

TRANSFERABLE SKILLS AND HOURS OF LEARNING. HOW DO STUDENTS MANAGE THEM?

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Abstract

The present study examines how, within the context of the modules of Red EUCE: I+Do+I (Spanish for "Network of the Programme in Business Studies: Research + Teaching + Innovation"), different social sciences modules help students to acquire several transferable skills. The modules involved are: Mathematics, Statistics, Commercial Distribution, and Health Economics and Management of Social and Health Services. We designed a survey based on previous models to analyse skills acquisition, and used an online questionnaire that students answered voluntarily and anonymously. The questionnaire included a question about the time, apart from the contact hours, that students devote weekly to study. Our aim was to explore if the amount of independent study required by each module is in keeping with the number of credits assigned to it.

Our findings reflect the students' perception, and show that they believe to have acquired a good level of the transferable skills here analysed: teamwork, independent learning, decision-making based on the application of knowledge to practice, problem analysis using unprejudiced critical reasoning rigorously and accurately, oral communication, written communication, active participation in class, and the use of computer tools. Regarding the number of hours of independent study, one of the tenets of the new learning philosophy promoted by the Bologna Process, we found that students devote an average of 2.78 hours per week to each module. This means (in a programme with five modules per semester) about 14 hours a week of independent study. If we bear in mind that students in new programmes have 20 compulsory contact hours per week, this workload is compatible with the number of credits and the weekly hours available to the students.

Keywords: transferable skills, survey, independent study, hours of learning, commercial distribution, mathematics.

1 INTRODUCTION

The European Higher Education Area involves profound changes in university teaching from an instructor-focused approach to a student-focused one, although the work of the instructors remains essential. The function to be performed by instructors, which should enable students to acquire knowledge and attitudes, must keep shaping the teaching methods and extend their scope to independent learning. This new teaching-learning context comes as a result of the current requirements demanded by the changes in the work environment, since the reforms in the world of work call for a new type of education. Nowadays, companies require multi-skilled and flexible professionals that can adapt easily to possible changes in their environment, have communication and teamwork skills, as well as a certain level of autonomy at work, and can also manage themselves and make decisions on their own. Companies want employees that can be delegated so their superiors feel sure and confident that the work will be properly carried out. All these are *transferable skills*, which have been included in all educational programmes. A graduate without these skills will have many difficulties to enter the competitive labour market.

1.1 Research questions

Now that the new undergraduate study programmes, adapted to the criteria of the Bologna Process, are being implemented, we ask ourselves if the modules that we teach are in fact contributing to the development of the students' transferable skills. Furthermore, we also want to know if the number of hours that our students devote weekly to independent study (apart from the contact hours) is in keeping with the number of credits of independent learning assigned to each of the modules included in our survey. Therefore, we put forward the following research questions:

Are there differences in the development of skills between students of different modules? If there are indeed differences, is it because they are studying an undergraduate or postgraduate module, or some type of module or other? Do certain modules develop some transferable skills better than others? Finally, is the independent learning required by each module compatible with the number of credits assigned to each of them?

1.2 Literature review

In the existing literature we find two main groups of works. On the one hand, those that analyse and define the new concepts of competencies and skills, which must be the cornerstone of the students' education, as well as their inclusion in the new curricular structure of universities [1]. On the other hand, another group of studies focuses on the necessary characteristics of the new teaching methods, aimed at promoting the acquisition of skills by the students in the new teaching-learning context [2]. Finally, there are some specific works that put forward teaching methods to develop the particular skills and competencies of the different modules within each degree, and in a broader sense, of the different degrees grouped according to branch of knowledge ([3], [4]).

The works dealing with the new concepts of competencies and skills, which must be the cornerstone of the students' education, show that determining the competencies and their relationship with the skills in one of the most disputable issues because of the impact they may have on the notion of education development ([5]). The concept of competency describes knowledge, skills, abilities, attitudes, and values that are necessary to practice a certain job. Generic competencies are those required to perform any job or to develop actively in society, whereas specific competencies are characteristic of a particular area of study. The Tuning Project ([6]) groups generic competencies into three categories: (A) Instrumental, which have an instrumental function and may be cognitive, methodological, technological, and linguistic abilities; (B) Interpersonal, which tend to facilitate processes of social interaction and communication; (C) Systemic, or the combination of understanding, sensibility, and knowledge that allows individuals to see how the different parts of a whole system relate to each other and are connected.

