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Artículos Científicos

Diseño y validación de una escala para intereses propedéuticos en México

Design and Validation of a Scale for Propaedeutic Interests in Mexico

Projeto e validação de uma escala para interesses pediátricos no México

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Resumen

Con el objetivo de diseñar y validar una escala de tipo Likert para la valoración de los intereses propedéuticos de los estudiantes del sistema de bachillerato general en México, se realizó un estudio en donde participaron 56 voluntarios distribuidos en tres grupos. El primero, con el propósito de establecer el juicio de expertos, se compuso de seis profesionistas de la educación con experiencia en el ámbito de la evaluación y la orientación vocacional; el segundo, con la finalidad de establecer la aplicación de una prueba piloto, estuvo integrado por 10 estudiantes de nivel bachillerato, y el último grupo, para la obtención de resultados, por 40 alumnos también de bachillerato. La escala aplicada se construyó con base en los lineamientos de los programas de estudio expresados en los documentos publicados por la Secretaría de Educación Pública (SEP) vigentes al año 2017. Los resultados se analizaron con programas estadísticos y se obtuvo un alfa de Cronbach de 0.870, lo que indica una estabilidad y consistencia fiable de la escala.

Palabras clave: área propedéutica, intereses propedéuticos en México, orientación educativa.

Abstract

Having the objective of designing and validating a Likert-type scale to the propaedeutic interest valuation of the high school diploma students in México, a study was brought about involving 56 volunteers. In order to run this test three groups have been put together. The first one, chosen with the purpose of establishing the expert's discernment, was compounded by six education professionals with experience in vocational orientation and evaluation; the second one was integrated by 10 students leading to a pilot testing end, and the third group was constituted by 40 high school diploma students with the purpose of obtaining the study outcomes. The applied scale was built on a study program guideline basis stated on the documents published by Secretaría de Educación Pública (SEP) in force up to 2017. The outcomes were analyzed through statistics programs where a Cronbach's alpha at a rate of 0.870 is suggested. This indicates a consistency and stability scale trustworthy index.

Keywords: propaedeutic area, propaedeutic interests in México, educational guidance.

Resumo

Para projetar e validar uma escala do tipo Likert para a avaliação dos interesses pediátricos dos estudantes do sistema geral de bacharelado no México, foi realizado um estudo envolvendo 56 voluntários distribuídos em três grupos. O primeiro, com o objetivo de estabelecer o parecer de especialistas, era composto por seis profissionais da educação com experiência no campo da avaliação e orientação profissional; o segundo, para estabelecer a aplicação de um teste piloto, foi composto por 10 alunos do ensino médio e o último grupo, para obter resultados, para 40 alunos do ensino médio. A escala aplicada foi construída com base nas diretrizes dos programas de estudo expressas nos documentos publicados pelo Ministério da Educação Pública (SEP) em vigor em 2017. Os resultados foram analisados com programas estatísticos e foi obtido um alfa de Cronbach de 0,870. , o que indica uma estabilidade e consistência confiáveis da balança.

Palavras-chave: área pré-terapêutica, interesses pró-terapêuticos no México, orientação educacional.

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Introduction

In general terms, educating is constituted as the activity that includes the design, sequencing and development of performance criteria that are conventionally considered pertinent and adequate for an individual to adapt and be productive in a society.

Within the framework of formal education, that is, education with institutional parameters (Trilla, 1988; Turbay, 2000; Lebrún, 2015; Gómez, 2017), this task involves activities from different academic fields in which the disciplines of physics, chemistry, biological, psychological, anthropological and social - from its different edges such as sociology, economics and political science, among others.

In its most honest version, the fundamental mission of education is to make the learner modify his behaviors in order to meet the knowledge criteria that society demands in order to become a full individual. This generates the need to study what are the necessary and sufficient conditions for the achievement of this purpose, that is, for the achievement of learning.

Under this consideration is that psychology has positioned itself as a sine qua non discipline of education, in the sense that it has appropriated the area of learning and has included it in its repertoire of categories specific to its field of research, to from which it has had a great influence on school contexts and has generated educational trends such as behaviorist, constructivist, cognitive and social, among others.

