que me permitiera desarrollar mis habilidades personales. [<i>I wanted a plan that would allow me to develop my personal skills</i>].	0.121	0.466	-0.280	0.124	-0.011	-0.063	0.337	-0.098
37	Quería un plan que me preparara para el nivel de exigencia de la universidad. [<i>I wanted a plan that would prepare me for the level of requirements of university</i>].	0.093	0.107	-0.010	0.449	-0.170	0.041	-0.217	-0.060
38	Sentía deseos de seguir siendo compañero (a) de mi grupo de amigos (as) hasta cuarto medio. [<i>I wished to continue being classmates with my group of friends until last year of high school</i>].	0.152	0.237	0.388	0.023	-0.024	0.270	-0.101	-0.147
39	Sentía que debía elegir un plan que	0.239	0.643	0.036	-0.089	-0.068	0.066	-0.175	0.006

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	favoreciera mi crecimiento personal. [<i>I felt I had to choose a plan that favored my personal growth</i>].								
40	Sentía que debía escoger un plan que reforzara mis cualidades personales. [<i>I felt I had to choose a plan that strengthened my personal qualities</i>].	0.084	<i>0.690</i>	0.004	-0.104	-0.119	0.043	-0.100	0.028
41	Sentía que mis intereses eran cada vez más parecidos al de mi grupo de amigos (as). [<i>I felt that my interests were increasingly similar to the ones my group of friends had</i>].	0.072	0.214	0.101	-0.048	<i>0.473</i>	0.071	0.027	0.160
42	Tomaba en cuenta los resultados de los test vocacionales para tomar mis decisiones. [<i>I considered the results of vocational tests to make my decisions</i>].	0.137	0.100	0.012	0.006	0.047	<i>0.576</i>	-0.044	0.221

^a *Italics indicate loads above 0.30*

(i) Indicates that the item is codified inversely.

The factorial loads exhibited in Tables 1 and 2, show that every item presents at least one configuration coefficient above .30. However, the items 4, 13, 25, 26 and 36 presented two loads above the threshold, so its assignment to a specific factor was subjected to an analysis that integrated empirical (configuration coefficient) and theoretical-conceptual criteria.

When doing this, only item 15 was assigned to the factor in which its second biggest load presented, even though both were similar (0.379 against 0.397).

Thereby, factors were set as follows:

- *Factor I:* Including items 27, 24, 28, 25, 30, 13 and 26 (sorted from highest to lower loads), would aim to the extent to which the student orientated about his future plans, whether professional or academic, to make the choice. For this reason it was called *Academic Projection*. When analyzing the scale's internal consistency, an $a = 0.77$ Cronbach's Alpha was obtained, with correlations between items and corrected total from $r = 0.04$ (item 27) to $r = 0.73$ (item 24).
- *Factor II:* Conformed by items 40, 34, 39, 33, 36, 29 and 21, it would aim to the extent to which the student considered the choice as a way of developing his personal attributes through the elected plan, so called *Personal Development*. The scale

presented an $a = 0.74$ reliability, with correlations between items and corrected total from $r = 0.26$ (item 21) to $r = 0.61$ (item 33).

- *Factor III*: including items 1, 3, 22, 16, 10 and 38 that allude to the extent to which the student considered electing a plan in which he would stay close to his peers. For this reason it was called *Social Environment Maintenance*. Its reliability was of $a = 0.71$, with correlations between items and corrected total from $r = 0.35$ (item 38) to $r = 0.59$ (item 3).

- *Factor IV*: Grouping the items 35, 23, 31, 37 and 32, which make reference to the extent to which the student thought of picking an alternative that enhanced his academic skills that prepared him for university's requirements, therefore was called *Academic Exigency*. Its reliability was of $a = 0.66$, with correlations between items and corrected total from $r = 0.36$ (item 23) to $r = 0.51$ (item 32).

- *Factor V*: Subsuming items 5, 6, 41, 7 and 14, which aims to the extent to which the students sought to make decisions consistent with the expectations of their families or friends, so called *Satisfaction of others' expectations*. Its reliability was of $a = 0.65$, with correlations between items and corrected total from $r = 0.25$ (item 7) to $r = 0.53$ (item 5).

- *Factor VI*: including items 8, 9, 42 and 20, which refer to the extent to which the students had information from different sources (vocational activities, teachers, family), to make their decision, so called *Vocational Information*. Its reliability was of $a = 0.68$, with correlations between items and corrected total from $r = 0.29$ (item 20) to $r = 0.65$ (item 8).

