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Documentation as Problem Solving for Literacy Outreach Programs

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Introduction

Age-appropriate technical writing lessons for underperforming high-school students can offer them an innovative, "authentic" way to improve how they read and write. Thus the techniques and principles of effective technical communication routinely applied at work also provide a positive response to one of today's great educational challenges. This workshop shows participants how to (1) introduce English and science teachers to the value of technical writing as a response to school literacy problems, (2) prepare plausible practice exercises to help students improve their basic literacy, and (3) recognize and respond to known literacy outreach pitfalls.

Every effective literacy outreach project based on technical writing needs to address four key problems.

Professional Model

Problem 1: What is the appropriate professional model for improving high-school literacy?

Many high schools offer quasi-vocational courses in journalism (or in journalism's mirror image, public relations), in part because such programs are actively promoted by their corresponding professional organizations (Fimrite, 2003; PRSSA, 2000). Technical writing concepts and practices offer an intellectually broader and often more appropriate model, however, because:

- Designing good instructions and descriptions are now skills specifically embedded in many state language-arts content standards (e.g., CDE, 1998).
- High school graduation exit examinations often overtly stress technical reading and writing cases (e.g., CDE, 2002).
- A body of experience that spans 80 years shows how effectively "authentic" (real-world) technical writing activities can help students build valuable cognitive skills that many are unlikely (or unable) to develop in other ways (Blicq, 1995; Fearing and Allen, 1984; Garay and Bernhardt, 1998; Girill, 1991; Patterson, 1995).

Strategic Contribution

Problem 2: What is the strategic contribution of technical writing as an alternative to literature?

Literature and literary analysis comprise the standard framework for teaching writing in American schools (Willinsky, 1991). Exclusive focus on this framework limits all students to an unnecessarily narrow view of literacy, however, and students who lack a rich literature background often cannot gain adequate writing skills in this way at all (Caswell, 1998). Technical writing:

- expands literacy to genres beyond the limits of narrative fiction (Beaufort, 1999; Girill, 1985),
- promotes the socially responsible, civically valuable concept of writing to help someone else succeed (Duke, 2003; Goodson, 2002),
- introduces usability as an important, achievable writing goal (Bernhardt, 1992; Hargis, 1998), and
- reveals the interdisciplinary mix of knowledge and technique that enables writers to design or engineer their own text for maximum effectiveness (Schriver, 1997).

Tactical Benefits

Problem 3: How can technical writing provide appropriate tactics to improve high-school literacy?

Many school English teachers (and hence their students) are unaware that professional best practices can also yield a "second harvest" of beneficial classroom writing exercises:

- Overt guidelines that summarize proven techniques encourage more participation and consistency (Mayer, 1995; Wright, 1985).
- Layered, scaffolded practice can introduce serious technical writing skills gradually (Guzdial, 1999; Moats, 1999).
- Sequenced, worked cases can help unprepared students develop their essential prewriting skills (Hoey, 1983; Jordan, 1984).
- Students who find technical topics daunting can gently encounter science by writing about its role in everyday things (Macaulay, 1998; Petrowski, 1992; Rude, 2002).

Micro-Level Challenges

Problem 4: What micro-level challenges thwart literacy success?

Literacy development is often hard, even with clever technical writing strategies and tactics in play, because of very specific latent problems such as these:

- Absent enabling skills can thwart student success (Berkowitz, 2002; Sharples, 1999).
- Some students do not know how to learn from examples, even when good examples are abundant (Chi, 1989; Girill, 2001).
- Learning new words and concepts is much harder for those whose word and concept vocabulary is already small (Hirsch, 2003).

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For 25 years, T. R. Girill has led innovative documentation projects at the National Energy Research Supercomputer Center and related LLNL centers, work reported in three dozen articles and conference papers. He served as associate editor of *Technical Communication* from 1983-1990 and as editor in chief of the *ACM Journal of Computer Documentation* from 1995-2000. He was elected a Fellow of the Society for Technical Communication in 1999 and received the ACM Outstanding Contribution Award for service to SIGDOC in 2001. Besides supervising many interns, Girill has taught professional development courses at UC Santa Cruz Extension (1986-1992), and, since 1999, has worked in classrooms with underperforming urban high-school English students to improve writing skills with customized technical-writing exercises.