



Core competencies for the professional use of applied statistics in business administration, how to promote them in the classroom?

Vanessa Serrano Molinero, Lucinio González-Sabaté

► To cite this version:

Vanessa Serrano Molinero, Lucinio González-Sabaté. Core competencies for the professional use of applied statistics in business administration, how to promote them in the classroom?. CERME 9 - Ninth Congress of the European Society for Research in Mathematics Education, Charles University in Prague, Faculty of Education; ERME, Feb 2015, Prague, Czech Republic. pp.787-788. <hal-01287146>

HAL Id: hal-01287146

<https://hal.science/hal-01287146v1>

Submitted on 11 Mar 2016

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



HAL Authorization

Core competencies for the professional use of applied statistics in business administration, how to promote them in the classroom?

Vanessa Serrano Molinero and Lucinio González-Sabaté

University Ramon Llull, IQS School of Management, Barcelona, Spain, vanessa.serrano@iqs.edu, lucinio.gonzalez@iqs.edu

The main purpose of this paper consists in determining the competencies for the professional use of statistics, highly appreciated to obtain a job in the field of Business Administration. A second objective is to propose a short activity in an Applied statistics class to identify the level of the students' top-rated skills and promote them. Applied statistics is understood as an instrumental subject of statistics taught in numerous degrees that do not seek to train professional statisticians. As a consequence, it may not be separated from the context of its degree.

Keywords: Competencies, applied statistics, business administration.

Batanero (2002) highlighted the important role that statistics carried out in the development of modern society and the need to introduce statistics at school arose. In accordance with the European Space for Higher Education (ESHE) and the market itself, it is necessary to train the future users of this discipline in competencies as well as instructing them in the usual contents. In order to achieve this, it is essential to determine which competencies are the most relevant in the professional environment.

The model proposed by Serrano, Puig & González-Sabaté (2010), consisting of 27 competencies, has been taken as the starting point. In order to simplify this model a validation technique through triangulation (Ghrayeb, Damodaran, & Vohra, 2011) was used together with an adaptation of the Delphi method in two rounds in three groups of experts: Business Administration graduates with professional experience, Statistic's teachers and Human Resources (HR) specialists. According to Astigarraga (2010), the Delphi method is based on the systematic use of intuitive judgment issued by a group of experts. The

method would thus consist in asking experts questions by successive questionnaires in order to highlight convergences of opinions and deduce possible agreements. After this, the initial model was simplified to a new one composed by 12 competencies. Later, a final classification was elaborated using the opinions of a new group of 66 HR professionals who were contacted thanks to the IQS Business Alumni. In result, the skill that seems to be most important is how to "Interpret the results", defined as the ability to interpret the results obtained in a study in order to use them in their context. The next two competencies are "Decision-making" and "Critical thinking".

In the learning process based on competencies, activities reflecting the conditions in which they will be put into practice are necessary (Villardón Gallego, 2006). Nevertheless, due to the limited amount of time the subject of statistics usually has at its disposal, a short activity has been proposed for the proper development of the top-rated skill. In this case, the students were invited by the teacher to write a short report that summarized the information contained in a box-plot graph related to the income of a company. A sample of students of the degree in Business Administration carried out this activity during the academic year 2013/14. The results obtained were compared with those proposed by the teacher, thus highlighting the fact that both the students and the teacher develop the skill through the activity. The ideas that arose from the exercise were classified in four typologies: description, calculation, errors and interpretations. Students were informed of the main ideas drawn in order to improve their ability to interpret results in future activities. Most of the students explained the graph in statistical terms but decontextualized from the situation described. However, just a small number of them tried to interpret the results observed within

the framework of the statement. Very few students made calculations to give consistency to their explanations. Lastly, only one student identified an error in the graph shown; this is related also with the “Critical thinking” skill. In addition, some errors appeared in students’ reports. The teacher concluded that was necessary proposing new activities to improve the skill “Interpret the results”.

ACKNOWLEDGEMENT

Fundings: Funded by the project EDU2012-39312-C03-01 of the Spanish Ministry of Economy and Competitiveness

REFERENCES

- Astigarraga, E. (2010). *El método Delphi*. Universidad de Deusto, San Sebastián.
- Batanero, C. (2002). *Los retos de la cultura estadística*. España: Universidad de Granada.
- Ghrayeb, O., Damodaran, P., & Vohra, P. (2011). Art of triangulation: an effective assessment validation strategy. *Global Journal of Engineering Education*, 13(3), 96–101.
- Serrano, V., Puig, P., & González-Sabaté, L. (2010). *Model de les competències que es requereixen en l'ús professional de la Estadística Aplicada*. VI Congreso Internacional de Docencia Universitaria e Innovación (CIDUI). 30 de junio, 1 y 2 de julio de 2010, Barcelona, España.
- Villardón Gallego, M. L. (2006). Evaluación del aprendizaje para promover el desarrollo de competencias. *Educatio siglo XXI*, 24.