- *Factor VII*: includes items 17, 4, 15 and 11, which refer to the extent to which the students considered the plan's prestige and environment to make their decision, so

called *Image of the Plan*. Its reliability was of $\alpha = 0.57$, with correlations between items and corrected total from $r = 0.24$ (item 11) to $r = 0.50$ (item 4).

- *Factor VIII*: Including items 18, 19 and 2, which refer to the level of influence that the student perceived from his family, to restrict and direct his election, versus those who felt supported and free to choose what they wanted. Thus, it was called *Family Pressure*. Its reliability was of $\alpha = 0.61$, with correlations between items and corrected total from $r = 0.36$ (item 2) to $r = 0.52$ (item 19).

Later, the relationship between these factors was assessed, using the r of Pearson correlation coefficient, through a bilateral contrast. Results indicate statistically significant direct correlations between Academic Exigency and Academic Projection, $r(113) = 0.29$; $p < 0.01$, Personal Development, $r(113) = 0.34$; $p < 0.001$, and Vocational Information, $r(113) = 0.25$; $p < 0.01$; between Satisfaction of others' expectations and Personal Development, $r(113) = 0.19$; $p < 0.05$, Social Environment Maintenance, $r(113) = 0.28$; $p < 0.01$, Vocational Information, $r(113) = 0.19$; $p < 0.05$, and Image of the Plan, $r(113) = 0.28$; $p < 0.01$, and finally, between Image of the Plan and Social Environment Maintenance, $r(113) = 0.42$; $p < 0.001$, Table 3.

Table 3. Pearson correlation between IPEP Questionnaire factors.

	1	2	3	4	5	6	7	8
1. Academic Projections	0.77 ^a							
2. Personal Development	0.16	0.74 ^a						
3. Social Environment Maintenance	0.10	0.12	0.71 ^a					
4. Academic Exigency	0.29**	0.34***	0.01	0.66 ^a				
5. Satisfaction of others' expectations	0.01	0.19*	0.28**	0.04	0.65 ^a			
6. Vocational Information	0.15	0.18	0.17	0.25**	0.19*	0.68 ^a		
7. Image of the Plan	0.11	0.09	0.42***	0.02	0.28*	0.17	0.57 ^a	

8. Family Pressure	-0.15	0.07	0.18	-0.06	0.07*	0.09	0.17	0.61 ^a
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$N = 115$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$
^a Scale's Cronbach's Alpha reliability Coefficient.

CONCLUSIONS

Even though career choice is a widely developed topic, and that the influence of an appropriate decision-making in university academic success and professional development is recognized, not enough attention has been paid to one of the first instances in which the Chilean educational system leads students to question their career future systematically: the election of a differentiated plan to study in third year of high school.

Given the need to start systematically researching this phenomenon, and given the absence of instrument to do so, the present study proposed an instrument to assess the factor influencing this decision. Results indicate a structure of eight factors that influence the differentiated plan election in high school students, namely: Academic Projections, Personal Development, Social Environment Maintenance, Academic Exigency, Satisfaction of others' expectations, Vocational Information, Image of the Plan and, finally, Family Pressure, having all of these an appropriate internal consistency.

In conceptual terms, these factors allow to distinguish between psychogenic and sociogenetic aspects mentioned by Rivas (1995; 2003). Among the first, we would count Academic Projections, Personal Development and Academic Exigency, in which the individual, when feeling like being motivated by his own interests and motivations, is able to distinguish the search for academic and professional success, from the search of wellness and the development of his own skills. Also, he is capable to distinguish, in the Academic

Exigency factor, when the plan's election is only understood as a way to ensure a greater success in university.

The other five factors would point to sociogenetic factors, in which the student can distinguish when the focus is in maintaining social relationships with peers, or when it's in satisfying other's wishes. Further, he can distinguish if he has been driven by family influence. In this case, the significant others pointed by Carvalho & Taveira (2010), would be differentiated both in the target group (family/friends/other in general), and in terms of the intention (satisfy/be with). Among these factors appears the weight of the family, which is probably the one that has received more attention in research (Carvalho & Taveira, 2010; Hilário & Melo-Silva, 2011), but also appear other dimensions that would allow to enrich the approach to the phenomenon, including peers, whose role as a referent increases in adolescence (Aberastury & Knobel, 1971).

Additionally, among the sociogenetic factor would be the Vocational Information and Image of the Plan factors, in which the individual can distinguish between the concerns to gather information about the plan's operation, from the concerns that only aims to know what the image or value the plan has to other people.

