Teachers’ Professional Development in Vocational Education with Technology Integration

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Abstract
Vocational teachers today face the challenge of utilizing and integrating computers and related technologies into their instruction in a manner that enhances student learning and achievement. Based on International Society for Technology in Education (2000) standards, teachers should demonstrate understanding of technology operation and concepts, implement curriculum plans to maximize student learning, and use technology to enhance productivity and professional practices. This teaching unit is designed for teachers’ and school personnel’ professional development in vocational education system. The unit is designed to meet all six facets of understanding including explanation, interpretation, application, perspective empathy, and self-knowledge. In the paper, several issues also will be considered to incorporate a technology component into the activity when design this teaching unit.

I. Introduction
Vocational teachers today face the challenge of utilizing and integrating computers and related technologies into their instruction in a manner that enhances student learning and achievement. Modeling appropriate uses of these resources by teachers in the classroom can help teachers with the necessary knowledge and skills to use these tools effectively in their classrooms. Dyrli and Kinnaman (1994) stated, ”Technology has transformed every segment of American society—except education . . . schooling today remains much the same as it was before the advent of the personal computer” (p. 92). Barriers to using technology in education include lack of teacher time, limited access and high costs, lack or vision or rationale for technology use, lack of training and support, and current assessment practices that may not reflect what has been learned with technology (OTA, 1995). Competencies focus on the ability of vocational teacher to utilize and integrate a wide variety of educational computing and technology applications to enhance student learning and to increase teacher productivity. Saye (1998) stated that four general factors must be considered before teachers will accept and use technology: time, preparation for future, knowledge, and availability. This course is designed as a professional development course for use with classroom teachers and school personnel in vocational education system. Upon completion of the course, the participants will be able to integrate technology into classroom instruction and feel prepared to use technology for instructional and personal use.

II. Get ready to integrate technology
U.S. Secretary of Education Richard W. Riley released the nation's first educational technology plan in 1996. In 2000, he announced a new plan showing “where progress has been made, where new opportunities exist, and where challenges remain” and included news of five new national goals and a link to the plan. Integrating technology can seem like a formidable task to the vocational teacher. But what if there was a way to bring computers into the curriculum while saving time and engaging the learner? Technology can enhance learning—and calls on teachers to take a leadership role in determining the ways in which technology is used to support educational goals. Based on International Society for Technology in Education (2000) standards, teachers should demonstrate understanding of technology operation and concepts, implement curriculum plans to maximize student learning, and use technology to enhance productivity and professional practices. Technology benefits teachers by not only providing information, but the real advantage is that these tools can save time and energy in order to offer guidance for research and communication. Teachers need to be able to use technology in the classroom in order to prepare students for the 21st century.

III. Design principles of understanding
The unit is designed to meet all six facets of understanding according to principals of understanding by design (Grant Wiggins & Jay McTighe, 1998). The first facet is explanation. Participants will relate current research to classmates. The second is interpretation. Upon learning about the Internet, participants will interpret the information to brainstorm ways to integrate the Internet into the classroom on an understanding level. Participants will interpret current research to synthesize it for classmates. The third is application. Participants will search the Internet, utilize e-mail, create a web page, compose a biography paper (Word), compose a biography presentation (PowerPoint), compare student performance (Excel), and conduct and synthesize research. The next is perspective. The teachers must evaluate the sites for use by other teachers. They must take into consideration the needs of others. Participants will determine if research information. The fifth facet is empathy. Participants will
discuss perceptions of technology (fears, failures, successes. Participants will discuss amounts of technology available in their own school districts. The last is self-knowledge. The teachers must evaluate the sites for use in their own classrooms and instruction. They must consider what they will and will not use and why.

When design this teaching unit, the following issues need to be considered. The first issue is to consider what enduring understandings are required. Teachers will understand that technology can improve both teaching and learning. In addition, teachers will understand the importance of technology integration in the classroom. The second issue is to review what the overarching “essential” questions are such as what do you know about the importance of technology in the 21st century and “how can technology affect the efficiency of school personnel”. The next issue is to look at what teachers understand as a result of this unit will. The purposes are that teachers will understand how to use the Internet to search, to use e-mail, to use Instant Messenger and to design a class and/or personal web page. Teachers will understand how to use Microsoft Office applications (Word, PowerPoint, and Excel) to increase efficiency of classroom organizational tasks. Teachers will understand the importance of technology integration in the classroom to improve teaching and learning. The fourth issue is to consider what “essential” and “unique” questions will focus this unit. Some samples are (1) What is the Internet? (2) How can the Internet be a useful classroom tool? (3) How can Microsoft Office applications be useful to teachers? and (4) What does current educational research say about the integration of technology in the classroom? The last issue is, “What evidence will show that students understand technology integration?”

IV. Incorporate a technology component into the activity

This activity will allow teachers to start thinking about technology integration. Though they may be aware of technology, some teachers are not aware of the benefits of technology integration. Teachers will read the article and discuss it in small groups. The article will be used to facilitate a large group discussion of technology integration. Teachers would love to incorporate a technology component into the activity. The fist procedure is to distribute copies of the article “Computers, Creativity, and the Curriculum: The Challenge for Schools, Literacy, and Learning” (Sefton-Green, 2001). Then the participants will read the article. While reading the article, the teachers will note uses for technology in the classroom as well as barriers of technology use in the classroom. In groups of 3 to 5, the teacher will discuss their thoughts. Each group will share their thinking in a brief oral presentation. Based on the comments of the groups, a large group discussion will be facilitated. The following topics for discussion are: (1) Why do you think technology can be scary? (2) Why do teachers integrate technology? (3) Why do teachers not integrate technology? (4) What could be done to make teachers more likely to integrate technology? (5) What differences do you see in the amounts of technology present in various school districts? and (6) How and why do I integrate technology in the classroom? Finally, the teachers will write reflectively according to the following prompt. The teachers will understand the goal of the workshop through reading and discussion and begin to think about the role of technology in the classroom. The materials will be a copies of the article, writing prompt. The instructor will read the reflection of each teacher and will be looking for positive and negative aspects of current technology integration, or lack thereof. In addition, follow-up will occur on an individual and large group basis. The follow-up will depend on changes in thinking from the first day writing prompt to the mid-unit writing prompt.

V. Conclusion

It was created to prepare teachers to use technology in the classroom for vocational education. In order for this unit to be successful, each participant will need access to a computer, the Internet, Netscape, Microsoft Office, and a printer. The goal of the unit is to give teachers an understanding of technology uses and applications that will benefit instruction and organization in the classroom. Also, teachers will understand the importance of technology integration. Any instructor using this unit must be highly skilled in technology use. The developers recommend that a district Technology Coordinator be the instructor for this unit. Additionally, the instructor should show knowledge of current educational research concerning technology integration.

References


