

1 Promoting social capital, empowerment and counter-stereotypical gender behavior in male and female students in online CSCL communities

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Abstract This paper will outline some specific characteristics of online communities which can not only enhance academic knowledge and professional skills, but also increase students' sociopolitical empowerment, social capital and counter stereotypical gender behaviors. We have conducted a series of studies from 1999 to 2010 involving 496 psychology majors and 422 high school students to: a) compare the efficacy of face to face and computer supported collaborative learning (CSCL) in increasing 1) academic knowledge and professional psychological skills, 2) various forms of self-efficacy and empowerment and 3) social capital; and b) to ascertain which characteristics of online learning contexts: 1) produce less conflictive group dynamics, 2) favor the emergence of gender counter-stereotypical behaviours. Most research on gender differences online has focused on examining whether females could overcome the gender gap in participation. Very few studies have explored under which conditions both males and females could exhibit counter stereotypical behaviors. Results showed that asynchronous online and face to face college students achieved similar growth in level of knowledge, social self-efficacy for problem solving and empowerment. Online college students were top performers on professional competence-based tasks and achieved higher levels of social capital. High school students belonging to a school online community showed higher level of offline social capital than non users. Results of the successive only asynchronous online studies showed that CSCL college students groups have fewer conflicts phases than those usually found in face to face groups. Online groups with only male or only female members promoted more gender counter-stereotypical than groups composed of both males and females. Females showed more task-oriented communication generally typical of males and males more process-affective exchanges usually typical of females.

Overall our results show that Computer Supported Collaborative learning contexts, characterized by high level of task and assessment sponsored cooperation, asynchronous communication, presence of facilitating teacher can provide high quality education, contrary to the misgivings many professors hold, particularly in the social sciences and in psychology, fields in which very little e-learning has been implemented.

Educational implications of our findings for community psychologists are particularly relevant. Using this CSLC mode for teaching community psychology skills to examine weak and strong points of small groups, organizations and local communities will enhance student's social capital, empowerment, especially sociopolitical empowerment and promote counter-stereotypical behavior in both male and female students and therefore achieve aims cherished by community psychologists everywhere.

INTRODUCTION

Up until the late 1980 most experiments on computer-supported education of the first and second generation were based on a solo-learner model, and the opportunities to individualize learning processes were supposed to be the crucial feature of computer-aided instruction. More recently, Computer Supported Collaborative Learning (CSCL) has attracted the attention of experts of different disciplines because it enables both independent as well as group learning. CSCL is based on cooperative and constructivist learning theories which focus on social interdependence and maintain that students consolidate their learning also by teaching one another. The new technologies offered by software platforms which include multiple communication modalities have facilitated the application of cooperative and constructive models online. Supporters of CSL think that the social interaction available online can produce interpersonal effects even superior to those found in face-to-face groups (Biuk-Aghai and Simoff 2004). Some argue that it has the potential to provide new, first class educational opportunities to teach even professional skills, normally taught only in graduate programs (Rudesdam 2004). Opponents instead think that the quality of education in online courses can be compromised because teaching and learning are dynamic processes that benefit from non verbal cues present only in face to face settings (Walther, Loh and Grankia 2005) Many agree with Barbera (2004) that the promise of distance education through virtual environment being able to provide high quality education has yet to be realized.

To which of these contrasting theoretical positions do empirical data provide more support? The question is not easy to answer for several reasons. Most published efficacy reviews lump together studies that use first, second and third generation methods of learning, which differ widely in the kinds of social interaction they allow or promote and show contrasting results (Bernard et al. 2004, Jahng et al 2007). Even reviews focused solely on CSCL lament that the lack of control F2F groups, or underline that most studies do not distinguish between synchronous or asynchronous modes of communication or do not do not consider key variables like degree of cooperation required, pedagogical models, teachers' and students' characteristics, subject matter taught, or use different outcome measures which make comparison difficult (Lethinen et al. 1999). Several authors also found that distance education was more effective for undergraduate than graduate students (Bernard et al. 2004; Jahng et al. 2007); Zhao et al. (2004) contend that " the advantage of distance education in delivering learning content in college level courses may not work as well for graduate courses where more complex ideas are explored" (pag 43). ...

On the contrary, we postulate that poor results in meta-analysis studies with graduate students could be due to the fact that we lack well controlled studies. Most research did not distinguish among the theoretical pedagogical models on which the teaching was based, did not differentiate between types of platforms used, synchronous and asynchronous communication, did not assign students randomly, did not hold assessment procedures constant, or employed small samples (Meyer 2006, Fahy 2006) Moreover most varied in the kind of collaborative learning that was promoted. This is a major limit, since there are different levels of collaborative learning:" On the low end of the continuum, a group might be brought together involuntarily, might have members who do not value collaboration, and might be given tasks and assessment that discourage collective behavior. At the high end of the continuum, a group might be created voluntarily, might be trained in specific collaborative techniques.. might be asked to complete tasks that require cooperation and might have their individual assessment tied to those of their group members" (Sipusic et al 1999, pag 3). Furthermore there are few studies which have compared the efficacy of face to face and online courses in transmitting professional competencies, increasing self-efficacy and empowerment, promoting social networking and social capital. (Harris 2003, Maggio et al. 2001, Vodanovich and Pietroski 1999, Susskind 2005). Still fewer have investigated whether groups dynamics in

