

INTERNET USE IN STUDENT LEARNING: A CASE STUDY

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Abstract

In the new degrees implanted in Spain in recent years are considered autonomous as the most common tasks to complete the hours of undergraduate study. This independent work that has great weight in the final grade may consist of practices, research, etc. The student considers Internet as the main source of development of such practices or work. The job search is not just use the search "Google" but also considered databases, bibliographic sources, digital libraries, etc. In this study the results of a survey of students of Degree in Economics from the University of Granada, who have been asked about the difficulties of finding information on the internet, are presented. And their preferences when studying about online materials. Finally have been asked whether information obtained online is reliable. The results shows that consider the difficulty of finding information online are average. Clearly prefer working with written texts that appear on the computer. And that the information obtained from the Internet is not considered completely reliable, hence prefer to work with written texts.

Keywords: teaching quantitative methods, student learning, knowledge gain, cluster analysis.

1 INTRODUCTION

The new study plans provide for subjects with high support in ICT. This requires the development of new conceptions of teaching and learning that emphasize the active involvement of student in the learning process; care for emotional and intellectual skills at different levels; preparing young people to take responsibility in a world in rapid and constant change; the flexibility for students to enter a setting employment that will require training throughout the lifetime; and skills needed for this process long learning [15].

In this new scenario the role of the teaching staff also changes. Now the teacher acts as a catalyst and guide students. Helping them to make proper use of resources and tools involving ICT. Now acts more like an advisor [16] [17] and [18][19]

Nowadays the student comes across a wide range of learning environments and online resources. These environments can be useful to some extent. On the quality and usefulness of these we cannot establish a clear rule still especially in the subjects of quantitative methods or quantitative techniques in the degrees of economics or business administration. Many authors have studied so far the problem of these subjects for students of social sciences (e.g. [1], [6], [7], [9], [10], [14]).

Currently long time is spent on developing tools in order to facilitate student learning. Economic resources are invested in specializes software for simulation, applied programs, etc. It also invests great efforts to correct and evaluate these new learning methods. However sometimes the student does not perceive value in these tools, and is less useful than the lecture.

Authors as [5] [11], [12], [13] are already facing new difficulties that teachers and students against changes in educational methodology. Other authors found the same problems in mathematics courses for example. [2], [3].

2 METHODOLOGY

It has been administered Attitudes Test New Technologies of Information and Communication (Lopez Montiel, Blanca Mena, Miranda and Alarcon, 2005), which includes 12 items with a response format of a graduated scale likert type of four points (strongly disagree, somewhat disagree, somewhat agree and strongly agree). It has conducted a survey of 163 students of the Faculty of Economics and Business Administration from the University of Granada for their views on emerging technologies Information. This survey was divided into two distinct parts. In the first part of the survey data-academic staff to student type is requested. In this context a simple random sample of 20 units was obtained. Only 17 of these units were useful for hierarchical cluster analysis. We have chosen this

analysis because authors like Wedel & Kamakura 2002 described him as "the attempt to distinguish homogeneous groups of customers who are eligible for the same conduct that have similar needs and preferences".

The questionnaire was composed of 12 questions of which three have been taken to perform the cluster analysis:

1. Internet can be a source of information that facilitates the learning of subjects
2. You consider the Information Technology is basic in your university curriculum
3. The use of the Internet, web pages, CD, etc. in university education reduces the contact sessions

2.1 Selection of variables and sample size

At the beginning of the process of clustering should choose these grouping variables, in this case have chosen three test questions, which are considered related to each other. Authors like Quinn et al. 2007 consider variable selection is often based on implicit assumptions, judgments and accumulated experience and intuition of the researcher.

Currently the sample size itself is not a problem, but may have problems in methodology if the sample size is small for the number of variables used. With a high number of variables and only few respondents is impossible to detect a clear structure.

Authors like Forman (1984) propose an estimated to determine the appropriate sample size guide. The ratio by multiplying the minimum sample size of 2^k where k represents the number of variables used in the segmentation. Preferably $5 \cdot 2^k$ of respondents must be valid. In our case $k = 12$. So it is recommended to choose for cluster analysis a total of 20 sampling units.

2.2 Selecting the appropriate clustering algorithm

In general, three main forms of clustering method can be distinguished: non-overlapping, overlapping and fuzzy methods (not overlap, overlap and fuzzy methods). We choose the method of non-overlapping clustering: hierarchical method. This method was chosen because although the hierarchical methods do not identify a set of groups directly are preferable if we have to consider several options for bundling and the sample size is moderate. Although it must be remembered that the operation of the non-hierarchical methods depends on the chosen starting partition.

2.3 Determination of the number of clusters

The chosen number of groups is one of the most important factors influencing the results of the group (Decker et al. 2005).

