

National Commission for Excellence in Teacher Education. 1985. A call for change in teacher education. Washington, DC: American Association of Colleges for Teacher Education.

National Commission on Excellence in Education. 1983. A nation at risk: The imperative for education reform. Washington, DC: U.S. Government Printing Office.

Salant, P. and D. A. Dillman. 1994. How to conduct your own survey. New York: John Wiley & Sons.

Shelhamer, V. 1995. Directory of teacher educators in agriculture. Washington, DC: U.S. Department of Education.

Designing and Using World Wide Web Study Pages to Support Student Learning Outside of the Classroom

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Abstract

The World Wide Web can be an effective pedagogical tool to improve student learning. Carefully designed Web Study Pages are easily delivered to students via the World Wide Web. Designing a useful Web Study Page requires careful planning. Students are pragmatic users and exercise a "print and go" attitude while instructors may focus on innovative and artful delivery anticipating the student will process information at the computer. Web Study Pages are easily updated to meet changing class needs. Web Study pages afford teachers the unique opportunity to be intrusive into the student's pre-class preparation process during the time when they are acquiring factual information. Students who used the Web Study Pages demonstrated better preparation for class and evidenced by improved factual understanding and ability to synthesize information to solve problems.

Introduction

Innovations in teaching technologies have afforded instructors the opportunity to adapt their individual styles to the available tools. As new developments present opportunities and challenges to teachers, they also create uncertainties as to which technologies may actually be beneficial for enhancing learning in their classroom. Over the past three years we have developed, modified, and revised an extensive set of documents for publication to the World Wide Web (Web) (Partridge 1997). These Web Study Pages are designed to support a junior level university course titled *Introductory Plant Pathology*. The experience we gained in developing this system may be beneficial to others considering the use of the Web to support their courses.

The pedagogy of any course is an instructional package that reflects the planning of the teacher to support his/her teaching philosophy and style. In our course, in-class time is used for processing information and learning to use facts for problem solving and application. This is accomplished in an active learning/participation mode through question, answer, exposition, and discussion of the materials assigned for the day. The student's daily pre-class preparation of assigned textual materials is essential. The continuing challenge is to motivate students to prepare factual materials prior to class discussion.

We have observed this mode of teaching, which requires students to participate in an active intellectual discussion after having assimilated a factual information base through their own per-class preparation, was a new experience for many. Accordingly study guides (handouts) served to direct students in their preparations for class became an integral part of the course materials. These study guides reflected a 'constructivist' view of learning, that students must individually discover and process information in order to integrate it into their own mind (Brooks and Brooks 1993). The guides worked well but had some drawbacks, primarily their production and the repetitive, non-interactive nature of multiple handouts. We initially used the World Wide Web to replace handouts. The Web was an unqualified success in that regard. The Web Study Pages have expanded beyond the original handout replacement, but this discussion will be confined to the Web Study Pages.

A student accesses the Plant Pathology Web Study Pages through Internet connections at home or at a University-provided computer. On entering the site, a student is presented with the course Home Page. From this starting

Results and Discussion

The data and information presented in this paper provide baseline data on preservice teacher education programs of agricultural education in the United States. The results of this survey research are intended to overcome the lack of knowledge about where, what, how, to whom, and by whom agriculture teacher education is provided. It is hoped that the data and information will initiate a framework for future research efforts that will improve and strengthen the role and effectiveness of agriculture teacher education.

Most preservice teacher education programs are accredited and administered in Colleges of Agriculture. A typical preservice teacher education program will have 41 preservice students educated by 1.7 full-time equivalent (FTE) faculty members in agricultural education. Most of the degree certification programs in agricultural education for preservice students are four-year programs following a semester calendar.

Departments/programs admitting students into teacher education require a 2.50 minimum grade point average (on a 4.00 point scale) for entry. Tests required for admission into teacher education vary by institution. Personal interviews and letters of recommendation are not the norm for students to gain admission into teacher education. Departments desire students who have excellent communication skills, have previous experience in 4-H and/or FFA, and who are active in college activities. These students must also have substantial work experience in agriculture, which may be attained in college if need be.

Generally, the curriculum anatomy of an agriculture teacher education student is as follows: 131 semester hours with students completing 45 semester hours in general education, 43 semester hours in technical agriculture, and 37 semester hours in professional education. Preservice students must complete course work in multicultural education, exceptional children, and computers/instructional technologies. Preservice students complete 60 clock hours in an early field experience program and spend 12 weeks student teaching.

Departments and program areas should establish criteria for admission that will allow qualified candidates to enter teacher education. Departments/programs should establish criteria that include attitudes toward teaching, completing diverse agricultural experiences, and diverse experiences in working with youth and children. If agricultural education teachers are to have stronger backgrounds in business and science, efforts should be made to recruit individuals who have strong backgrounds in these areas or provide opportunities in the preservice teacher education program to allow preservice teacher education

students to experience and learn how to integrate science and business into the agricultural education curriculum.

What type of experiences do teaching majors encounter in early field experience programs and student teaching? As teacher education programs plan early field experiences and student teaching activities, efforts should be made to provide preservice teacher education students opportunities to work with academic teachers in integrating agriculture into the curriculum as well as providing experiences in different school settings so preservice students can work with students of difference backgrounds and different agricultural settings.

Curricula used to prepare preservice teacher education students should contain a sufficient number of hours in natural science as it applies to the science of agriculture being taught in high school agricultural education programs. Preservice teacher education students should also complete course work on how to deal with special and diverse populations. Furthermore, early field experiences and student teaching experiences should provide opportunities for preservice students to work with special populations.

While this study provides a good foundation from which to look at agriculture teacher education, further research needs to be conducted in the following areas:

1. Replicate this study every five years to ascertain the status of the profession and the trends regarding teacher education in agriculture.
2. Determine the effects and benefits of preservice students completing a four-year degree certification program or a five-year degree certification program.

Literature Cited

- Committee on Agricultural Education in Secondary Schools. 1988. *Understanding agriculture: New directions for education*. Washington, DC: National Science Foundation.
- Cruickshank, D. R. 1984. Toward a model to guide inquiry in preservice teacher education. *Jour. of Teacher Education* 35(6): 43-48.
- Holmes Group. 1986. *Tomorrow's teachers: A report of the Holmes group*. East Lansing, MI: Michigan State University.
- Lynch, R. L. 1990. *A national database on vocational teacher education*. Berkeley, CA: National Center for Research in Vocational Education.
- Lynch, R. L. and M. L. Griggs. 1989. *Vocational teacher education: A context for the future*. Berkeley, CA: National Center for Research in Vocational Education.

National Commission for Excellence in Teacher Education. 1985. A call for change in teacher education. Washington, DC: American Association of Colleges for Teacher Education.

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