From the perspective of the inclusion of this notion of competency in the processes of curriculum design at university level, Zabalza ([7]) and Poblete ([8]) provide results about the steps taken by universities over the last few years. In all cases, there is a common characteristic based on a typology of challenges: to adapt to the demands of employment; to be in a highly competitive context where quality and capacity for change are demanded; to improve management at a time when public resources are being cut back; to use new technologies both in management and teaching; to become an engine for local development in cultural, social and economic issues; and finally, to find a new place on the globalised stage, which implies boosting interdisciplinarity, a good command of foreign languages, the mobility of students and instructors, and common accreditation systems.

An interesting work is the study coordinated by De Miguel Díaz ([2]) where several researchers describe a new model in which the competencies that students of a certain programme or discipline must acquire are the foundation of didactic planning in higher education. They design and select situations, methodologies and modalities of work for instructors and students that lead effectively to the proposed objectives, that is, to the acquisition by the students of the competencies proposed as learning outcomes. In short, they suggest that the didactic planning of each module must include the following points: to set the competencies to be achieved by the students; to plan the most suitable teaching-learning methods and modalities for that; to schedule the contents along a timeline using the new European Credit Transfer and Accumulation System (ECTS) as measuring system of the teaching activities; and lastly, to plan the assessment criteria and procedures to determine if the competencies or learning outcomes have been really acquired.

Finally, the last group of studies mentioned above includes specific teaching methods to achieve competencies and skills in particular disciplines, programmes or modules. Worth mentioning are the work of Rojas ([4]) with regard to social sciences, Dueñas' ([3]) about health sciences, and Font's ([9]) regarding mathematics, among others.

1.3 Objective

The **objective** of the present study is to analyse how different social sciences modules help students to acquire several transferable skills. We have examined the variables “transferable skills” and “students’ effort”, described in more detail in the Methods section.

2 METHODS

2.1 Description of context and participants

This study has been carried out by the members of Red EUCE: I+Do+I (Spanish for “Network of the Programme in Business Studies: Research + Teaching + Innovation”) during the academic year 2010/2011 at the University of Alicante, Spain, as part of a more ambitious project about the *adaptation of programmes, instructors and students to the new study programmes*. All members of Red EUCE have been involved in the development of the study; however, we have only chosen a group of modules representative of our object of study to write the present paper. Moreover, 242 students of those modules have taken part voluntarily in our research.

We have selected modules from three different programmes: the undergraduate programme in Business Administration and Management, and the postgraduate programme in Nursing Science Research, both adapted to the requirements of the Bologna Process; and the old 3-year undergraduate programme in Business Studies, which from the academic year 2012/2013 will no longer be offered. This diversity has enabled us to compare results.

2.2 Modules included in the study

The following table describes the modules included in our study.

Table 1. Modules examined.

Module	Code	Type/ Year	Credits (ECTS*)	Programme	Students 2010/2011
Statistics II	7227	Core / 2 nd	(6)	Degree in Business Studies	719
Mathematics I	22000	Core / 1 st	(6)	BA Business Administration and Management	1066
Health Economics and Management of Social and Health Services	44406	Core / 1 st	(5)	Master of Nursing Science Research	43
Commercial Distribution	7217	Optional /3 rd	(6)	Degree in Business Studies	205

* European Credit Transfer and Accumulation System

2.3 Research instruments

As research instrument we have used a questionnaire designed for this particular study. The questions were grouped into the categories: teaching *methods*, course *management*, *teaching staff*, *development of abilities*, classroom *equipment*, *overall satisfaction* of the students with the course, students’ *effort*, and finally, the variables *gender* and *age*. The students were asked to rate from 1 to 7 their level of agreement with a list of statements, where 1 meant “strongly disagree” and 7 meant “strongly agree”. The present paper analyses their answers with respect to the category “development of abilities”, which gathers information about the items shown in table 2, and the category “students’ effort”, shown in table 3.

Table 2. Variables studied in the category “development of abilities” of the students.

