



Individual differences in predicting occupational success: The effect of population heterogeneity



Raquel Gilar^a, Jose Manuel de Haro^{b,*}, Juan Luis Castejon^a

^a University of Alicante, Spain

^b Agbar Water Company (GDF SUEZ), Spain

ARTICLE INFO

Article history:

Received 21 October 2014

Accepted 24 March 2015

Keywords:

Latent class

Occupational attainment

Logistic regression mixture models

Palabras clave:

Clase latente

Consecución de empleo

Modelos mixtos de regresión logística

ABSTRACT

Using a sample of 339 university graduates from the University of Alicante (Spain) three years after completion of their studies, we studied the relationships between general intelligence (GI), personality traits, emotional intelligence (EI), academic performance, and occupational attainment and compared the results of conventional regression analysis with the results obtained from applying regression mixture models. The results reveal the influence of unobserved population heterogeneity (latent class) on the relationship between predictors and criteria and the improvement in the prediction obtained from applying regression mixture models compared to applying a conventional regression model.

© 2014 Colegio Oficial de Psicólogos de Madrid. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Diferencias individuales en la predicción del éxito ocupacional: el efecto de la heterogeneidad de la población

RESUMEN

Mediante una muestra de 339 graduados universitarios de la Universidad de Alicante, España, tres años después de acabar los estudios, hemos estudiado la relación entre inteligencia general (IG), rasgos de personalidad, inteligencia emocional (IE), rendimiento académico y consecución de empleo, comparando los resultados del análisis de regresión tradicional con los resultados obtenidos aplicando los modelos mixtos de regresión. Los resultados muestran la influencia de una heterogeneidad poblacional no observada (clase latente) en la relación entre predictores y criterios y la mejora en la predicción a partir de la aplicación de los modelos mixtos de regresión en comparación con la aplicación del modelo convencional de regresión.

© 2014 Colegio Oficial de Psicólogos de Madrid. Publicado por Elsevier España, S.L.U. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

The transition from university to work is a complex phenomenon with many intervening factors, full of difficulties that are required for learning and the use of certain skills and competences (Rodríguez & Gutierrez, 2006; Vuolo, Mortimer, & Staff, 2013). Despite the importance of this period of time, the variables that facilitate success in this process of employability have not been included in many studies involving university graduates.

Most previous research has been based on global statistics (Organization for Economic Cooperation and Development - OECD, 1997; United Nations Educational, Scientific, and Cultural Organization - UNESCO, 1995) and has mainly focused on results or products (e.g., success-failure in graduates finding jobs, differences between degrees, efficacy, and performance) rather than on processes (e.g., adaptation between required education and received education, usefulness of what has been taught at university or job searching strategies). When the effect of process variables has been analysed at the beginning of professional careers (e.g., García-Montalvo, 2001; Moscati & Rostan, 2000; Paul & Murdoch, 2000; Woodley & Brennan, 2000), variables such as the field of study, gender, place of residence or complementary training have been

* Corresponding author: Agbar Water Company (GDF SUEZ). Comunidad Valenciana, Spain.

E-mail addresses: jmharo@ua.es, jmharo@aqualogy.net, josemadeharo@gmail.com (J.M. de Haro).

included; however, individual variables such as intelligence or personality have not been considered.

These types of variables have been included in studies focused on results. In these cases, the predictive validity of general intelligence, personality, and emotional intelligence has been shown (Abele & Spurk, 2009; Boudreau, Boswell & Judge, 2001; Ng, Eby, Sorensen, & Feldman, 2005; Nyhus & Pons, 2005; O'Boyle, Humphrey, Pollack, Hawver, & Story, 2011; Salgado, 1998; Van Rooy & Visweswaran, 2004; Wille, De Fruyt, & Feys, 2013), for more specific occupational attainment criteria (Castejon, Gilar, & Miñano, 2011; Cobb-Clark & Tan, 2011; García-Izquierdo & García-Izquierdo, 2002; Jackson, 2006; Schmidt & Hunter, 2004). For example, in relation to personality traits, the results suggest that *extraversion* and *conscientiousness* are valid predictors of occupational attainment (De Fruyt & Mervielde, 1999; Groves, 2005; Jackson, 2006).

However, in the field of relationships between predictors and criteria, it has not been easy until now to unequivocally establish the magnitude of these relationships when explaining different types of organizational outcomes. This situation is probably a result of factors such as the type of starting model, the type of measures used (both of predictors and criteria), the use of small or restricted samples, the fact that the relation between predictors and criteria may be only unidirectional, and the role of the location of the predictor within the predictor-criteria causal chain (Brackett & Mayer, 2003; MacCann, Matthews, Zeidner, & Roberts, 2003; Salgado et al., 2014; Salgado & Tauriz, 2014; Wille & De Fruyt, 2014). We therefore believe that the importance of these predictors is actually different from what has been previously determined (Kuncel, Ones, & Sackett 2010; Schmidt, Shaffer, & Oh, 2008), i.e., the magnitude of relationships between individual differences and criteria has been underestimated or overestimated. Therefore, if these aspects are considered, a different predictor-criteria association could be expected.