In this context, one of the fields of interest has been that of orientation, which has been developed from different points of view from mechanistic, organicist, contextualist and probabilistic epigenetic models (Sánchez and Valdés, 2003). Models that inadvertently generate descriptions whose livelihoods contain two general problems: 1) use mentalistic metaphors in their descriptions and 2) resort to species crosses to explain their assumptions (Ryle, 1949).

Orientation is an activity whose purpose consists in the personal and social development of the individual, and through which self-esteem, human relationships are promoted and attention is given to the needs and interests of this, of the subject, according to their potential, skills and abilities (Molina, 2004). In the educational field, it is the attention towards the student to solve problems related to his academic life.

In Mexico, the orientation emerges as a teaching service aimed at the correct choice of professional careers by students, and whose teachers are responsible for the various middle and upper secondary schools.

Even when there are documents that point out the importance of orientation in the student's school life, two initial problems are distinguished: 1) there is no abstract research of comprehensive scope and 2) action strategies relevant to such research for such activity are never established.

This has resulted in each counselor operating under their own criteria and that, many times, even if they are supported by research and development, they do not have their own instruments that evaluate under the characteristics and context of our country and its system. educational.

Specifically in the case of Mexican higher secondary education, there are two stages in which orientation plays a fundamental role, which consists in the choice of the propedical and professional career area.

For the first case, the student who travels from the fourth to the fifth semester of the baccalaureate level must choose between a different number of propedical options, which aim to stimulate in the student the pertinent competences for each disciplinary field and thus can achieve a preparation and an ideal development in your higher academic life.

The second case consists in the choice of a professional career that, based on an initial pro-therapeutic preparation, is a more specific preference about the disciplinary core that will govern your academic and professional life.

In none of the two cases mentioned are there documents that direct courses of action under psychological theoretical support, their application and pertinent instruments to carry out educational guidance in Mexico. The basic documents only prescribe the use of vocational tests for the exercise of the orientation, but they do not establish the methodological strategy as to which theory should support such activity and what are the ideal techniques and instruments for doing so.

The existing documents are oriented more towards the information of the general guidelines on the actions that those responsible for vocational guidance should take than to the specific procedures and theoretical foundations of an orientation program as such.

In the specific case of the fourth semester students of the baccalaureate level so far, the relevant literature does not report research directed in this regard, while the studies are only limited to systems of orientation orientation and career choice. In addition, the documents offered by the Ministry of Public Education (SEP) do not specify the methodological work of the guidance professional regarding the evaluation, analysis, presentation of results and relevant information necessary for the student to make a well-founded and motivated choice.

In the first instance, it is argued that there is no instrument in our country that assesses the aptitudes and interests of students close to choosing a propedical area according to the study programs relevant to their social context. The SEP, even though it presents in its basic documents

the inclusion of professional vocational and educational guidance work, does not contemplate the precision of instruments, conceptual and methodological delimitation of said practice.

In the documents Educational guidance guidelines (SEP, 2010) and Educational guidance program (SEP, 2012a) mention is made of the activity of application and interpretation of vocational tests and psychological batteries; however, they are not specified which are to be used nor the forms of application and interpretation.

Within the Manual for the counselor (SEP, 2012b), four work areas are established under which the counselor must direct their educational activities: institutional, school, vocational and psychosocial.

Specifically for the vocational area, a series of activities, questionnaires, scales and case studies are distinguished, whose elements and indicators are not relevant or fully compatible with the competences to be developed, dictated by the current study programs.

For its part, the Manual to support educational guidance in higher secondary schools (2014) only establishes information about the concepts and functions of both vocational and educational guidance, avoiding any methodology for its development.

Although some instruments that include the dimensions of the programs and curricula can be located, such as the Conalep-Orienta Test (Becerril, 2014), their indicators are not the same as those contemplated in the documents of the General Directorate of the Baccalaureate (SEP, 2017), and, therefore, are not constituted as relevant materials for application to the general baccalaureate.

