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An assessment of the impact of social networks on collaborative learning at college level

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Abstract

This study considers the effect of the usage of a social network site (www.grouply.com) for a class related group project on the development of individual abilities and performance in group work. Data were collected from three sections of an intermediate macroeconomic class at a Spanish university and groups were randomly assigned to work (or not) using the social network. Findings suggest that, although students are in general attracted by the idea of using SNS in class-related team work, the introduction of a tool they are not familiar with may hamper their self-perceived level of competence in a number of skills.

Keywords: Social network sites, cooperative learning, case study, small groups.

1. Introduction

Recent studies have described youth's usage of social network sites (SNS). The data report an extended and intense use (see, among others, Davies and Cranston, 2008; DCLG, 2008; Ofcom, 2008; Smith and cols., 2009; Sylvester and McGlynn, 2009; Taylor and Keeter, 2010; Wildbit, 2005). These instruments are believed to offer many possibilities to foster socialization and belonging. Although no solid evidence exists as of yet, there seem to be indications that SNS are having a real impact on users' levels of social implication (see Boulianne, 2009; Jenkins and cols., 2009; Jenning and Zetner, 2003; Lara and Naval, forthcoming; Smith and cols., 2009).

In education, how effective SNS may be in improving outcomes in collaborative learning has risen. Some evidence is being put forward suggesting that great potential in this respect exists (Selwyn and Grant, 2009; Arnold and Paulus, 2010; Hung and Yuen, 2010; Entonen, 2010; Leves, 2011; Mason and Rennie, 2008). They facilitate several means of communication (public, private, synchronous and asynchronous) as well as cooperative work, student/teacher horizontal relations, exchange of information and feedback. To optimize their use, the social learning objectives must be interesting for students and allow them to contribute and easily create their own content after an initial orientation by the professor (Vaufrey, 2009; Weller, 2008; Panckhurs and Debra, 2011).

This study is part of a larger project considering the impact of SNS usage in college education on the development of individual abilities, performance in group work, and academic outcomes.Four studies are planned to take place (this being the first one, and serving as a pilot for the others) with students from the University of Navarra

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from School of Economics and Business Administration, ISSA- School of Management Assistance and the Faculty of philosophy (Department of Education). Although this is not a representative sample of all students in Spanish universities, the conclusions may offer guidance for use outside the framework of the study.

The interdisciplinary nature of the team is a clear advantage in evaluating the use of social networks to promote collaborative learning in the classroom. Given the large deployment of social networks for recreation among young adults, it is possible that the costs of the educational extension may not come so much from the tool itself as from its adaptation to the particular field. The Studies in the project use different materials aimed at students with different profiles and ways of working, which will promote the evaluation of the device, reducing the bias that would result from conducting the experiments within the same department. On the other hand, because all students are from the same University, it is more likely that study subjects share features (some readily observable, such as geographic origin, and other more difficult to measure without detailed surveys, such as socio cultural background) that could affect the results.

For this study, subsets of students working in a class-related group project for an intermediate macroeconomics class were randomly assigned to work using a social network. Several SNS were considered for this study, including *Ning*, *Grouply* and *Gnoss* –a Spanish SNS-. The platforms were evaluated according to the following criteria: cost (because of lack of funding the platform would have to be free), ease of use (to avoid high learning costs), availability of education-related features (to best accommodate the needs of the students), and the existence of an interface in both English and Spanish. After consulting with experts in the matter and considering the adequacy of each platform, *Grouply* was selected as the best alternative.

The impact associated with the intervention is evaluated comparing outcomes for the treatment and control group, using subjective information on attitudes and self-perceived competence on a range of skills, as well objective information. The results compare attitudes towards group work and self-perceived abilities in relevant skills across the two groups and allow us to offer some insights on the effectiveness of social network usage in developing students' skills and knowledge acquisition.

2. Methodology

2.1. Description

The universe consists of all students registered in an intermediate macroeconomics class ("Macroeconomics: Theory and Policy") in the School of Economics and Business Administration of the University of Navarra (Pamplona, Spain) in the academic year 2011-12. The class is compulsory for students in all the majors offered in the School (Economics, Business, Economics+Law , and Business+Law, all of them offered in both Spanish and English), and is generally taken by second-year Econ and Business majors and in the third year by Double Degree majors.

The students self-selected into teams of 5 or 6 members to work in a compulsory project dealing with the effects of the recent economic crisis and the policies adopted in a number of major economies, resulting in a total of 27 groups. Each team received the assignment to work in one particular country (the distribution of countries was not made public), resulting in the country distribution depicted in table 1.

The instructor then created "megagroups" (named A through F). Each megagroup consisted of 4-5 teams, which were put in contact and encouraged to share information for the project. No two teams in the same megagroup had received the same country assignment, so information sharing would be restricted to exchanges about potential sources for data or other relevant information, formatting, content and other general aspects of the project. To minimize the chances of selection bias, three of the megagroups were randomly assigned to use the chose social platform (www.grouply.com), while the other three remained as control group and did not receive the opportunity to use the platform. The distribution of groups into megagroups and whether they received treatment can be seen in table 1.

Informal questioning of students suggests that no teams in the control group used the SNS, which eliminates one source of possible contamination (spillover) biases. Co-intervention biases (subjects receiving other interventions

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not accounted for at the same time as the intervention under consideration) are unlikely in this study, because of the relatively short period in which the projects were completed and because the student body is rather similar in the set of instruments they use on a daily basis to do course work.

