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Commentary: Phases of Collaborative Success: A Response to Shoffner, Dias, and Thomas

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Shoffner, Dias, and Thomas (2001) described a model for support of collaborative planning between the teacher education program and the instructional technology program at Georgia State University (GSU). Collaboration between instructional technology and teacher education programs can be a multiphased process. The successes cited by Shoffner, Dias, and Thomas are likely to benefit programs in a similar early phase of collaboration. In this article the author proposes that there are three phases of collaboration. These phases can be difficult to traverse, both because of differing accreditation standards and processes for teacher certification in other states, and because of differing cultures and circumstances within other teacher preparation programs.

THE CULTURE OF COLLABORATION

Although teacher educators usually have expertise in one particular content area, instructional technologists rarely do. Instructional technology professionals have a deep knowledge of one content area and are not typically well-versed in all areas. This makes collaboration between instructional technologists and teacher educators crucial. I, for example, am an instructional technologist with a background in mathematics, including experience as a high school mathematics teacher, but I am less knowledgeable about the humanities. This does not preclude me from collaborating with humanities educators, but it does require me to depend more upon their content expertise.

The culture of methods instructors in teacher education programs also differs from the culture of instructional technologists. Methods instructors are likely to believe that technology integration is different in each content area. For example, the most common use of technology in middle and secondary mathematics classes, as well as in many science classes, is the graphing calculator. Dion, Harvey, Jackson, Klag, Lie, and Wright (2000) reported that graphing calculators are an integral part of 42% of algebra II classrooms and 70% of precalculus/trigonometry classrooms. Today the graphing calculator is found in almost all high school algebra classes and above, and is even finding its way into middle school mathematics classrooms.

However, the instructional technology community is often unaware of the pervasive use of the graphing calculator as an educational technology. For example, the extensive 1998 CRITO Teaching, Learning, and Computing survey (http://www.crito.uci.edu/tlc/html/tlc_home.html; Becker, 2000) did not consider graphing calculators as an educational technology. In the results of this survey, mathematics teachers were ranked near the bottom of secondary teachers (only one in nine teachers) in using computers frequently in the classroom, while secondary English teachers were ranked among the highest (nearly one in four teachers). The implication that English teachers use technology more than mathematics teachers is clearly affected by the failure to include the dominant educational technology employed in mathematics teaching. The reason that this technology has been incorporated into mathematics teaching is also notable. It is one of the few educational technologies designed from the ground up around a particular content area curriculum.

The difference in cultures produces differing definitions of educational technology. On the face of it, a graphing calculator performs much the same function as a spreadsheet. However, a spreadsheet is a business technology adapted for mathematics teaching, while the graphing calculator was explicitly designed for the mathematics curriculum. Consequently, mathematics teachers prefer the graphing calculator to generic spreadsheets. Access is another important issue. The amount of time per week the average student has access to a school computer can be measured in minutes, but because each student has a graphing calculator, mathematics teachers can employ it in almost every class.

However, the majority of instructional technology programs supporting teacher education programs prepare teachers to use spreadsheets rather than

graphing calculators. Mathematics teachers need exposure to graphing calculators rather than spreadsheets, while future English teachers benefit little from lessons on either spreadsheets or graphing calculators. Therefore, the generic technology courses frequently offered miss the mark on both counts. That is not to say an initial orientation to generic technologies is not worthwhile—just that all too often this is an ending point rather than a beginning point.

How likely are middle and secondary English teachers to use spreadsheets in their instruction? Why are secondary mathematics teachers often required to learn how to use *Hyperstudio*™? Examples of technology misfits from other content areas abound as well, indicating that many teacher education programs, and the instructional technology departments supporting these programs, provide educational technology courses that are too narrow in their definition of educational technology (e.g., computers only), and too broad in preparing preservice teachers to use this technology in their teaching.

At San Diego State University (SDSU; http://edweb.sdsu.edu/) each year approximately 900 students enroll in 30 sections of EDTEC 470 Technology for Teachers (http://edweb.sdsu.edu/Courses/EDTEC470/). This presents a challenge both in terms of consistency across sections and individualizing specific sections to address particular content needs. Beginning in Fall 2002, several content-specific sections will be offered, including ones for math/science education, secondary humanities education, and elementary education.

Effective collaboration between instructional technology departments and teacher education programs can allow preservice teachers to experience technology that is less generic and more content specific. This approach works well, especially when content area methods faculty have contributed to the design of content-specific educational technology courses (Francis-Pelton, Farragher, & Riecken, 2000). Due to the ever-changing landscape of technologies, instructional technology faculty will continue to be needed, for they offer expertise on continually emerging technologies that are transforming both universities and K-12 schools. By establishing partnerships in the development and teaching of these courses, co-ownership can develop.