(V12)	The module has improved my ability for teamwork
(V13)	The module has improved my ability to learn independently
(V14)	The module has improved my ability to make decisions by applying theory to practice
(V15)	The module has improved my ability to analyse problems through critical reasoning, without prejudices, accurately and rigorously
(V16)	The module has improved my ability for oral communication
(V17)	The module has improved my ability for written communication
(V18)	The module has encouraged active participation in the classroom
(V19)	The module has improved my ability to use IT tools

Table 3. Variable studied in the category “students’ effort”.

(V27)	To follow the module satisfactorily, as well as the contact hours, I have required a weekly average of (please circle the suitable option)				
	1 hour	2 hours	3 hours	4 hours	Over 5 hours

3 RESULTS

The results (data in percentages) for each one of the abilities here examined are described below. Table 4 shows the results regarding the ability for *teamwork*. We observe that the *ability for teamwork has improved* mainly in the module “Commercial Distribution”, while the lowest values are in the modules “Statistics II” and “Health Economics”.

Table 4. Ability for teamwork.

Module	My ability has not improved	Neither	My ability has improved
Commercial Distribution	9.8	13.9	76.2
Health Economics and Management of Social and Health Services	53.8	23.1	23.1
Statistics II	47.8	34.8	17.4
Mathematics I	25.8	19.4	54.9

The large difference between the results from two similar modules (Mathematics and Statistics) is surprising. However, the students involved are taking different study programmes, so these data must be treated with caution. The high percentage (above 75%) of students who think that “Commercial Distribution” improves their ability for teamwork is also worth mentioning. In general terms, the students have a favourable opinion about the *improvement of their ability to learn independently*. We have found very high percentages in all the modules examined (see Table 5).

Table 5. Ability to learn independently.

Module	My ability has not improved	Neither	My ability has improved
Commercial Distribution	6.6	16.4	77.0
Health Economics and Management of Social and Health Services	7.7	0	92.4
Statistics II	13.0	19.6	67.4
Mathematics I	0	6.5	93.6

We might make a similar comment about the variable *ability to make decisions by applying theory to practice* (see Table 6). Although the students in the module “Statistics” show the lowest percentage and consider that it did not help them to improve the mentioned ability, just 19.6% believe that the module did not have an influence on this particular ability. With respect to the variable *ability to analyse problems through critical reasoning*, we have obtained similar values for all the modules: the students rate highly the contribution of all the modules to the improvement of their ability (see Table 7).

Table 6. Ability to make decisions by applying theory to practice.

Module	My ability has not improved	Neither	My ability has improved
Commercial Distribution	6.6	9.8	83.6
Health Economics and Management of Social and Health Services	23.1	15.4	61.6
Statistics II	19.6	30.4	50.1
Mathematics I	9.7	6.5	83.9

Table 7. Ability to analyse problems through critical reasoning.

Module	My ability has not improved	Neither	My ability has improved
Commercial Distribution	10.7	13.1	76.2
Health Economics and Management of Social and Health Services	23.1	0	77.0
Statistics II	13.0	26.1	60.9
Mathematics I	12.9	16.1	70.9

As for the improvement of the students’ communication skills, both oral and written, the responses obtained are very diverse, depending on the module considered. The following tables show the results (see Table 8).

Table 8. Ability for oral communication.

Module	My ability has not improved	Neither	My ability has improved
Commercial Distribution	11.5	22.1	66.4
Health Economics and Management of Social and Health Services	61.5	23.1	15.4
Statistics II	63.0	19.6	17.3
Mathematics I	38.7	12.9	48.4

Table 9. Ability for written communication.

Module	My ability has not improved	Neither	My ability has improved
Commercial Distribution	10.7	24.6	64.8
Health Economics and Management of Social and Health Services	30.8	38.5	30.8
Statistics II	47.8	17.4	34.7
Mathematics I	29.0	22.6	48.5

We find values above 60% of students who consider that “Commercial Distribution” has improved their *ability for oral communication*, while a similar percentage of respondents believe quite the opposite regarding the modules “Health Economics” and “Statistics”. “Commercial Distribution” followed by “Mathematics” stand out as modules *encouraging active participation in the classroom*.

Table 10. The module has encouraged active participation in the classroom.

