Handouts for

The 21st Century Teacher:

Technology Staff Development Opportunities for Teachers Who Already Know How to Word-process.

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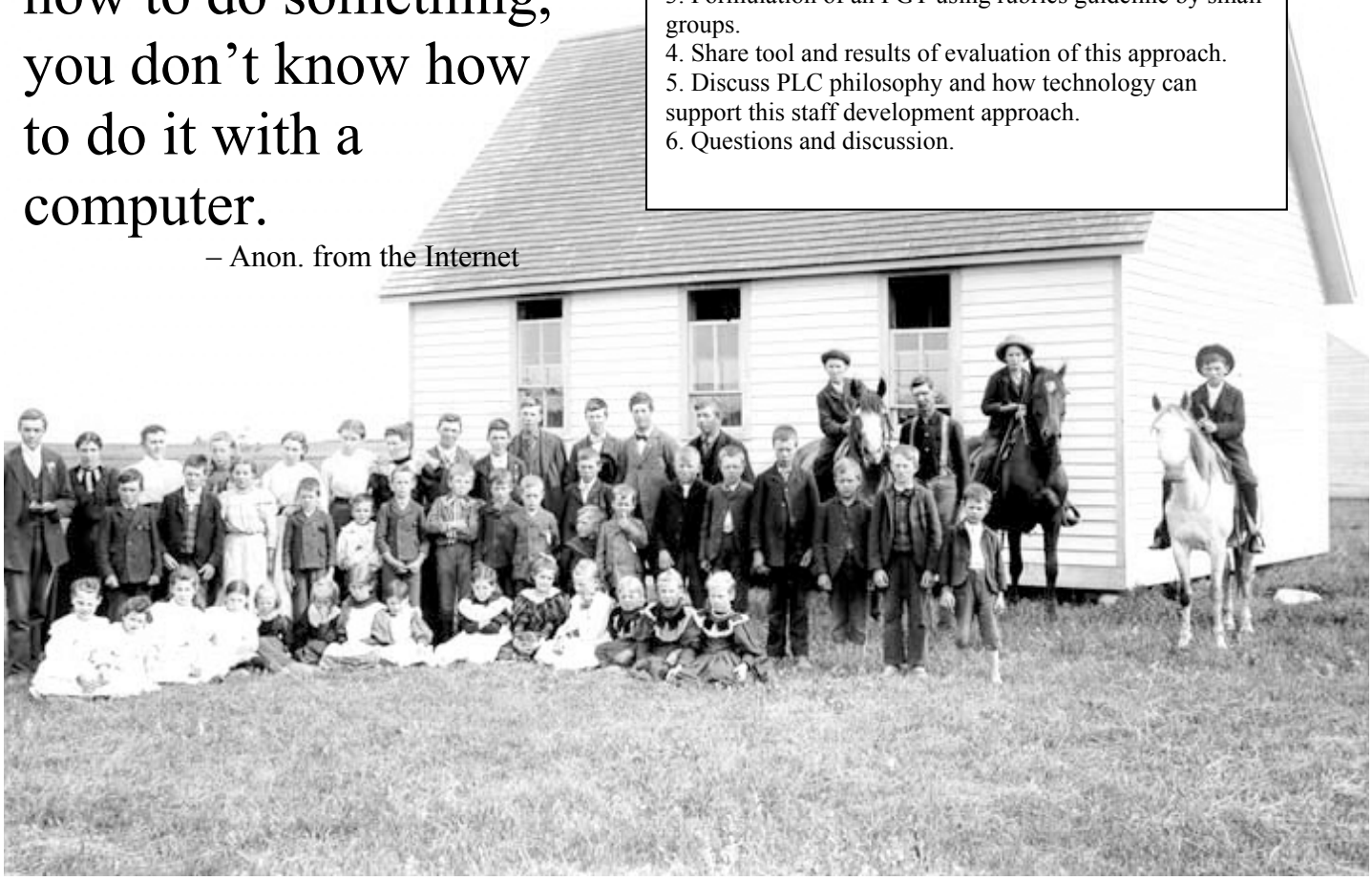
If you don't know how to do something, you don't know how to do it with a computer.

– Anon. from the Internet

The 21st Century Teacher

1. Introduction:Discussion - how do we make staff development more meaningful and what are the challenges?
2. Introduction to the rubrics for restructuring (tied to NETS-T). Individual completion of the rubrics by participants
3. Formulation of an PGT using rubrics guideline by small groups.
4. Share tool and results of evaluation of this approach.
5. Discuss PLC philosophy and how technology can support this staff development approach.
6. Questions and discussion.



