

RUNNING HEAD: STEM~NET: WHO NEEDS IT?

Stem~Net: Who Needs It?

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Abstract

Computer networks like STEM~Net are changing some of the ways in which we teach and learn from one another (Newman, 1993). Before long, we should expect to see improved academic performance in mathematics, science and technology education in this province, due in large part to pedagogical uses of these networks (Beals, 1992; Harris & Anderson, 1991). This paper will present answers to questions the reader may have about the STEM~Net computer network.

What Is STEM~Net?

STEM~Net means "Science, Technology Education and Mathematics Network", a computer network for K-12 and college educators in Newfoundland and Labrador (Weir, 1993). STEM~Net, like other computer networks, provides these users with a variety of services including access to electronic mail, libraries, news groups, conferences and the Internet (Flanders, 1991; Hunter, 1993). STEM~Net maintains and promotes the following services:

- databases of questions, problems, tests and exams;
- databases of lesson plans and teaching ideas;
- NTA Special Interest bulletin boards;
- Science Fair council bulletin boards;
- newsletters (online);
- distance education course materials (online);
- mini-course resources (online);
- conferences (online);
- electronic mail to peers or superiors;
- matching novice and experienced teachers (online);
- "Interact with an Expert": science, tech. ed. or math;
- Science and Technology Advisory Council activities;
- Women in Science and Engineering/ Women in Trades & Technology;
- teacher-sponsored class projects (e.g. AT&T Learning Net).

STEM~Net also supports SchoolNet, a cooperative federal-provincial initiative that links K-12 students electronically across the country. SchoolNet provides students with access to national and international databases. Online educational activities with SchoolNet includes electronic scavenger hunts, career counselling and college and university course calendars.

Will It Succeed?

STEM~Net's staff and consultants have a plan for its success. An important aspect of the plan is that course development, evaluation and training in STEM~Net is based on empirical data about the educators and students in this province. This data reveals current levels of cultural lag in each user subgroup (e.g. primary, high school). Cultural lag refers to changes in the technology occurring more rapidly than changes in our values and attitudes. Cultural lag is discussed in Mann (1993). Course materials and delivery strategies, therefore, include elements of critical thinking, reasoning, problem-solving and living-with-changing environments and tools. The rationale for implementing this

comprehensive approach lies in the belief that skills training' alone can not guarantee continued use of STEM~Net (Mann, 1992).

STEM~Net's comprehensive approach is a critical feature in the plan for managing change in education and ensuring its own success. The plan for managing change is focused on four categories (Mann, 1992):

- 1) high quality of services and products;
- 2) low maintenance costs;
- 3) rapid delivery;
- 4) excellent spirit of service.

Continuous improvement and a commitment to quality services and products have become the hallmarks of other success-oriented educational organizations (Harvey & Green, 1993; van Vught, 1993). These hallmarks are also distinguishing features of two other successful computer networks: the AT&T LearningNet and the National Geographic KidsNet.

Who Needs It?

Based on recent reports (Crocker, 1989; Government of Newfoundland and Labrador (1992); Royal Commission of Inquiry, 1992; Withers, 1992), educators should be investigating new educational products and services. Students will soon become the recipients of these products and services. Student achievement is expected show the impact of effective teacher use of STEM~Net.

Who Pays For It?

There is no user charge for STEM~Net until April 1996, and perhaps beyond that date. A joint federal-provincial agreement (Canada-Newfoundland Cooperation, 1993) has provided the funding for STEM~Net. It is expected that STEM~Net will evolve into an open education network for educators, parents and students.

I'm Not a Science Educator. Am I Excluded?

Not really. You'll have access to a selection of general services:

- electronic mail to peers or superiors;
- general information bulletin boards;
- access to a wide-range of on-line general library and database resources;
- access to the Internet (a world-wide computer network).

The reason for this apparent inequity is that STEM~Net's mandate is to address the primary problem of low math and science achievement in Newfoundland and Labrador by serving the educators teaching in these curricular areas (Weir, 1993).

I Know Very Little About Computers...?

Computer-experienced educators in the Newfoundland education system are currently participating in development and pilot testing of the STEM~Net services.

Training and ongoing advice will be provided to all interested educators. The initial round of comprehensive training is expected to be completed by September of 1994.

How Can I Get Involved with STEM~Net?

While some readers may prefer to take a wait-and-see stance to this innovation, others may wish to get in on the ground floor. Interested individuals should speak to their School Board officials about getting involved. If you are currently working as a K-12 teacher or college instructor, contact your school board or college president's office to receive a copy of the form. If you are a student of Memorial University of Newfoundland, you can drop by the STEM~Net office for a User Permit Request form. If you would like to participate as a resource person, express your interest in a letter to the STEM~Net Office. Provide any computer-related competencies in your correspondence. The address is:

STEM~Net
G.A. Hickman Building
Memorial University of Newfoundland
St. John's, Newfoundland A1B 3X8
Phone (709) 737-8836
Fax (709) 737-2179
Email: hweir@morgan.ucs.mun.ca

How Do I Get My Own Project On the STEM~Net?

Those interested in developing instructional materials for the STEM~Net, should write a proposal. The proposal should identify a need (e.g. a paucity of effective and efficient materials to teach Earth Science). The proposed target audience should be identified (e.g., thirty elementary students, three with learning disabilities). A method of student assessment should also be suggested. The proposal should be sent to the STEM~Net Office.

Conclusion

STEM~Net is currently under development. The hardware implementation and software training is being introduced gradually throughout the provincial education system. In fact, this network will always be under development, managing and maintaining the educational quality of select computer networking services. STEM~Net's existence depends upon it. Without quality control, STEM~Net could accumulate large quantities of junk mail, out-dated lesson plans and invalid or unreliable test items. Quality control assures educators that STEM~Net's educational products and services have been beta-tested and evaluated with educators and students.

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