Meet, Collaborate, Learn: An Examination of the Potential of the World Wide Web to Support Collaborative Learning for Students With Disabilities

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Abstract

The new Draft Guidelines for Teachers of Students with General Learning Disabilities have highlighted the potential of Information and Communication Technology as a tool for collaborative learning for students with disabilities (NCCA 2002).

The purpose of this study was to examine how students with disabilities demonstrated collaborative learning skills while engaged with a creative group task in an online environment.

During this study, student participants from four Special Schools, located around Ireland, engaged with each other using e-mail, discussion list, live chat, audio and video conferencing software, to write a short presentation reflecting their experiences as people with disabilities in Ireland. Some existing freeware software was customised to provide participants with access to the tools mentioned above. Following several weeks of collaborating other in an online environment, student's collaborative skills were measured using a specifically developed questionnaire.

Introduction

Communication and collaboration have become central features of the World Wide Web as it has expanded and seen application from politics and commerce to education and recreational pursuits.

In this study, the concept of collaborative learning in a classroom and in online environments is explored. The results obtained were examined in respect to existing literature in this area. This analysis indicates that the potential exists for online communication tools to provide students with disabilities and their teachers with new opportunities for collaborative learning.

Background

The recently published Draft Guidelines for Teachers of Students with General Learning Disabilities [1] stressed the potential of Information and Communication Technologies (ICT) for all students, including those with general learning disabilities. These guidelines

highlight the benefits of ICT in supporting students with disabilities, both in terms of acting as a physical and cognitive support for students with physical and/or learning disabilities within the context of Special Schools in Ireland.
The authors of these guidelines stress that the emphasis of the new curriculum will be on "active learning, and maximising the opportunities for pupil participation and collaboration" [1, p.19].
It is also claimed "…through its use as a collaborative learning tool, ICT also provides opportunities for developing social and peer interaction skills as well as decision making skills" [1, p.27]

These guidelines, however, stop short of specifying how teachers are expected to use ICT as a "collaborative learning tool", how students may be guided in the acquisition of the above skills or indeed what is meant by the term "collaborative learning".

The advent of new technologies and in particular, the Internet and World Wide Web has challenged traditional models of communication and interaction among individuals. New technologies such as Internet Relay Chat, E-mail, Discussion Boards, Internet based audio and video conferencing now provide students with both synchronous (real time) and asynchronous (non temporal) means of interaction.
It has been claimed that all of these technologies offer new and exiting possibilities for collaborative, group based learning [2].
As such collaboration and collaborative learning are being redefined due to these new methods of communications between students. Studies of students engaging in computer supported collaborative learning environments have pointed to several benefits gained from such experiences, for example, better communication and team building skills [3], enhanced critical thinking [4] and more democratic participation in group work [5]. These studies conclude that computer supported collaborative learning environments where groups of learners interact using Internet and Web-based tools can provide the social and therefore collaborative context for learning. Furthermore, such environments when populated with both asynchronous and synchronous communication tools create a milieu for interaction that facilitates the sharing of expertise and the building of knowledge within communities [6,7,8].

Method

Students from four schools participated in this study, two of the schools were based in Dublin with the remaining schools located in Limerick City and in Ennis, Co. Clare.
All four special schools offer a curriculum different from that provided in mainstream primary and secondary schools in Ireland. This curriculum is not usually linked with the formal state examination structures that apply to students in mainstream education. A total of 31 students participated at the start of this study. Several students dropped out, i.e., discontinued participation during the project leaving a total of twenty students who participated throughout the lifetime of this study.

The age range of participating students therefore was 14 – 18 years. Students from all schools were asked to work together to write a script for a short fifteen-minute dance and multimedia presentation.

A questionnaire was administered after completion of the students' participation in the required task and following the end of their online collaboration. The specifically developed questionnaire was administered to participating teachers.
As such student scores obtained constitute a reflection of how their teachers' perceive their collaborative learning.

Results

The table below (*Table 1)*, summarises the collated data from the questionnaires completed by teachers in the four participating schools. Teachers were asked to complete two identical questionnaires, one scoring the incidence of collaborative learning skills in skills and one scoring the incidence of collaborative learning skills while using the online learning environment to engage with the task described earlier.

School	**Student**	**T(OffCo.)**	**T(0lCo.)**	**(OffCo-OlCo)**	**T(Mc.)**	**T(Ac.)**	**T(Mo.)**	**T(Ao.)**	**Total Co.**
1	*a*	22	27	5	15	7	17	10	49
	b	35	44	9	21	14	29	15	79
	c	45	49	4	29	16	30	19	94
	d	31	36	5	23	8	31	5	67
2	*e*	20	29	9	12	8	21	8	49
	f	31	33	2	19	12	19	14	64
	g	29	29	0	17	12	17	12	58
	h	30	27	-3	23	7	21	6	57
	I	24	27	3	12	12	19	8	51
	j	42	49	7	26	16	31	18	91
	k	29	31	2	21	8	23	8	60
	l	36	41	5	22	14	25	16	77
3	*m*	27	27	0	21	6	21	6	54
	n	33	31	-2	25	8	23	8	64
	o	41	44	3	27	14	23	19	85
	p	29	22	-7	21	8	17	5	51
	q	31	26	-5	26	5	21	5	57
4	*r*	19	24	5	13	6	18	8	43
	s	26	29	3	18	8	21	8	55
	t	21	20	1	14	7	14	6	41
TOTAL	**20**	**601**	**645**		**405**	**196**	**441**	**204**	**1234**

Table 1

As shown above, twenty questionnaires in total were returned, four from one school, eight from another, five from the third and three from the final school. The above table represents several scores reflecting individual students' collaboration. Firstly their total score for in class collaboration [T(OffCo)] and their total score for collaboration online [T(OnCo)]. From this a score was obtained reflecting the difference between their collaborative performance in class and in the provided online environment [T(OffCo) – T(OnCo)], see graph 5.5 for a visual representation of this.

To compare the relationship between individual students' online collaboration skills and classroom based skills it was settled that calculating Pearson's co-efficient of correlation would allow a mathematical representation of the relationship between classroom collaborative learning skills and online collaborative learning skills. This measure allows for the determination of the value of the relationship between two variables, in this situation classroom collaboration skills and online collaboration skills [9].

The high number achieved (+0.811) suggests that students who demonstrate a high degree of collaborative learning skills in class will demonstrate the same high degree of skills in an on-line learning environment. The significance of this relationship will be discussed further in the next section of this report.

Conclusion

The potential for exploitation of Internet and Web-based communication technologies to support student collaborations would appear to be well supported, both from the results of this study and from a detailed examination of literature in the field. The removal of limitations of time and place on education provides all students, but particularly those with disabilities with the opportunity for inclusive education. Coupled with appropriate pedagogical models, online collaborative learning would appear to offer all students the potential for a more inclusive education.

Although such potential is clearly supported, further research is necessary in order to provide a firm theoretical background and practical application for the use of such technology.

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