The 21st century teacher…Discussion items:

Are you the product of a BC education? What were the implications of having only:

- One school
- One teacher
- One time of day to learn
- One set of opinions
- Minimal skills to get and keep a job

What happens when:

- Education is no longer an option?
- Geography is no longer a factor?
- Standards are articulated?
- Technology is ubiquitous?
- EVERYONE needs information literacy skills?

Did you as a learner ever experience…

- a teacher not suited to you?
- a class that was unavailable in your area?
- a need for training in a skill at a non-traditional time of day
- a time you had to drop a class because of other commitments?

At what things will the 21st century teacher need to be very, very good?

- Are these *technology* skills or re these *teaching* skills?
- What technology is making possible
- What technology is making imperative
- The new demands of education – all children must learn

7 Skills:

Skill 1: Process expert: What questions do these teachers need to be able to as?

Skill 2: Value clarifier: How do we handle bias, politics and ethics in the instructional process?

Skill 3: Executor of excellent methodologies: What technology skills do teachers *really* need to have?

Skill 4: Motivator: What turns kids on to learning? How do I reach EVERY child?

Skill 5: Team worker: Who would you want on your teaching team?

Skill 6: Distant influence. How do I keep parents from putting their kids in schools other than mine?

Skill 7: Life-long learner: How do *I* keep current with best practices in education?

Rubrics for Restructuring - The Advanced CODE 77 Rubrics

From *The Indispensable Teacher's Guide to Computer Skills* 2nd ed. Linworth Publishing, 2002 (800-786-5017)

OK, I'll fess up. Over the past few years, our technology staff development efforts have suffered from increasingly smaller numbers of teachers interested in our technology *classes*. Happily, we discovered it was because we've been good at what we do.
A survey conducted recently showed that 97% of our 200 elementary teachers and 93% of our 200 secondary teachers identified themselves as "computer literate." That was not really surprising because we had been actively working both formally and informally with teachers in computer staff development programs since 1993 using many of the efforts described in Part 1 of this book.

Computer classes in basic skills help teachers improve their professional productivity: basic computer operation, word processing, telecommunication, record keeping, and Internet use. But if technology is to realize its powerful potential for radically improving education, it must be used for more than just automating the traditional methods and practices of teaching.

The advanced rubrics are designed to help teachers move to a higher level of professional computer use. Rather than the computer simply being a tool that allows a common task to be done more efficiently, these skills modify how instruction is delivered, how student performance is measured, and how teachers view themselves as professionals. The technology is used to restructure the educational process to assure that:

- all students master the basic skills of writing, reading, and computation
- all students practice authentic information literacy and research skills and the higher-order thinking skills inherent in them
- all students have access to top-quality information resources, including human resources, regardless of location
- all teachers can use technology to provide students and parents with
  - individual education plans (IEPs)
  - continuous feedback on how well students are meeting their learning goals
  - opportunities for student performance assessments
- all teachers have the tools and ability
  - to locate the research findings that will guide their educational practices
  - to collect the data that measures the effectiveness of those practices

These advanced rubrics are designed for the same purposes as the beginning CODE 77 rubrics and the Internet rubrics: to help schools measure the effectiveness of their teacher training efforts, and to help guide teachers on their own learning paths. And happily, these rubrics reflect, support and offer detail to the NETS standards. The Roman numerals following the title of each rubric suggest NETS standards to which that rubric is related.

How does one design training to help teachers master these complex skills? Developing and practicing these competencies will be a far greater, more time consuming task than the simple hands-on classes in which word processing, email, and file management are taught. And the technology department alone can't do it. Staff development in these technology uses will require collaborative efforts with specialists in the content areas, child development, curriculum, assessment, research, and evaluation. It will also require a team comprised of the teacher, principal, staff development coordinator, and media specialist or technology coordinator to devise an individualized, long-range development plan for each teacher.

Because of the long-range nature of these staff development efforts, sample professional growth plans rather than a list of specific skills taught in classes are described for each rubric. A teacher or group of teachers should pick one or two rubrics on which to work each year after having mastered the necessary basic skills in the preceding chapters. The teacher's supervisor or staff development leader can then evaluate the completion of the professional growth plan, as district policy requires.

Building principals and staff development committees have the responsibility for evaluating the effectiveness of staff development efforts, including those in technology. The degree to which conferencing, planning and assessment of the portfolios is carried out will vary from building to building.

