

Cybercells and the Integration of Actual and Virtual Groups

Ken Stevens

Memorial University of Newfoundland, Canada

INTRODUCTION

A cybercell describes the integration of actual and virtual groups in which face to face members extend their discussions to collaborate with virtual visitors (Stevens & Stewart, 2005). Cybercells enable groups of people meeting in physical spaces to engage with virtual visitors using a range of contemporary and emerging technologies. Teachers, for example, are provided with opportunities to discuss their work with other teachers on-site and on-line simultaneously. Students can also discuss their work in classrooms and collaborate with their peers located in other schools who are able to participate in their learning space virtually. By extending one's learning from actual (face to face) spaces to include virtual visitors, learning environments can be extended.

BACKGROUND

The advent of school district intranets in rural Atlantic Canada, within which classes in a growing number of schools are networked with one another through the internet, has led to collaborative ways of organizing teaching and learning. Through intranets teachers in rural schools have been able to provide extended learning opportunities to a growing number of students within these new structures that facilitate face to face and virtual instruction. The creation of the first school district intranet in 1998 was an attempt to use information and communication technologies to provide geographically-isolated students with extended educational and, indirectly, vocational opportunities (Stevens, 2003). The development of further intranets in the province, based on the internet, has encouraged a conceptual shift by teachers, principals, educational administrators and policy makers from a perception of schools as closed, autonomous structures to open learning environments within which actual (face to face)

and virtual classes can be integrated in both real and delayed time. In the process of developing e-teaching and e-learning within intranets in rural Newfoundland and Labrador, teachers, learners and administrators have had to adapt to the new, electronic educational structures of school district intranets within which individual schools become constituent sites. In the open teaching and learning environment of an intranet, participating institutions academically and administratively interface for that part of the school day during which classes are being taught. The school district intranet is a conceptually and operationally-different educational structure from the traditional and, by comparison, closed educational environment of the autonomous school with its own teachers and its own students. Teachers who have been appointed to the closed, autonomous learning environments of traditional schools frequently discover that the administration of the curriculum in a school district intranet requires collaboration with other members of their profession who are located across a range of sometimes distant sites. Many teachers discover that the classroom positions to which they were appointed in traditional (closed) schools have, in effect, been re-constituted as collaborative roles in open electronic environments. As well as teaching in traditional classrooms, a growing number of teachers in Newfoundland and Labrador also now teach classes in other schools in their districts. In doing so, they have both actual (physical, or face to face) as well as virtual teaching presences across the diverse sites that form the province's school district intranets.

Since the inception of the first school district intranet in rural Newfoundland and Labrador, a ministerial inquiry into "distance learning in classrooms" was held that required extensive interviewing of students, teachers, administrators and technology providers together with an examination of research findings based on regular data collection of the initial years of its operation (Government of Newfoundland and Labrador, 2000). The outcome of the ministerial inquiry was

positive in that the Department of Education of Newfoundland and Labrador proceeded to develop a new entity known as the Centre for Distance Learning and Innovation (CDLI). The Centre for Distance Learning and Innovation has the task of expanding the digital model for rural schools in the province and also the range of subjects taught on line (Barbour, 2001). New teaching positions were created including e-teachers and, to assist them within the expanding range of sites (or rural schools that were becoming part of the digital network), mediating teachers, known as “m-teachers.” Mediating teachers were initially appointed to assist e-teachers on sites to which instruction was provided at a distance, in addition to their regular face to face classroom teaching. Subsequently, all staff at a school receiving e-learning from another site within a school digital intranet, including principals and technicians, were considered to be mediating teachers. Today schools in each of the four educational districts of Newfoundland and Labrador are internet-linked to a growing number of other schools and there has been considerable expansion of the number of subjects taught by e-teachers to complement traditional on-site instruction. Networks of teachers and learners in each of the school districts in the province are now part of a province-wide structure administered by the Centre for Distance Learning and Innovation within the Newfoundland and Labrador Department of Education.

PREPARING TEACHERS FOR WORKING WITH CYBERCELLS

Students preparing to become teachers in future schools in Newfoundland and Labrador will be working in both traditional (face to face) and virtual educational environments. They will have the opportunity to combine virtual and physical educational environments through collaborative teaching and learning. The notion of cybercells has been introduced in pre-service teacher education programs in Newfoundland and Labrador as a vehicle for the integration of virtual and actual classes.

The integration of on site and on-line education will be determined by teachers and students taking advantage of the electronic structures that now link physical sites so that, through cybercells, the boundaries between e-learning and traditional face to face instruction will retreat. As well as drawing attention to

the potential for integrating virtual and actual teaching and learning, the advent of cybercells requires changes in the preparation of teachers for employment in these merging educational environments.

An important pedagogical dimension of cybercells is their facilitation of collaboration between both teachers and students as well as between schools. Cybercells enable teachers, students and schools to engage virtual visitors in actual learning spaces using contemporary digital technologies and in doing so have the potential to expand traditional classrooms in terms of time, space and, above all, in terms of teaching and learning capacities. The integration of actual and virtual spaces in classrooms challenges traditional teaching and learning practices and provides opportunities for lessons to be both extended and enriched. Inter-class and inter-school integration of teaching and learning through cybercells has the potential to create new synergies (Thompson, Bakken & Clark, 2001) based on teamwork (Campbell & Guisinger, 2003). Cybercells, by integrating actual and virtual spaces, provide teachers with opportunities to fuse spatial, social and cultural dimensions of classrooms to promote collaboration and mutual construction of knowledge and understanding between learners on dispersed sites.

The first step in the introduction of cybercells to pre-service teachers is the development of awareness of recent changes in school organization, particularly in the case of Newfoundland and Labrador where the majority of schools are located beyond major centres of population. The development of awareness may involve comparison of traditional face to face (closed) classes and the teaching and learning potential of virtual (open) classes that are academically and administratively interfaced within intranets.

The second step in the creation of cybercells for pre-service teachers is an introduction to the need for professional collaboration for effective integration of actual (face to face) and virtual instruction in classrooms. Traditionally teachers have been professionally prepared to teach in face to face classroom environments that have not been open to other classes. In opening traditional on-site classes to other classes for part of the school day within intranets, using the internet, collaboration between teachers becomes essential (Campbell and Guisinger, 2003). In Newfoundland and Labrador's intranets, on-site and virtual teachers are provided with a structure within which to manage collaboration. At the pre-service teacher level collaboration is taught

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