Likewise, it is argued that the use of instruments such as the Angelini Interest Inventory (1984), the Kuder test (1996) and the differential aptitude test [DAT] (Bennet, 1992), between others, which are applied by use and custom within the educational institutions and that do not meet the profiles required by the programs of study of the general baccalaureate (SEP, 2017), nor with the indicators relevant to the particular circumstances of the students of our country

In order to correct the previous absences, the present study was carried out with the objective of developing and validating an instrument for the pro-therapeutic vocational orientation in Mexico.

Materials and methods

Participants

A total of 56 people voluntarily participated:



- 40 fourth-semester high school students from the city of Xalapa, Veracruz: 20 men and 20 women.
- Six psychology and education professionals with experience in the fields of evaluation and career guidance, two men and four women.
- 10 high school students for the application of the pilot instrument.

Materials

- 10 copies of the Ortiz-Barradas scale for pediatric interests in Mexico for piloting.
- Six copies of the Ortiz-Barradas scale for pediatric interests in Mexico for expert judgment.
- 40 copies of the Ortiz-Barradas scale for pediatric interests in Mexico.
- 50 pencils with HB mine # 2, black graphite.
- 50 Strike 20 crumb rubber.
- A laptop with Windows 10 Home operating system and Microsoft Office 2010 package.
- A 3LCD HDMI projector of 3000 lumens.

Process

Tabla 1. Diseño del proceso de investigación

| Fase 1 | Fase 2 | Fase 3 |
|---|----------------------------|------------------------|
| Desarrollo, juicio de expertos y pilotaje del instrumento | Aplicación del instrumento | Análisis de resultados |

Fuente: Elaboración propia

As can be seen in table 1, the investigation was ordered in three phases. In the first one, the development of the instrument was considered based on the documentary review of the indicators that mark the current educational programs and the elements that should be observed in the five-term value scales.

The General Baccalaureate Base Document (Subsecretariat of Higher Secondary Education [SEMS], 2017) establishes three types of competencies necessary for the completion of the educational program and obtaining the bachelor's degree: generic, basic and disciplinary professionals.

Within the disciplinary competences, the basic competencies are distinguished, which are the “common to all graduates of the EMS”¹ (SEP, 2017, p. 31); and the extended ones, which constitute the component of the pre-therapeutic training on which this work is based.

Instrument design

The Ortiz-Barradas scale for pre-therapeutic interests in Mexico is composed of 50 affirmations written positively with five response options that contemplate the following values: I hate it (minus two), I dislike (minus one), undecided (zero), I like it (one) and I love it (two).

These statements were assigned in accordance with the elements described by the basic documents established by the SEMS (2017) in terms of the competences that are developed in each area of practice. Thus, the following constructs and items were constituted:

- M: maths:
 - Ítems: 1, 6, 11, 16, 21, 26, 31, 36, 41, 46.
- CE: experimental sciences:
 - Ítems: 2, 7, 12, 17, 22, 27, 32, 37, 42, 47.
- CS: social Sciences:
 - Ítems: 3, 8, 13, 18, 23, 28, 33, 38, 43, 48.
- H: humanities:
 - Ítems: 4, 9, 14, 19, 24, 29, 34, 39, 44, 49.
- C: communication:
 - Ítems: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50.

¹ Educación media superior.

Expert Judgment

The validity of the content of the instrument consisted of three stages: selection of experts, analysis of the instrument and modification of the instrument.

For the first, a search for specialists in the subject was carried out according to the criteria proposed by Skjong and Wentworth (2000): experience, reputation, availability and impartiality.

The second was to inform the evaluators about the purpose of the validation exercise, as well as the objective of the instrument, of the attributes, dimensions and indicators of the vocational orientation used to write the items of the scale. All this was also provided in a printed table for analysis and comparison with the instrument.

In the third and final stage, the comments, suggestions and recommendations of the experts were shared with the author of this text to make the pertinent modifications.

Pilotage

The pilot section of the instrument included the application to a group of 10 fourth-year high school students from the city of Xalapa, Veracruz, not subsequently considered for the application, and whose results are reported in this text.

This group was asked to answer the scale with the indication to write, on the reverse side of the sheet, all those observations regarding the following recitals:

- Clarity in the statements that are read in the slide show.
- The correct use of language, that is, if there are any words or expressions that do not fit the linguistic uses of the context.
- Friendly design of the instrument, that is, that the fields to be answered and the sufficiency of the spaces for the answers are clear.