In addition to the previous characteristics, sources of *population heterogeneity* (whether observed or unobserved) can modulate the relationships between independent and dependent variables. If the sources of population heterogeneity are unobserved, the data can be analysed using latent class models (Lubke & Muthén, 2005), and observed sources of heterogeneity can be included as covariates. These models, which are also known as mixture modelling, use various methods and associated software that have been developed to analyse unobserved heterogeneity (Lubke & Muthén, 2005; Magidson & Vermunt, 2002), accounting for unobserved heterogeneity matters (Pozzoli, 2006).

The Latent Class (LC) regression model (Magidson & Vermunt, 2002) is used to predict a dependent variable as a function of predictors, including an R-category latent variable; each category represents a homogeneous population (class, segment), and different regressions are estimated for each population (for each latent class). The advantages over traditional regression models include relaxing the traditional assumption that the same model holds for all cases ($R=1$) and allowing the development of separate regressions to be used to target each class.

The effects of these unobserved variables have been highlighted in a number of research studies in the educational field (Ding, 2006; Keefer, Parker, & Wood, 2012), although this has not been the case in the field relating to occupational attainment or employment success. Accordingly, it is important to carry out studies that explore the degree to which the influence of variables such as *general intelligence*, *personality traits*, and *emotional intelligence* can be more precisely specified when predicting professional attainment at a time that is crucial to guarantee later success: the early career stage.

It is for this reason that we have carried out this study, whose main objective is to establish whether the variables of *general intelligence* (as measured by an IQ test), the variables of *personality*

(as measured by the Big Five), *emotional intelligence* (as measured by the TMMS-24), and *academic performance* (as measured by the mean academic achievement obtained during the university degree) differ across an unobserved potential class of individuals. The aim is to identify the relationships between occupational attainment and the predictor variables along with the number of latent classes that best fit the data and to test potential predictors for a given latent class, when observed variables such as gender, field of study, or type of studies are incorporated in the analysis as covariates.

To achieve this, we suggest the following hypothesis:

Hypothesis 1. The prediction obtained when taking into account the specific patterns, derived from the application of regression mixture models, will have greater explanatory power than the prediction obtained from the application of the conventional model.

Hypothesis 2. The relationships between some of the predictors (personality trait *openness*) and the criteria (*occupational attainment*) will vary according to the unobserved characteristics of the subpopulations (probability of working), so that they will produce a different effect according to the class that they belong to. In the specific case of this factor, it is expected to affect more negatively those who work than those who do not.

Method

Participants and procedure

The sample consisted of 339 university graduates from the University of Alicante (Spain), who reported whether they were working or not in a survey conducted three years after completing their studies. These 339 students (68% were women and 32% men, with a mean age of 26.4 years) had participated in a study three years earlier that assessed their personal and socio-emotional competences during their final year at university, having been selected through stratified random sampling proportional to the number of students enrolled in each of the fields of 1) science and technology (25.7%), 2) social sciences (18.9%), 3) education (24.5%), 4) bio-health (15.9%), and 5) humanities (6.5%).

In the first phase, conducted when students were enrolled in the final year of their degree, the NEO-FFI questionnaire was administered together with factor "g" test and the Trait Meta-Mood Scale-24 to an initial sample of 906 individuals. In 2012, three years after the first study, the initial sample was reduced to 339 graduates, comprising those who continued to participate after graduation by completing a questionnaire designed to collect information on the employment status of the graduates who took part in the first study and their entry into the labour market. The questionnaire, which took no more than 30 minutes to fill in, was administered online to be completed within a maximum period of three months after receipt.

Measures

General intelligence. To measure general intelligence, we used the factor "g" test, scale 3 by R. B. Cattell and Cattell (1994), adapted to Spanish by TEA. This scale consists of four subtests: series, classification, matrices and conditions, enabling us to obtain the IQ of the sample. The "g" factor loadings are high, i.e., approximately 0.90.

Personality. This variable was measured with the Big Five Inventory (NEO-FFI, Costa & McCrae, 1992), a self-report measure of five personality dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness; the short version employed in this study consists of 60 elements. The participants indicate their level of agreement with each item on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). The value of Cronbach's alpha for the

Download English Version:

<https://daneshyari.com/en/article/895306>

Download Persian Version:

<https://daneshyari.com/article/895306>

[Daneshyari.com](https://daneshyari.com)