Shoffner, Dias, and Thomas proposed that instructional technology faculty should assume the responsibility of being “advocates for technology” (Duffield, 1997). Instead, instructional technology faculty should help teaching methods faculty consider how technology can enable them and their students to “extend learning beyond what could be done without technology”

(Mason, Berson, Diem, Hicks, Lee, & Dralle, 2000). The key difference is that technology should be in the background rather than the foreground. Moreover, individual content area standards should be the driving force rather than technology standards.

PHASES OF COLLABORATION

Both the National Council for the Accreditation of Teacher Education (NCATE, 1997) and the International Society for Technology in Education (ISTE, 1999) reported that schools of education are not adequately preparing their preservice teacher education students to effectively integrate technology in their future classrooms. The editors of *Electronic Learning* magazine stated similarly, "Technology does not permeate a student's typical preservice education experience, and that is a major impediment to technology use once they become teachers" (Schools of education: Four exemplary programs, 1991, p. 21).

The following are recommendations to address these concerns of preparing preservice teachers to integrate technology into their teaching:

- Integrate technology throughout the entire preservice teacher experience (Byrum & Cashman, 1993; Hadler & Marshall, 1992; ISTE, 1999; NCATE, 1997; President's Committee of Advisors on Science and Technology [PCAST], 1997; U. S. Congress, 1995; Wetzel, 1993; Willis & Mehlinger, 1996).

- Provide faculty models for effective technology integration (Beisser, 1999; Byrum & Cashman, 1993; Hadler & Marshall, 1992; ISTE, 1999; NCATE, 1997; PCAST, 1997; Thompson, Schmidt, & Hadjiyianni, 1995; U. S. Congress, 1995; Wetzel, 1993; Willis & Mehlinger, 1996).

- Provide field experiences with technology using clinical instructors (PCAST, 1997; U. S. Congress, 1995).

Collaboration between instructional technology and teacher education programs should incorporate these strategies. Such relationships between instructional technology and teacher education faculty members are perhaps the first and most important step in the process of schools of education

transforming teacher education programs in ways that will produce effective technology-using teachers.

Different programs are at different stages of collaboration. Some are struggling to establish collaborative relationships, other are collaborating and trying to incorporate strategies such as those noted previously, while others programs have not only implemented these strategies, but are devising longitudinal studies to assess their ultimate impact. This might be visualized as successive phases of collaboration:

- Phase 1: Developing a Collaborative Relationship
- Phase 2: Addressing Content-Specific Needs
- Phase 3: Assessing the Long-Term Effects of Collaboration

PHASE 1: DEVELOPING A COLLABORATIVE RELATIONSHIP

The academic culture rewards individual excellence. Therefore, collaboration across disciplines is universally acknowledged to be challenging. Differences in outlook and culture also complicate the process. The question posed by many programs is probably similar to, "What do we need to do to start the collaborative process?" The collaborative approach at GSU described by Shoffner, Dias, and Thomas (2001) provides some valuable insight for programs in this first stage.

Shoffner, Dias, and Thomas described the challenge facing instructional technology faculty who are beginning to collaborate with colleagues in teacher education. It will be equally challenging for instructional technology faculty extending their focus from corporate-oriented teaching and research to include preservice teacher training and research as well. For instructional technology departments in transition, the following steps are proposed by Shoffner, Dias, and Thomas for establishing collaborative relationships with teacher education:

- Be familiar with current issues in teacher preparation and K-12 schools.
- Find a single teacher preparation unit or team willing to work with an "IT consultant."

- Nurture relationships by attending department or unit meetings.

These suggestions are immediately useful to programs initiating the collaborative process. However, these suggestions, if not implemented thoughtfully, could cause teacher educators to view instructional technologists as intruders invading their area of expertise. The infusion of U.S. Department of Education PT3 (http://www.pt3.org/) grant funding has caused technology faculty to become more interested in teacher education, but also has heightened awareness of differences between the two cultures, as each becomes aware of the perspective of the other.

Shoffner, Dias, and Thomas noted that they want "both technology and the methods" to be "reinforced throughout their [preservice teachers'] other courses at GSU." The underpinnings of this collaborative relationship are important. How is collaboration helping to reinforce both technology and teaching methods throughout the other courses at GSU? What is occurring in the teaching methods courses to demonstrate that appropriate uses of technology are being incorporated? Other teacher education programs will benefit as a richer, extended description of this process at GSU is provided.