At the district level, our school has assessed the viability of such an individualized staff development approach. By using a survey tool after the second year of using this approach to technology staff development, we found that of the participants:

- 70% felt they had successfully completed the professional growth plan (PGP)
- 70% thought the plan was clear
- 81% found the work they did meaningful
- 55% found the work they did learning about technology also helped them in other educational areas
- 78% found there were sufficient PGP options from which to choose
- 44% found these PGPs more rigorous than those in the past; 33% found them as rigorous

These challenging skills will take time, effort, and courage to master, but schools with teachers who do so will be in a superior position to meet future educational demands.

I. Instructional software use (NETS III. A, III.D)

Level 1 I do not use instructional software as a part of my instructional program, nor am I aware of any titles that might help my students meet their learning goals.

Level 2 I use a few computer programs as an instructional supplement, as a reward, or with special needs children.

Level 3 I use several programs (drill and practice, simulations, tutorials, etc.) chosen by my department or grade level to help all my students meet specific, identified learning objectives. The software allows me teach and/or reinforce concepts more effectively than traditional methods. When it is available, I use the software's management system to help assess individual student performance. I use the school's integrated learning system in a purposeful way and help assess its overall effectiveness.

Level 4 I seek out new programs for evaluation and adoption. I know sources of software reviews and keep current on developments in computer technologies through professional reading and conference attendance. I share my findings with other professionals.

Professional growth plan to meet this competency (to be written in collaboration with curriculum director or department chair and technology coordinator or media specialist):

1. I will examine my curriculum to determine two areas in which the use of technology may help improve student acquisition of knowledge, concepts, or skills. The learning goals for these areas will be clearly articulated.

2. I will review the professional literature for my subject area for recommended software titles and methods for using the software. I will attend a technology or subject area conference and attend sessions appropriate to software use in my area and visit software vendor displays.

3. I will personally conduct a hands-on review of selected software titles. (Preview copies may need to be purchased and placed in the district or school software preview library.)

4. I will incorporate the use of selected software titles into my lessons, recording through testing and/or observation the effectiveness and appropriateness of the software.

5. I will report the results of the use of the selected titles to the appropriate curriculum committee, and recommend whether the district adopt the software or not. I will share my findings through in-district workshops or on staff development days.

6. (Optional) I will take a college class, seminar, or workshop on the use of instructional software in the classroom.

Your portfolio might include:

1) **a copy of your department's resource guide with computer software applications noted**
2) **copies of at least 3 lesson plans which incorporate the use of the software**
3) **original reviews of 3 pieces of subject specific computer software which support the district curriculum**
4) **short observations on the efficacy of the software in the instructional process**
5) **a plan to use an integrated learning system with individual students**

Why teachers need instructional software use skills

The public has a less than stellar view of education's performance. Routinely, public schools are lambasted for everything from poor test scores to high dropout rates to rising costs. Yet most professionals who staff schools are competent, caring, well-educated, and dedicated people. What's going on?

Perhaps we need to ask not why schools are less effective than they once were, but why aren't they as good as they need to be. Studies show that our national economy has changed. In 1950, fully 65% of our students could leave school, with or without a diploma, and obtain gainful employment paying a living wage. By the year 2000, less than 15% of our workers were employed in non-skilled jobs. The automation of industry and the use of low-paid foreign labor markets have resulted in an economy that requires all workers to have excellent basic skills and an increasingly sophisticated level of problem-solving, creative thinking, communication, and interpersonal skills. That is if they are to have a job that provides a decent standard of living. And yet the "raw product" coming into our schools has not much improved since the 1950's. Homes of poverty, substance abuse, violence, and neglect still exist, and the distractions of jobs, television, and video games seem to draw children away from the brain-building activities of studying, reading, drawing, and conversation.

Schools are finding that society is demanding we educate an increasingly less educable population. This helps explain why using expensive, fickle computer software is preferable to using traditional methods of instruction under certain conditions. Electronic resources have proven useful when:

- **A lesson can be taught more easily, quickly or effectively**. Students who may not be able to master basic skills from lecture, workbooks, or texts can and do learn them from the highly interactive, self-paced instruction offered by integrated learning systems.
- **The timeliness of the lesson's content is essential.** We know most students respond best when the information or skills have relevance to their lives. Examples, problems, and readings from the students' world are easily accessible with information technologies like the Internet.
- **Motivation is necessary.** The immediate feedback, interesting graphics, and amusing sounds designed into many computer programs can make learning more enticing to many children accustomed to video games and television. It's true we use computers too often as electronic flash cards, but for some educational purposes flash cards are just what is needed.
- **A learning opportunity cannot be offered by other means.** Experiencing a ride through the human body, building and administering a city, or seeing a geometry theorem through animation can only be done with technology.
- **The skill being taught is a real-world technical skill.** Employers expect our graduates to come into the workplace knowing how to use technology to communicate, calculate and access information. The same types of productivity software used in business are needed in schools.