Module	My ability has not improved	Neither	My ability has improved
Commercial Distribution	9.0	14.8	76.2
Health Economics and Management of Social and Health Services	38.5	7.7	53.9
Statistics II	41.3	17.4	41.3
Mathematics I	19.4	12.9	67.8

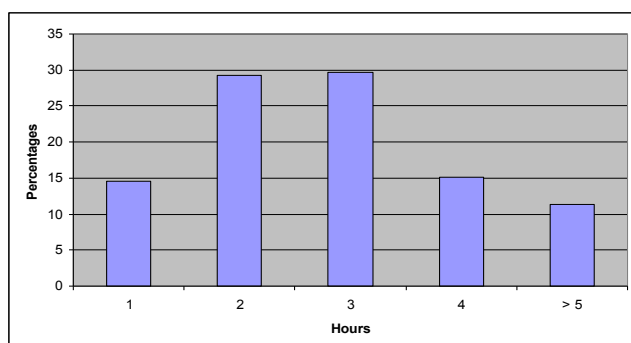
In regard to the *improvement of the ability to use IT tools*, we find that “Mathematics”, because of its characteristics, is the module with the most influence on it. The much lower value obtained by “Statistics” is noteworthy but, as we have already mentioned, they are modules in different study programmes.

Table 11. The module has improved my ability to use IT tools.

Module	My ability has not improved	Neither	My ability has improved
Commercial Distribution	20.5	18.9	60.7
Health Economics and Management of Social and Health Services	23.1	15.4	61.6
Statistics II	43.5	13.0	43.4
Mathematics I	12.9	16.1	71.0

With respect to the *students’ effort*, measured as the number of hours per week devoted to independent study for each module, our results show an average of 2.78 (2 hours and 47 minutes). The most frequent values are 2 and 3, which make up almost 60% of the sample. It is worth mentioning that 11.3% of the students claim to study at least 5 hours, whereas 43.9% devote 1 or 2 hours per week.

Table 12. Number of hours per week of independent study for each module.



Hours	No. Students	%	Acc. %
1	31	14.6	14.6
2	62	29.2	43.9
3	63	29.7	73.6
4	32	15.1	88.7
5 o +	24	11.3	100.0

For each module:

Average number of hours per week for each module	
Global	2.78
Commercial Distribution	2.65
Statistics II	2.70
Mathematics I	3.10
Health Economics and Management of Social and Health Services	3.77

According to these figures, "Health Economics" is the module that requires the most effort on the part of the students. This is the only one of the four modules here examined included in a postgraduate study programme.

We have performed ANOVA tests with pairs of modules for each ability that show the statistical significance of the data included in the above presented tables. It must only be pointed out that in the case of the *ability to analyse problems through critical reasoning, without prejudices, accurately and rigorously* none of the differences found between modules is statistically significant.

4 CONCLUSIONS

The above tables show that the students do perceive differences in the abilities that each of the modules here examined provide them with. The module "Commercial Distribution" stands out in most of the items, but we must bear in mind that this is a third (last) year module and also an optional one chosen by a good number of students. A different case is "Statistics", a core module in a study programme that will no longer be offered, which may explain the poor perception of the students regarding skills acquisition.

Moreover, it is relevant that the modules encouraging independent learning to greater degree (Health Economics and Mathematics) are those in the new postgraduate and undergraduate programmes. Such perception of the students is consistent with the aims of the new study programmes, which meet the Bologna criteria. Nevertheless, these are the results obtained a year after their implementation, so subsequent analyses must examine if this continues to be the case.

We have found that the combined effect of the different modules promotes skills acquisition. We may have to seek ways to achieve a better coordination to obtain more positive results, although the average score of the students' perception is clearly positive. Finally, it is worth highlighting the results of the analysis about the number of hours that students devote to independent learning. This one of the tenets of the new learning philosophy, but it must be in keeping with the number of credits assigned to each module, as well as the number of hours per week that students can be asked to spend studying.

Our findings show an average of 2.78 hours per week and module. This means (in a programme with five modules per semester) about 14 hours a week of independent study. Added to the 20 compulsory contact hours per week of the new study programmes, this workload is compatible with the number of credits and the weekly hours available to the students. It would be interesting to perform a comparative study of the hours devoted to independent study and the skills acquisition, as well as the marks obtained by the students. However, because they are requested to fill in the questionnaire anonymously and just before the period exams, we are not able to compare this last question at individual level. As the new study programmes are implemented, we will be able to verify whether the students' perception is right, or whether we need to find measures that encourage skills acquisition to a greater degree.

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