Reagents 2, 5, 25, 34 and 47 were modified in terms of writing, but not in content.

Phase two consisted of the application of the scales to forty fourth-semester students of a baccalaureate in the city of Xalapa, Veracruz.

For this, it was necessary the management of the space and the permission of the parents and / or guardians of each student under the reading and acceptance of the informed consent, where they explained the purpose, characteristics of the instrument, data protection and benefits of the study .

The exercise consisted of a guided group application to all participants. In this they had to read each statement projected on some slides and mark with an x the field that expressed the closest to their opinion and / or perception about them.

Before starting the task, they were told that the test did not consist of a knowledge test and that it had no impact on their academic performance qualifications. Likewise, they were suggested to answer each statement as honestly as possible, to select the one that best suited their personal tastes and / or interests.

Once all the instruments were applied, the results described in Table 1 were analyzed as phase three of the investigation. For this purpose, a data matrix was generated in the Microsoft Excel 2010 program, which included the coding of each student to protect their personal identity, as well as the fifty items with their five response options. The data was subsequently transferred to the IBM SPSS Statistics for Windows, Version 23.0 program (IBM Corp, 2015).

Results

To determine the reliability of the instrument, the internal consistency method based on Cronbach's alpha was used, which assumes that the items (evaluated on a Likert scale) measure the same construct and are highly correlated (Welch and Corner, 1988).

Using the statistical package to perform the consistency analysis or Cronbach's alpha, the following results were obtained (see table 2).

Tabla 2. Estadísticos de fiabilidad

| Alfa de Cronbach | Alfa de Cronbach basada en los elementos tipificados | Núm. de elementos |
|-------------------------|---|--------------------------|
| .870 | .884 | 40 |

Fuente: Elaboración propia

In table 2 it can be seen that the value of the alpha is 0.870. Assuming the recommendations described by George and Mallery (2003), who suggest that Cronbach's alpha coefficients located in rank eight are good and in nine excellent, it can be said that the questionnaire, due to the items as a whole, has a Stability and reliable consistency.

Discussion

The results derived from the present investigation suggest the possibility of the work of the pro-therapeutic vocational orientation with own instruments and pertinent to the plans and study programs in effect to 2017.

This makes it possible to generate, in the future, manuals of specific procedures for this educational activity that do not depend on the use of instruments whose indicators are not compatible with those of the Mexican context.

In addition to this, the opportunity for the development of methodologies for the pro-therapeutic evaluation is opened that contribute to the orientation process as an integral exercise where teachers and students carry out an analysis of their interests, aptitudes and competences that allow an informed, directed election and reliable in their areas of personal and professional development.

Although the studies in this area are incipient, the information expressed here can be constituted as a line of research whose comprehensive results give rise to the development of new forms of diagnosis, evaluation and planning in the field of educational psychology.

However, this activity could have some unnoticed problems. In the first case, the rating scales, even when they can be constituted as statistically reliable techniques, do not observe people's tendencies to choose different interactive options, rather their perceptions of how they would act in such a situation.

In a second case, the fact that education is a phenomenon that occurs in social contexts could be ignored. Thus, the choices could be biased by other variables than the same propedical option (for example, verbal interactions with other people, academic and professional histories of those close to the student, as well as the interests of classmates and others).

Conclusions

Finally, in order to overcome these limitations, future research in this field could evaluate the pre-therapeutic educational preferences with more experimental methods that systematically include all the variables described above and under the protection of a theory whose explanatory scope can cover these phenomena.

An educational phenomenon, being social, is witness to a system of molar and conventional relations, where many elements that interrelate with each other to give the necessary and sufficient condition to observe it are involved.



One of the fundamental problems of this is generated when trying to perform academic studies to determine relationships, correlations and causalities between two or more variables studied. Thus, this consideration is not beyond the scope of this investigation.

An important step of the analysis to the synthesis of theories or academic models is based on the theoretical integration of the data obtained in order to make increasingly systematic and empirical descriptions, instead of hypothetical causalities in its construct.

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