

Activity name: Writing a Set of Instructions

This activity demonstrates to students the process whereby a technical writer works with a "client" in developing a set of instructions about any operation in a workplace. The process is based on performing a task analysis while observing an "expert" worker. This activity is meant to provide a real-world application of the ATEEC Recommended Core Curriculum's math, science, technical, communications, or critical thinking knowledge and skill concepts, which have been identified by the ATEEC Fellows as necessary preparation for environmental technology occupations.

Appropriate for which course(s)?): High school and community college technology ed, communications, science

Concept/skill learned (i.e. from K/S Tables): Demonstrate technical writing skills; develop and use active listening skills; draw graphic communications; use photographic means to communicate/document information; demonstrate appropriate, tactful communication skills, use computers, peripherals, and software programs; present safety information in a clear, concise manner; possibly design, develop, conduct, and evaluate training programs;

SCANS skills addressed:: Mental visualization, listening, interpreting and communicating information; participating as a member of a team; monitoring and correcting performance; reasoning; responsibility; self-management; uses information (entire category), serves clients/customers; works with cultural diversity; understands systems; monitors and corrects performance; applies technology to task.

Cognitive Level: Comprehension, analysis, and evaluation

Learning objectives - Students will be able to:

- Write the sequence of steps involved in performing a given task, by 1) observing an expert worker and 2) asking questions and orally clarifying what is observed.
- Use a word processing program (and other office equipment, such as a copier or scanner) to write the set of instructions. Follow the formatting recommendations in a technical writing textbook. Perfect the written expression through editing and proofreading.
- Enhance the set of instructions by incorporating appropriate graphics.
- Review the instructions with the expert worker to increase accuracy, by means of either an actual or a mental walkthrough of the instructions.
- Revise the instructions and review again with the expert worker, repeating until perfected.

- Prepare the final document. Provide a copy to the expert worker for use with future trainees.

Approximate time to complete activity: At least two on-site visits with the expert worker; out-of-class time for student "homework" to prepare documents; computer lab time, if needed. Recommendation: allow a month of self-regulated time for students to prepare the finished product.

Source of idea or activity (for published source, please include author, title, publisher, date): Industry

Materials/resources needed (equipment, print media, electronic media, videos, supplies, etc.):

- Computers and other office machines, as needed
- Camera equipment or drawing materials
- A "client" who can provide an expert worker that the student may observe. The client may be in industry, but the project works well as an integrated activity between the English teacher and vocational-technical teachers. Depending on the setting (school or industry), the expert may be real workers or voc-tech students.
- Safety glasses and other protective equipment, if required by the client.

Teaching and Learning Procedure:

1. Teacher: Demonstrate, discuss, and practice models of task analysis and instructions development.
2. Teacher: Arrange ahead several client sites for the students' technical communications groups (auto collision repair, sheet metal, welding, carpentry, robotics, etc.). The clients may be vocational-technical education faculty in your school. Provide enough information so that the client can select a limited operation to be performed by an expert worker. That operation should be one that can be completed within an hour.
3. Students: Contact client to arrange a time for the task analysis. Abide by any professionalism criteria set by the teacher or determined by classmates.
4. Students: Go as a group, as arranged, to the site to carry out the task analysis. During the analysis, observe and question as modeled in class. Be professional. Observe safety requirements. Take notes, sketch, photograph, create flow diagrams as necessary. Identify the environmental health and safety requirements that will be included in the instructions.
5. Students: Meet as a group to develop the instructions from the task analysis notes, sketches, etc. Apply any models learned in class. Produce with a computer.
6. Teacher: Be available for coaching (on logic, flow, editing, proofreading, formatting, etc.) anytime during the project.
7. Students: Contact client to arrange a time for a real or mental walkthrough of the instructions with the expert worker. The client may first coach the expert worker

- on how to provide high quality feedback to the students during the walkthrough process.
8. Students: Go through walkthrough with the expert worker and note all corrections and additions.
 9. Students: Revise the instructions. If necessary, arrange to take revision back to expert worker for approval, or even another walkthrough.
 10. Students: Use revisions and teacher's coaching suggestions to produce effectively formatted drafts. Continue revising until the class's quality criteria are met.
 11. Students: Provide the original to the client. Make copies for the teacher and for group members. Keep for student portfolios.
 12. Teacher and students: Debrief about the entire process.

Contextual Learning Principles:

- *Problem-based:* How does a technical writer develop a set of instructions about an unfamiliar process?
- *Multiple contexts:* Client's worksite, computer room
- *Student diversity:* Form groups that represent a variety of talents: e.g., computer skill, writing ability, artistic ability, good observers, good listeners and questioners.
- *Self-regulated learning:* After introducing task analysis, development of written instructions, the client and technical communicator's professional relationship, and after providing parameters and criteria for completing the project, the teacher promotes students' self-regulated learning. In a professional way, students carry out all aspects of the project, from making arrangements to offering the client the final document. The teacher is available as a coach at all times.
- *Interdependent learning groups:* The class work groups are encouraged to continually share experiences so that they may learn from each other's approaches. The "expert" worker not only demonstrates (in effect, teaches) the process but also learns from the technical communicators what their process is.
- *Authentic assessment:* Throughout the technical communication group's editing and revision process, the teacher shares feedback about formatting. The expert worker also is involved in the assessment by performing a real or mental walk-through of the first draft and any others, if needed. A rubric could be developed so that all the players - teacher, students, expert - may assess a final document as objectively as possible.

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