Self-Assessment and Career Choices: A Multivariate Analysis for the University of Salerno

Auto-valutazione e Interessi Professionali: Un’Analisi Multivariata dei dati dell’Università di Salerno

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Riassunto: In questo lavoro viene presentata un’analisi dei dati raccolti attraverso la somministrazione del Test di Autovalutazione dell’Università di Salerno, da noi realizzato in collaborazione con un team di docenti e di esperti dell’Ateneo. Il test rappresenta uno strumento di orientamento on-line per fornire ai potenziali studenti universitari indicazioni sul percorso di studi da intraprendere. In una prima fase è stata effettuata un’analisi esplorativa volta a validare lo strumento proposto e, successivamente, gli spunti emersi dalla stessa hanno condotto ad una riflessione sulle relazioni esistenti tra le diverse variabili di interesse.

Keywords: Self-Assessment, Career Choices, Ordinal Data, MCA, CA.

1. Introduction

The Italian university system is currently undergoing an extensive institutional renewal process. A growing interest is being paid to the analysis of the decision process through which potential undergraduate students choose a specific course. Counselling and psychological services are proposed by the universities for helping students to resolve personal difficulties and to develop skills, attitudes and interests. In this framework, an online resource, the Self-Assessment and Career Choices scale, has been established by the University of Salerno. The aim of this tool is twofold. First of all, the intend is to single out the personal traits and learning style of subjects. The second aim is to give the students useful suggestions in order to help them to choose the degree program which is most closely related with their career choices.

The Self-Assessment scale is made up of 67 items divided in five subscales that assess problem solving (PS), method of study (Met), academic motivation (Mot), personal traits (PI) and abilities (A). Additional 40 items belong to the Career Choices scale related to occupational interests (IP). The item’s score ranges from 1 to 5 for each Likert scale format, with higher scores indicating stronger degree of agreement. The students have to complete also a form in which they give some information on their socio-demographic background, academic performances and on their choice to enrol in an undergraduate program.

The paper presents the results of the analysis on the date collected in the period October-December 2003 for a total of 744 contacts, in order to evaluate the performance of the two scales proposed. In particular, an exploratory data analysis has been
performed to assess the uni-dimensionality of the latent factors of the first scale and to select different clusters based on the socio-demographic characteristics and occupational interests. Finally, the relationship between the variables in the two above described scales is measured to underline the role of skills, interests, personality and values in the career decision process. The paper is organised as follows: in section 2 the results of a multivariate exploratory analysis are presented; the final section provides empirical evidence on the relationship among the investigated phenomena and concludes.

2. A Multivariate Exploratory Analysis for the Self-Assessment Data

The 67 items of Self-Assessment scale have been analysed to verify the uni-dimensionality of the different concepts measured and to observe the structure of the relations among the observed variables.

Within the exploratory data analysis, a Multiple Correspondence Analysis – MCA – has been performed. In the first principal axis, the “Guttman effect” is clearly visible for each latent construct (Figure 1). In fact, a horseshoe pattern orders problem solving, method of study, academic motivation and personal traits in a parabolic-shaped curve with replicated points.

Figure 1: Factorial plane showing Guttman effect of personal traits subscale: (a) Emotional balance, (b) Self-Esteem

Then, a doubling is carried out on the self-assessment variables that have been collected in the form of ratings. In the 2-dimensional representation of correspondence analysis, the first axis reflects that some students give consistently higher score than others. Indeed, many students have a good learning style and a high academic motivation (to learn new things and to have job opportunities in the future). While, few students show negative self-appraisal for learning style, analytical skills and academic goals. As can be seen in Figure 2 for method of study subscale, there are two variables for each statement: a positive pole (Met +) and a negative pole (Met -).

Furthermore, a MCA was conducted in order to analyse the influence of socio-demographic characteristics on the various phenomena under study, where the self-assessment data are considered as supplementary variables. A graphical representation of the active and supplementary variables on the first factorial plane is given in Figure 3. The first axis is characterised by secondary school programs, the intention of take an
undergraduate program and parents’ educational status. The second axis is characterised by the subjects’ age.

Figure 2: 2-dimensional correspondence analysis of doubled method data

Figure 3: Representation of active variables (○), some supplementary variables (△) and clusters (◇) on the first factorial plane
By looking at the factorial plane, individuals on the right-hand side of the map have not decided if, after leaving school, they're going to take an undergraduate program or to enter the job market: they come from technical and engineering secondary schools and their parents have a low educational status. On the left-hand side of the map, there are the younger people (<18 years) that want to continue studying: they take on humanities or maths programs and their parents have a high school diploma or bachelors’ degree. The former, therefore, have a poor academic and social motivation, while the latter have high personal involvement in the study. Findings from this analysis are confirmed by the results of a cluster analysis in which are identified three groups of students. The representation of the different clusters is also given in Figure 3.

3. Empirical evidence on the Career Decision Making

The 40 items of the Career Choices scale are related to various typologies of undergraduate courses: Economics, Law, Pharmacy and Medicine, Sciences and Mathematics, Engineering and Humanities Studies. A cluster analysis is performed to understand if the proposed items are able to identify the different courses. The first seven groups partition is reduced in six groups in order to aggregate the subjects that are unable to make a decision about the vocation one wishes to pursue. The final six groups are: Economics and Law Studies; Sciences, Mathematics and Engineering Studies; Economics and Technological Studies; Pharmacy and Medicine Studies; Humanities Studies and Career Indecision. Based on the final results, a categorical variable has been defined to identify the specific program chosen by potential students. The relationship between the above described categorical variable, on one side, and the other self-assessment variables and socio-demographic characteristics, on the other, is investigated. This analysis shows that the Economics, Law, Mathematics and Engineering degree programs are preferred by the male students that come from technical and engineering or maths secondary schools with high personal involvement in the study and good capacity to problem solving. The Humanities Studies are preferred by the female students with high academic motivation but low self-esteem, while the Pharmacy and Medicine Studies are selected by the students that take a maths course in the secondary school with high analytical capacity and good learning style. The results of the present study provide good support for understanding the phenomena under analysis and have a relevant practical implication in order to improve the structure of the Self-Assessment and Career Choices scale established.

References