Table 1. Distribution of teams, by treatment and course'slanguage

Experimental Group: Using social network N students = 70			Control Group: Not using social network N students = 72		
A (English) Ngroups=5	B (Spanish) Ngroups=4	C (English) Ngroups=4	D (English) N groups=5	E (Spanish) N groups=5	F (English) N groups=4
USA	USA	Ireland	USA	UK	Germany
Portugal	Germany	Greece	UnitedKingdom	Portugal	Greece
Spain	Spain	UnitedKingdom	Spain	Spain	UnitedKingdom
France	France	Italy	France	Ireland	Italy
Canada			Canada	USA	

2.2. Measuring instruments

To guarantee anonymity, students were given identifiers by their course representatives, which were kept secret by the course representatives until after the final grades were posted. The same identifierswere used for both surveys, so answers from the two questionnaires can be traced back to the same person. Students were given two surveys, which were kept short to avoid response fatigue (the first one took approximately 10 minutes to complete, and the second about 8 minutes). Students were not forced to answer the questionnaires, which raises the possibility for non-response and selection biases. However, constant encouragement and reminders resulted in moderately high response percentages, so these biases may not be too high. The standarized values of Cronbach's alpha are about 0.9 for both surveys (the questionnaires (in Spanish) are available upon request).

2.2.1. First survey

The first survey was made available prior to the assignment of the treatment, and it consisted of 4 parts. In the first, students were asked for some background information. A second section inquired on matters related to SNS usage (frequency, platforms used etc). The third part of the survey asked questions related to team work (self-assessment of ability (absolute and compared to peers), frequency, personal opinion about pros and cons, expected learning to be derived from team work in a variety of aspects, etc). The last group of questions was the longest, and it aimed to assess the level of (self-assessed) proficiency in a number of competences. To reduce tiredness in this section, it was divided in three smaller sets of questions. The questions were aimed at assessing how students perceived themselves in the following dimensions: Task distribution and time management, analytical ability, logical thinking, motivation and self-improvement, flexibility, oral communication skills, language skills, ability to use new technologies, basic research tools, work ethics, ability for independent learning, valuing others' work, pro-active behavior, coordination, organization, and participation.

Because this is the most important part of the questionnaire in terms of information for further analysis, we turn now to explaining in more detail how the questions were constructed. All questions were kept short and clear, using a clear language and minimizing the need for interpretation by the students. Checks were performed to eliminate double-barreled questions. Semantic differential scales (ordered multichotomous questions, most often used here to reflect how much the student agrees with a statement) were written with an even number of categories. Although this requires respondents to "take sides", this bias was preferred to the otherwise likely tendency of respondents to choose neutral answers. A N/A option was included to improve the quality of the data but since the questions dealt mostly with self-reported abilities and attitudes, the N/A option was rarely chosen by students.

2.2.2. Second survey

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The second survey was similar in nature but considerably briefer, since parts 1 and 2 were eliminated. A few questions were added asking for the opinion of students who had used the SNS about it (students who had not been assigned to use the SNS were asked whether they would have liked to use it). In all cases, students were asked for their opinion about using any SNS for a group project.

3. Results

In the first survey, students report having at last "some" experience with group work, both before (56%) and during (53%) college. Surprisingly, the correlation between these two measures, although positive, is very small and it is experience with group work in pre-university schooling that makes students feel better prepared (in comparison to their peers). As expected, how much a student likes group work is correlated with his perceived relative competence (this relationship is statistically significant, although it may not be very robust) and also with his experience before college (not a statistically significant relationship).

Students were also asked about their learning expectations for the project along a number of dimensions. The results suggest that self-perceived competence in team-work is a relevant factor to determine how much the student expects to learn about the material, much as higher levels of pre-college experience in team work increase the expected learning in terms of looking for relevant information and learning how to write in a precise, professional fashion. Lastly, students who report higher degrees of enjoyment from team work expect that the group project will result in more learning in time management and setting and achieving objectives.We also asked several batteries of questions dealing with individual competences. After controlling for some relevant factors (such as age, GPA, gender, etc), students with higher degrees of self-perceived flexibility are more likely to have reported they liked team work better and also thought themselves quite capable at it, compared to their classmates. Also, self-competence had a significant and positive effect on (self-reported) levels of work ethics and active participation.

Some interesting results came out of the second survey, which students completed after the team project was done. Firstly, students who had used the SNS reported rather negative feelings about it. In fact, in a satisfaction scale between 0 and 10, nearly 60% of them gave it a 4 or less and only 10% ranked their experience with a 7 or more.

When asked about specifics rather than about their general impression, it does not seem that having used *grouply* affects how much students like or how prepared they feel to engage in team work. However, the tests indicate that students in our experimental group reported (statistically significant) higher levels of ability in terms of communicating with their classmates. But they also reported statistically significant lower levels of analytical ability in some areas (such as the ability to look for improvements when using a service or information); less logical learning; lower levels of flexibility; less ability to use common technological tools with ease; and reduced capacity for coordination and participation.

4. Conclusions

The results of this experiment seem to suggest small but negative impacts for the usage of this particular SNS for group projects. Although further studies will consider this question in greater detail, some possible explanations may be put forward using the comments provided by the students in the surveys. A first potential problem may have been the use of a SNS (*grouply*) students are not familiar with. Even students who reported very negative experiences with the tool expressed that the idea of using a SNS seemed attractive to them, but they remarked they would rather use one they are already familiar with. In future pilots, we will explore the possibility of devoting some more time to familiarize students with the SNS and to prepare better teaching materials that would help them navigate the SNS.

Interestingly, one area in which students who used the SNS see themselves as better prepared after the project is in how they communicate with their classmates. Although it is an isolated result, this could suggest that maybe creating new ways for students to interact in and outside the class may be beneficial, and is an area worth exploring.

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