Teachers have always had to meet a variety of educational goals: teaching for both facts and concept attainment, developing both lower and higher level thinking skills, and increasing both knowledge of and positive attitudes toward a subject. But the tools with which they have had to work have not much changed in the past hundred years. Now however, judiciously used computer software can help teachers reach all these educational objectives with all students – just as our parents, communities, and nation are asking us to do.

II. Using technology to improve student writing (NETS II.B.)

Level 1 I am not familiar any technologies that would allow me to help my students improve their writing skills.

Level 2 I ask that the final draft of some student writing assignments be word-processed. I do not expect or encourage my students to compose or edit using the computer.

Level 3 I help students use the computer in all phases of the writing process from brainstorming to editing to publishing. This may included the use of idea generators, graphic organizers, portable writing computers, outlining tools, spelling and grammar checkers, rubric generators, desktop publishing tools, and webpage generators. I use technology to help students share their work for a wide reading audience. I can find and use best practices data on improving writing with technology.

Level 4 I store portfolios of my students' work electronically. I share successful units with others through print and electronic publishing and through conference presentations and workshops. I look for specific technology tools for helping my students improve their writing skills.

Resources needed:

Training opportunities:

Evidence of mastery (portfolio items):

Planning team:

III. Information literacy skills using secondary sources (NETS III.A, II.C.)

Level 1 I am not familiar with the term *information literacy*, nor do I know why such skills are important.

Level 2 As a part of my curriculum I have library research projects, and I support the library skills taught by the media specialist. I am aware that there are electronic resources available to my students.

Level 3 My curriculum includes at least two information literacy projects, team-taught with the media specialist. I understand the *Big6* or a similar information literacy process and design student projects that require higher level thinking skills, use and cite electronic information sources, require the use of computer productivity software, and are authentically assessed. I ask students to use technology to help them share the results of their research with others. I reinforce information literacy skills on a daily basis as opportunities arise.

Level 4 I am actively involved in curriculum planning teams and advocate for multidisciplinary units and activities that require information literacy skills. I share successful units with others through print and electronic publishing and through conference presentations and workshops.

Resources needed:

Training opportunities:

Evidence of mastery (portfolio items):

Planning team:

IV. Information literacy skills - primary sources (NETS III.A, II.C.)

Level 1 When asking students to do research, I expect them to only use secondary resources like books, magazines, or reference materials.

Level 2 As a part of my curriculum, I have some units which require the collection and use of original data. I generally can predict the outcome of such experiments.

Level 3 My curriculum includes at least two information literacy projects that require the collection of original data to answer a genuine question. I may use tools to collect data like computerized probes and sensors, online surveys, interviews, or digitized sources of historical records, as well as tools to record, organize, and communicate the data such as databases and spreadsheets. I ask students to use technology to help them share the results of their research with others.

Level 4 I am actively involved in curriculum planning teams and advocate for multidisciplinary units and activities that require information literacy skills. I share successful units with others through print and electronic publishing and through conference presentations and workshops.

Resources needed:

Training opportunities:

Evidence of mastery (portfolio items):

Planning team:

V. Modification of instructional delivery (NETS II.A., III.D)

Level 1 I have one or two effective methods of delivering content to my students. I do not use technology that requires that I change my instructional methodology.

Level 2 I have tried units or projects that are student-directed, use small groups, or are highly individualized, but I primarily use teacher-directed, whole group instruction.

Level 3 I use a variety of instructional delivery methods and student grouping strategies routinely throughout the year. I can design activities and approaches that best fit both the learning objectives and the availability of the technology available to me. I can use small groups working cooperatively or in rotation to take advantage of student to equipment ratios of greater than one to one.

Level 4 I continuously try new approaches suggested by research or observation to discover the most effective means of using technology to engage my students and meet curricular goals. I work with a team of fellow teachers to create, modify and improve my practices in this area.