In the literature there is no clear rule to determine the cluster number. The most basic procedure used to determine the number of groups in hierarchical methods is the (rescaled) distance grouping. They will therefore consider in determining the appropriate number of cluster visual inspection of the dendrogram.

3 RESULTS

In the cluster analysis method first matrix of distances between the elements of the sample (or variables cases) is calculated. Then the next two items are sought and are grouped into a single cluster or cluster. The cluster is formed is indivisible from this phase. Similarly sample elements in clusters are becoming larger and more heterogeneous cluster (are composed of more elements of the sample). This hierarchical analysis ends in a single cluster or cluster that brings together all the elements of the sample.

The cluster analysis using SPSS reports on all steps taken, and you can see what elements or clusters have been merged into each step and how close they were. This gives an idea of the heterogeneity of clusters that are merging at each stage of analysis and decide which of them consider the merger has meant too heterogeneous elements within the same cluster

Table 1 shows the total valid cases from the simple random sample of size 20.

We used the method of average linkage with re-scaled distance (-1; 1).

Table 1: Case processing summary

Case Processing Summary^a
a.Squared Euclidean Distance used

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
20	100,0%	0	0,0%	20	100,0%

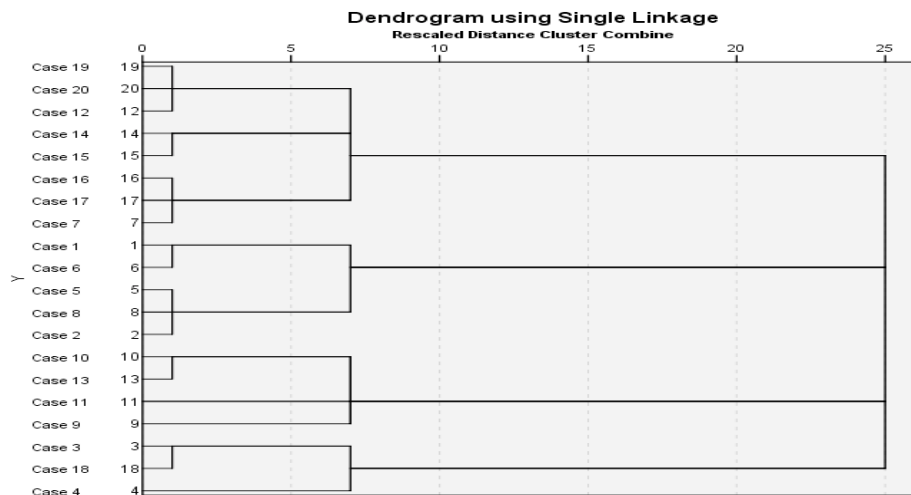


Figure 1: Dendrogram using average linkage (between groups)
Combination of cluster re-scaled distance

At the top of the dendrogram binding distances ranging from 0-25 are shown. We can clearly see four subgroups.

In the first subgroup are individuals' number 19, 20, 12, 14, 15, 16, 17, and 7. These individuals have higher scores in questions 1 and 2, so we can conclude that for a group of students "Internet can be a source of information That Facilitates the learning of subjects" and "You Consider the Information Technology is basic in your university curriculum". This group of students might be called the "pro-Internet".

In the second subgroup are individuals 1, 6, 5, 8 and 2. These individuals scored low on question 1 and question 2. With this we can conclude that some students think that the Internet can not be easy learning and the use of Information Technology is not basic to their university curriculum. These students are the opposite of the group have described above. We could classify this second subgroup as the "anti-Internet".

In the third group are individuals' number 10, 13, 11 and 9. These students scored lower rating rating on question 2 and question high on the 3. Recall that both questions were:

2. You Consider the Information Technology is basic in your university curricula

3. The use of the Internet, web pages, CD, etc. in university education you reduce the contact sessions. These students would be qualified as students "CV-internet"

In the last subgroup, composed of individuals' number 18, 3 and 4. These individuals scored poorly on all three questions. Creating a group called the "unhappy". These four subgroups within the group manifest homogeneity and heterogeneity between groups. They are therefore a good ranking of students under study.

4 CONCLUSIONS

The student comes across a wide range of learning environments and online resources. These environments can be useful to some extent. On the quality and usefulness of these. Some students do not consider useful the use of internet and web pages for study subjects of quantitative methods. Also these students are not the majority, with only three out of twenty students who think so.

Most students who have participated in this work believe are fundamental use of the Internet and new technologies for study of the subjects of quantitative methods and their university curriculum. These could be the first two groups described in the previous section. It is in larger overall students for Internet use.

We can conclude that the use of new technologies in higher education is highly valued by students, who understand that it is essential in the university curriculum. More efforts should be made to achieve an improvement in the practice of these subjects' quantitative methods. Teachers are getting good results and good classes with the use of new technologies.

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