The fact that only some statistically significant correlations were found between the factors, also endorses the relative independence of these, which is consistent considering they report to conceptually different sources within a complex web of factor influencing vocational choices (Hilário & Melo-Silva, 2011). The few significant correlations found, however, support the relevance of the labels assigned to the phenomena, like the one existing between Image of the Plan, Satisfaction of Others' Expectations and Social Environment Maintenance, evidencing that those factors that point to a concern to please

others, relate to each other, even though the medium intensity of these correlations supports that, despite them being independent, they are separate entities.

On the other hand, the search for Academic Exigency is related both to Academic Projections and Personal Development, even though these two last do not present significant correlations between each other. This is consistent with the idea that preparation for university serves as a way to guarantee better opportunities both to develop as an individual, and as a professional, despite the fact that there is no relationship between these two factors.

For future research, it is still pending both the relative weight that each of these factors has in the decisions students make, and their effects in other career choice associated variables, like students' satisfaction with their election, academic performance or school motivation the next year. However, this study provides initial evidence regarding the psychometric adequacy of the IPEP scale, to continue researching the topic.

It is necessary to consider, however, that this study was conducted in a private school that attends high socioeconomic status students, thus, the profile, expectations and access opportunities to Chilean universities of the sample cannot be generalized to the great majority of students in the country. Because of this, it is necessary to continue with IPEP scale psychometric studies, administering it in samples that are more heterogeneous and representative of Chilean students in general, expanding the research, in first place, to public schools.

References

Aberastury, A. & Knobel, M. (1971). *La adolescencia normal*. Buenos Aires: Paidós.

- Ampuero, P. & Muñoz, C. (2011) *Factores que influyen en la elección de un plan diferencia de estudio en enseñanza media y satisfacción con la desición tomada*. Tesis para optar al grado de Magíster en Psicología de la Adolescencia, Universidad del Desarrollo, Concepción, Chile.
- Bohoslavsky, R. (1975). *Lo Vocacional: Teoría, Técnica e Ideología*. Buenos Aires: Búsqueda.
- Carvalho, M. & Taveira, M. C. (2010) O papel dos pais na execução de planos de carreira no Ensino Secundario: Perspectivas de pais e de estudantes. *Análise psicológica*, 2(28), 333-341.
- Centro de Microdatos, Universidad de Chile (2008) *Estudios sobre causas de la deserción universitaria*. Santiago de Chile: Universidad de Chile.
- Erikson, E. (1971). *Identidad, juventud y crisis*. Buenos Aires: Paidós.
- Fogliatto, H., Rovere, A. M., Alderete, A. M. & Hagopían, C. (1980) Los cuestionarios de intereses: Un análisis crítico. *Revista Latinoamericana de Psicología*, 12, 503-512.
- Fogliatto, H., Pérez, E., Olaz, F. & Parodi, L. (2003) Cuestionario de intereses profesionales revisado (CIP-R). Análisis de sus propiedades psicométricas. *Evaluar*, 3, 61-79.
- Gottfredson, G. & Johnstun, M. (2009) John Holland's contribution: A theory-ridden approach to career asistanse. *The career development quarterly*, 58 (2), 99-107.
- Hilário, F. & Melo-Silva, L. (2011) Influência dos pais no processo de escolha profissional dos filhos: uma revisão da literatura. *Psico-USF*, 16 (1), 75-85.
- Martín-Ortiz, J. D., Ortega, V. & Sierra, J. C. (2002) Análisis factorial de la escala subjetiva de intereses y aptitudes vocacionales (ESIAV). *Universitas psychologica*, 1(1), 31-39.
- Martínez, J. M. & Valls, F. (2006) La elección vocacional y la planificación de la carrera. Adaptación española del Self-Directed Search (SDS-R) de Holland. *Psicothema*, 18 (1), 117-122.
- Ministerio de Educación de Chile, MINEDUC (1998) *Objetivos Fundamentales y Contenidos Mínimos Obligatorios de la Educación Media*. Santiago: Autor.
- Pérez, E. & Cupani, M. (2006) Desarrollo y validación de un inventario de intereses vocacionales: El CIP-4. *Psicothema*, 18, 2, 238-242.
- Rivas, F. (1995) *Manual de asesoramiento y orientación vocacional*. Madrid: Síntesis.
- Rivas, F. (2003) Conducta y asesoramiento vocacional en la adolescencia. *Papeles del psicólogo*, 84, 18-34.
- Romero, H. (1998). *Introducción Conceptual a la Orientación Vocacional*. Río Cuarto: Universidad Nacional de Río Cuarto.
- Teixeira, M. & Dias, A. (2011) Escalas de exploração vocacional para estudantes de ensino medio. *Estudos de Psicologia, Campinas*, 28(1), 89-96.
- Vidal, M. & Fernández, B. (2009). Orientación vocacional. *Educación Médica Superior*, 23(2), 0-0.