Resources needed:

Training opportunities:

Evidence of mastery (portfolio items):

Planning team:

VI. Assessment of student performance (NETS IV.A, IV.B, IV.C)

Level 1 I evaluate my students using objective tests only.

Level 2 I evaluate some student performances or projects using subjective criteria. I save some student work for cumulative folders and parent conferences, and print some electronically produced student work.

Level 3 I use a wide range of assessments to evaluate student projects and performances. I can use technology to help create assessment tools like checklists, rubrics, and benchmarks that help the student assess his own performance and allow me to objectively determine the quality of student work. I ask students to keep both a physical and electronic portfolio of their work. I have a computerized means of aggregating performance data for my class that I use to modify my teaching activities and strategies.

Level 4 I continuously try new approaches suggested by research or observation to discover the most effective means of using technology to help assess student learning. I work with a team of fellow teachers to create, modify, and improve my work in this area.

VII. Individualization of instruction and educational program (NETS III.B., V.B., VI.B.)

Level 1 I modify my curriculum or instructional methods only for students with identified special needs.

Level 2 I occasionally give students the choice of assignments in my class, but all class members (unless they are in special education) must meet in the same learning objectives within the same time frame. Skill remediation is done during summer school or informally during or after school.

Level 3 With the assistance of the student, parents, and appropriate specialists, I create a learning plan for each of my students. I track the accomplishment of learning goals in the plan using a computerized tool. I use this tool during parent conferences and for school or state reporting.

Level 4 I provide suggestions about the content and design of the individualized computerized planning and report tools.

VIII. Fostering home-school communications (NETS V.D.)

Level 1 I use the traditional methods of communication with my students' homes: telephone, report cards, progress reports and print school or classroom newsletters..

Level 2 I send email to parents who request it in response to specific inquiries. I use my district or building's generic parent/guardian mailing list to distribute messages of general interest.

Level 3 I maintain a parent/guardian mailing list to distribute information about happening in my classroom. I maintain a classroom webpage that has basic information about my classroom and curriculum including study guides, notification of upcoming evaluation, assessment criteria of projects, class expectations, and other information parents may find useful.

Level 4 I use a webpage or web interface to my gradebook to provide real-time information to parents about individual student's progress in my class. I formally work with parent organizations to teach parents how to access school information electronically.

IX. Assistive and adaptive technologies (NETS V.B., VI.C., VI.E)

Level 1 I am not aware of how technology can help students with learning problems or with physical or mental limitations.

Level 2 I work with students who may bring with them special devices that allow them to work and communicate in the classroom. I allow some students to use electronic aides to help overcome special learning problems.

Level 3 I use technology when appropriate to help students with special learning needs. These may include detailed individualized education plans, specialized communications devices, or other compensatory devices.

Level 4 I provide professional growth opportunities for other teachers in the use of assistive and adaptive technologies.

X. Professional growth and communication (NETS V.A., V.B, V.D)

Level 1 I do not use electronic resources for professional growth or communication.

Level 2 I can find lesson plans and some research in online data bases. I correspond with parents and other teachers using email.

Level 3 I use the Internet and other online resources to obtain research, teaching materials and information related to the content of my classes. I read electronic newsletters and journals to keep current on educational practices. I participate in electronic discussion groups and chat rooms that are related to my area of education. I use a computerized presentation program when giving workshops or speaking at conferences. I take part in distance learning opportunities using technology.

Level 4 I organize professional growth opportunities for other teachers and feel comfortable teaching other staff members about the use of technology.

XI. Research and evaluation of technology use (NETS IV.B., V.B)

Level 1 I have not attempted to determine whether the use of instructional technology has made a difference in my student's learning or classroom climate.

Level 2 I gather, use, and share anecdotal information and observations about student use of technology in my classroom.

Level 3 I use action research and aggregated data to accurately determine whether the technology and methodology I am using has an impact on how well my students learn and on school climate.

Level 4 I participate in formal studies of the impact of technology on student learning conducted by professional groups and academics. I have designed such studies as part of my own professional education. I report electronically and in print the findings of my research to other professionals.