CSCL lower conflict level (Jonshon et al.) or favor the emergence of counter-stereotypical behaviors in both male and female differences, since most studies have focused on women's overcoming the gender gap in participation. Only a few researchers have explored which types of online experiences promote student's awareness of the construction of knowledge process and the capacity to reflect on learning processes. In this paper we will first discuss four studies which aimed A) to compare the efficacy of F2F and online courses in transmitting professional competencies, increasing self-efficacy and empowerment and social capital; B) to explore how some teachers characteristics (having Master or Ph' D,'s, shorter or longer experiences in teaching on line and face to face) influence students' learning ; and C), to ascertain if learning strategies, personality traits and other psychological variables (such as problem solving, academic and social efficacy and empowerment levels) differentiate students who do better in online or F2F collaborative learning contexts. These first studies we are all done on Yahoo Groups platforms. Then we performed three more studies using a Moodle Platform (which will be described in detail in the chapter) which aimed to ascertain which characteristics of only online learning contexts: 1) produce less conflictive group dynamics, 2) favor the emergence of gender counter-stereotypical behaviours, 3) enhance group work skills, and 4) promote student's awareness of the construction of knowledge process and the capacity to reflect on learning processes.

Can professional skills, social and problem solving efficacy and empowerment be promoted online?

We conducted preliminary studies in the academic years 1999-2002 which helped us to define the evaluation research design, train online teachers, develop appropriate teaching modules that required a high degree of students' cooperation and could be taught sequentially both in regular face-to-face and online community psychology seminars, and develop and test individual assessment procedures of acquired knowledge and small group professional competence assessment procedures. We performed a pilot study in 2002 (Francescato et al. 2006). Fifty psychology majors, homogenous for gender, age and grade average, were assigned randomly to two seminars taught over a 2-month period by the same teacher online and face-to-face, to learn the same professional skill, a community evaluation methodology called community profiling, which allows the users to detect problems and strengths of a local community. All students, divided 10 small groups carried out similar evaluation activities in a local community of their choice. Online and F2F participants achieved a similar growth in acquired knowledge and in the level of professional competence measured through the evaluation of the 10 final group community assessments, but the two best community profiling were done by online-trained students, and online groups were more efficient (four of the five online groups submitted their final analysis before all of the F2F groups). We then undertook a second study (Francescato 2007) involving 166 psychology master level students. They were randomly assigned to four online and four face to face seminars held by the same teacher, two of which focused on developing psychological professional skills (organizational and community analysis) and two aimed to develop more clinical skills (understanding group dynamics and facilitating group processes). Manova analysis showed that both types of seminars were equally effective in improving academic knowledge, social and problem solving efficacy and empowerment. All students achieved an adequate level of professional competences but online students acquired better group observation clinical skills (Mebane et al. 2008).

Can social capital be built online? Collaborative learning usually widens social networks and allows students to make new friends. We hypothesized that F2F fosters more long lasting social capital. We therefore did a follow-up study (Francescato et al. 2007) with the 166 students who had participated in the research previously described, contacting them by phone and email, nine months after the end of the seminars. About 139 were reached, all the 82online students And 57 out the 78 F2F. More F2F than online

students (95% vs 79%) initially made more friends during the seminars, however contrary to our expectations the friendships made online proved more lasting (75% of online vs 59% of F2F still saw the friends met in the seminars and also studied with them more often). These results were similar to the ones we obtained in another study with 264 high school students who belong to a school community online and 138 who did not. Anova Analysis showed that both bridging and bonding social capital were significantly higher for members of the online community. (Tomai et al 2009).

Which students learn better face to face or online? Does teachers experience matter?

One hundred and seventy psychology master level students participated in 5 online and 5 F2F community psychology seminars taught with the same collaborative learning methodologies used in previous studies. They were administered: Questionnaire on learning strategies, the BIG FIVE personality questionnaire, and a Locus of Control Scale. Multiple regression showed that students who benefit more from online contexts are the ones who have more difficulties concentrating on studying, to organize efficient work schedules, who have low levels of perseverance in finishing tasks, low anxiety, high emotional control and high external locus of control. Neither having a Master or a PhD degree nor years of experiences in teaching collaborative learning F2F or online were related to students' performances.

Are asynchronous online groups less conflictive?

Most models of F2F group dynamics postulate that the group goes through sequential phases that include a conflict phase. Johnson's et al. (2002) evidenced instead the lack of the conflict phase in online groups. We conducted a research (Francescato et al. under evaluation) to replicate Johnson et al.'s study, controlling for communication modality. We analyzed communication pattern in 24 small asynchronous online groups using content analysis of email and automated TLab software. We did not find the storming phase in 23 out of 24 groups.

Can we favor the emergence of gender counter-stereotypical behaviours in online courses?

Most research on gender differences online has focused on examining whether females could overcome the gender gap in participation. Very few studies have explored under which conditions both males and females could exhibit counter stereotypical behaviors. Wishart & Guy (2009) We hypothesized that CSCL context, characterized by high level of task and assessment sponsored cooperation, asynchronous communication, presence of facilitating teacher and only male or only female members, could promote more gender counter-stereotypical than mixed groups. About 60 psychology master students were divided into all female, all male and mixed groups learning the same group skills. Females showed more task-oriented communication generally typical of males and males more process-affective exchanges usually typical of females.

Educational implications of our findings and directions for future research

Overall our results show that the new platforms of distance education of the third generation, when integrated with collaborative pedagogical models as in asynchronous CSCL can provide high quality education, contrary to the misgivings many professors hold, particularly in the social sciences and in psychology, fields in which very little e-learning has been implemented. Particularly using this type of CSCL mode to teach community psychology skills, which help examine weak and strong points of small groups, organizations and local communities, will enhance student's social capital, empowerment, especially sociopolitical empowerment, and therefore achieve aims cherished by community psychologists everywhere. Further research should explore if the results we obtained in Italy are replicable elsewhere,

and which other online educational or recreational settings can also promote the growth of empowerment and social capital among their members.