PHASE 2: ADDRESSING CONTENT-SPECIFIC NEEDS

Some teacher education programs have made significant strides in establishing long-term collaborative relationships with corresponding instructional technology programs—integrating technology throughout the preservice teacher experience, providing faculty models for effective technology integration, and providing field experiences with technology using supervising teachers (Strudler & Wetzel, 1999). Teacher education programs in this phase have invested several years of effort toward these goals. These programs can serve as a second tier of models for schools of education still exploring the range of activities their collaborations might include.

Some of the richest opportunities for schools of education to share stories about their successes and failures may be found at this level. A wide range of activities were initiated and cultivated as a result of the initial PT3 funding in 1999; the shared evaluations of these activities will provide invaluable data for schools of education still defining the nature of the collaborations they are developing. Nearly 200 programs were awarded PT3 grants in 1999, which

should yield an extensive amount of data to the teacher education community, including detailed qualitative descriptions of the collaborative efforts carried out at each of these universities. These stories can be leveraged by programs awarded PT3 grants in successive years, as well as those who have not, and are currently defining the nature of their collaborative relationships.

PHASE 3: ASSESSING THE LONG-TERM EFFECTS OF COLLABORATION

Collaboration should be driven by the needs of individual content areas and address recommendations established to allow teacher education programs to better prepare preservice teachers to integrate technology into teaching. Long-term assessment will not only provide information that will allow these recommendations to be refined, but also may provide insight into the types of collaborations that are most effective, answering the question, "Does meeting these recommendations, in fact, produce effective technology-using teachers?"

The recommendations appear to have face validity as a reasonable starting point, but must be evaluated to ascertain their actual effect. Preservice teachers matriculated through programs that have met the stated recommendations must be followed into the inservice arena to show that affective change has been made in the quantity and quality of technology use in their teaching. At the microlevel instructional technology faculty and teacher educators are collaborating at our local institutions to better prepare preservice teachers, and at the macrolevel we are collaborating through forums such as this to define what collaboration should be like and how we will know that our collaborations are successful.

Teacher education programs cannot uniformly implement technology integration plans in the same way, because local conditions and state accreditation standards and processes differ significantly. However, different teacher education programs can find success through what may appear to be divergent approaches based upon the same foundational principles. In the years ahead we will learn of the fruit of our collaborations. As we honestly share our successes, as well as our failures, we can iterate toward an understanding of what these foundational principles are and how to build upon these principles.

COLLABORATION—A PROCESS RATHER THAN A PRODUCT

No matter where a particular program lies within these phases of collaboration, it must not be forgotten that we should continually strive to advance our programs, whether it be from one phase of collaboration to the next or perhaps to other phases I have not defined. Each of us participating in a collaborative effort should continue to ask the question, "Where do we go next?" Given that opportunities to collaborate are likely different in different programs across the country, the answer to this question might vary significantly from institution to institution.

At SDSU the effort to collaborate with teacher education faculty is complicated by the fact that a large portion of the students enrolled in our educational technology course, EDTEC 470, Technologies for Teaching (http://edweb.sdsu.edu/Courses/EDTEC470/), are inservice teachers taking the course to meet their credentialing requirements. These differences cause us to ask different questions, such as, "How can we collaborate with local schools to provide class technology experiences that coincide with the demands of their inservice teachers while also providing experiences that will benefit preservice teachers?" It is not anticipated that the day will come when the collaborative efforts aimed at answering this and other questions will end, for the preparation of both preservice and inservice teachers is a process. Likewise, collaboration between instructional technology and teacher education programs is a process.

CLOSING COMMENTS

There is much to be gained from treating collaboration within individual institutions as a process. Similarly, the dialogue between institutions regarding effective collaboration strategies should also be treated as a process. Shoffner, Dias, and Thomas provided a perspective from a first phase of collaboration. To provide a clearer understanding of the overall collaborative process, perspectives from other schools of education in the second and third phases of collaboration are also needed.

Last, we must be mindful that, although there are currently over 1,300 institutions of higher education preparing teachers, gradschool.com reports only 231 institutions offering graduate degrees in instructional or educational

technology. Of these 231 institutions, I would estimate that only 60 house instructional technology departments similar to those discussed in this commentary and the initial article written by Shoffner, Dias, and Thomas. A point clearly missing in the discussion thus far is that the majority of teacher education programs are not supported by instructional technology departments; rather they are supported, at best, by a single instructional technology faculty member. While I am not qualified to comment on the nature of collaboration at these institutions, I am confident that it is carried out differently than at institutions with instructional technology departments. Most teachers are being prepared at institutions that lack instructional technology departments, requiring us to include faculty from these institutions in this discussion as well.

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