Assessment of Advanced Rubrics/Professional Growth Target Approach

1. How much time have you spend working on your CODE 77 PGT this school year?
   10 hours or less
   10 - 20 hours
   20 - 30 hours
   30 hours or more

2. Do you feel you have successfully completed the PGT according to the information from our office and/or your principal's requirements?
   Yes/No

3. Were the suggestions for completing the PGT clear?
   Yes/No

3. Was the work you did for the PGT meaningful? In other words, did what you learn benefit your students by increasing your skills?
   Yes/No

4. Did the work you completed for the PGT also help you meet other district or building goals such as reading, writing or math improvement, or implementation of the graduation rule?
   Yes/No

5. Were resources (classes, software, support, etc) available to you to help you complete the PGT? (If resources were lacking please write down items that were not available.)
   Yes/No

6. Was there an adequate selection of PGTs in technology from which to choose (10 rubrics)?
   Yes/No

7. Compared to PGTs you have done in past years, how rigorous was the CODE 77 PGT?
   More rigorous
   About the same
   Less rigorous

8. Would you recommend that the acquisition of a new computer by a teacher be determined by whether that teacher is willing to complete a PGT in technology?
   Yes/No

9. Would you recommend this program be continued next year?
   Yes/ No
   Yes, with modifications (Please list.)

10. Other comments, including alternate means of help staff acquire technology skills.

A Tale of Three Teachers

Mike's Plan for Improving His Students' Writing Abilities (Rubric II)

One of the goals of the middle school where Mike taught Language Arts was to improve student writing. Working with his language arts curriculum chair and building staff development committee, Mike's professional growth plan included:

- Reviewing current literature and interviewing one of the state's "best practices" experts on process writing and the use of technology.
- Attending the state's technology conference to see demonstrations of writing software and hear of the experiences of other teachers who have tried using technology to improve student writing.
- Taking a class in and experimenting with prewriting software (*Inspiration*) on two student writing assignments.
- Using individual portable computers (AlphaSmarts) on two writing assignments.
- Comparing the results of the technology-enhanced writing products with those using standard writing practices.

Mike's portfolio included:

- Printouts of three articles summarizing current uses of technology in teaching writing.
- Sample "concept maps" generated by students in his classes as a part of prewriting assignments.
- Writing samples of individual students evidencing differences between handwritten work and word-processed work.
- A brief summary of his observations on using technology as a part of the writing process. (Prewriting software led some students to better organization and more depth in their writing; spelling, readability, and enthusiasm improved when students used the portable computers; a lack of keyboarding skills prevented many students from writing with the portable computers successfully.) Mike found that his experiences supported what research and best practices were saying about technology and writing, and he plans to keep using both the prewriting software and portable computers next year.

Carol Tries a Project that Asks for Primary Sources (Rubric IV)

The state's new graduation requirements ask that all history students do a project requiring primary research. Carol decided she wanted to place this requirement in her 11th grade world history class's World War II unit. Her plan included:

- Working with the social studies chair and media specialist to determine the outcomes of the unit.
- Taking after school workshops on locating and evaluating information sources on the Web taught by the school media specialist.
- Designing and teaching a unit that would ask students to find information on contemporary hate groups and compare their views and propaganda strategies to radical political groups of the 1930s and 1940s. The students' findings would be shared in a multimedia presentation with the rest of the class.
- Working with the school's assessment coach to design a checklist assessment tool for the presentations.

Carol's portfolio included:

- A bibliography of resources and teaching materials on historical and contemporary hate groups.
- A collection of comments from students and parents about the project. (Highly positive.)
- A copy of the assessment tool and brief evaluation of the project with suggested improvements for the following year's classes.

Chris Improves Home School Communications (Rubric VIII)

Third grade teacher Chris wanted to help improve his students' work completion rate, and felt he needed the help of their parents to do so. His principal agreed that his goal was important. Using Rubrics for Restructuring VIII as a guide, Chris mapped out a growth plan and a portfolio. His plan included:

- Collecting parent email addresses during preconferences (He found over 75% of his students' parents had email access either at home or at work.)
- Setting a goal of sending one email message about class happenings each week to parents.
- Taking a class in web page building so he could create a classroom web page that would display student work, contain information and links about class projects, and explain classroom expectations. He also put out the week's spelling word list.
- At his principal's suggestion, Chris teamed with the building media special to teach an evening class to parents who wanted to know more about getting Internet access and using it.

Chris's portfolio at the end of the year included:

- Printouts of sample emails sent to parents and comments received back from parents.
- Printouts of his website.
- A short evaluative summary of the plan including anecdotal evidence of its effect on work completion rate (much improved), the reception of electronic communication by parents (very positive), the success of the parent training session (low turn out, but positive for those who attended), and suggestions for other teachers attempting to do the same and for the district (create templates for classroom web pages). Chris felt the first year's implementation of this plan was more work than he had anticipated, but the results were worth it.