UNDED BY THE ONTARIO MINISTRY **OF SKILLS DEVELOPMENT**

ADIANING ADIANING EARATEGIES STRATEGIES

An Instructor's Toolkit Educators

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THE ROLE OF THE EDUCATOR OF THE FUTURE

HOW IS YOUR JOB CHANGING?

Adult educators today are under tremendous pressure to be proficient in such student-centred processes as

.students' learning, thinking and creating modes
.learning environments
.brain chemistry
.adult developmental stages

As well, such external realities as

.the rapid expansion in content areas .the impact of technological change

and

.the increasing importance of understanding the global society in which we live

are heavily influencing our ways of thinking, relating and working.

In an effort to work with these rapid changes, instructors are re-looking at the word "Educator" by taking it back to its root meaning: Educare--loosely translated as "to draw out that which is within." No matter how much we fool ourselves in the educational system, the teacher is simply not in control of the learning process. Each individual student is actually the one in charge. We can create curricula and program designs, but it always has to be in the context of what way are the learners going to receive the program? How can we help them to interact with the material? What is he or she thinking about as they participate? What is within the student that can be drawn out?

"Drawing out that which is within" demands of us a major shift in our perception that asks us to relate to the uniqueness within each student. We are challenged to see the whole of the person, complete with feelings as well as mind, with intuitive "knowings" as well as information, with a rich life experience as well as an openness for finer understanding, with a spirit that wants to soar as well as a body that needs to act. As Cornette writes in her overview work, <u>What You</u> Should Know About Teaching and Learning Styles (1983),

Unlocking the secrets about learning is like opening a puzzle box, only to find another box and then another. Each step, each piece of information, leads us closer to understanding how we develop that wholeness of person,

which brings the intellectual, emotional, physical, and spiritual aspects of learning into harmony.... (p. 7)

Learning theories in this recent span of human existence have emphasized the development of the mental system and the logical, rational (left) side of the brain, neglecting to a large degree the development of our relational and physical systems and the intuitive, creative (right) side of the brain. Education in the 21st century will be inclusive, developing students' abilities to think, to learn and to create.

The shift in perception also means that we learn to recognize and respect all these things within our own selves: that we are learners as well as teachers, that we have feelings and emotions as well as thoughts and ideas, that we have a rich life experience to hone into more refined understandings, that we have dreams and inspirations as well as objectives and deadlines, and that we have certain unique qualities to share, develop and act upon. It means that we see the classroom as a laboratory wherein we collaboratively learn along with our students.

The most effective educators are those who listen to and observe their students, and who design their content and delivery techniques around what students have said or demonstrated about their learning needs. There is an ongoing process of listening and revising. These educators treat students as consultants, as people who have vital information about effective ways of teaching.

WHAT HAVE YOU ALREADY BEGUN TO DO?

Instructors have already begun to respond to this shift in demands.

- -Anytime an instructor observes and relates according to the discreet data displayed by students in the learning process, their intuitive or informal acquaintance of brain development chemistry and psychosomatic evaluation is transforming the classroom.
- -Anytime an instructor uses learning style information, experiential learning techniques, or experiments with such tools as relaxation, breathing, music, physical movement, visual thinking, fantasy, metaphors, personal involvement and environments, they are flexing to meet the learning needs of their students.
- -And anytime instructors work with the whole person--the mental, relational and physical dimensions as well as

both the right and left hemispheres--they are acting upon research which suggests that information is encoded throughout the whole system, in every cell, and thus it is more than just the intellect we are working with. We experience evidence of this everytime we see dramatic changes in our students' faces, postures, body tones, increased ability to sustain focus, improved verbal expression and stronger sense of confidence when initiating and completing tasks.

Studies in the new physics are helping to refine the role of instructors. As present society moves from a position of fixed content to the ongoing, relative process suggested by quantum physics, educators are becoming the agents of the transition.

Research in physics is telling us that we are all relative one to another, and our outstanding scientists are giving us clues about learning. Einstein says that we must be "sympathetically in touch with experience." And Barbara McClintock says that learning "requires a shared subjectivity." (Evelyn Fox Keller, <u>A Feeling for the Organism</u>, 1983, pp. 145-149.) When we are most successful as teachers, we are sympathetically in touch with the experience of our students, and we hold a vision for them that they can tune to, pick up and modify according to their own individuality. This shared subjectivity is the context for developing and sharpening a skill-oriented objectivity which they will be able to use in managing their lives and their work. To quote Parker Palmer ("Community, Conflict, and Ways of Knowing," <u>Change: The</u> Magazine of Higher Learning, Vol. 19, #5, Sept/Oct.'87, p.24):

The mode of objectivity is held in creative tension with another way of knowing, the way of intimacy, the way of personally implicating yourself with the subject. . . objectivity and intimacy **can** go hand in hand. . .

WHAT IS A LEARNING STYLE?

A learning style is a compilation of patterns of behaviour that appear consistently in the learning process of an individual from the initial stimulation to the final recognizable product of learning. Simply stated, it is how we process our information and work with the outcome.

Learning styles have come about because instructors have become more sophisticated in recognizing and responding to psychological traits in students. There has been a proliferation of learning styles models in the last ten years, focusing on a variety of attributes. Many of the models provide standardized inventories on which students can indicate their preferences and discover which classification or style they fall under. One major drawback of using the inventories is that once students discover they are a particular style, they may tend to stay within the parameters of that style and not develop skills congruent with the other styles.

Since the complete process of learning entails more than just the behaviour of a preferred style, it is useful if students' first introduction to learning style is from the point of view of their whole learning process, identifying not only their preferences but also those areas which they want to strengthen.

This manual draws from a wide range of learning styles research. A list of effective learning behaviours has been compiled from this research for notation of the instructional units which follow this section. Each behaviour listed can be related to the model developed by the Human Dynamics research group (Sandra Seagal and David Horne, <u>The Technology of Humanity</u>, 1986). What makes this model useful is that it is easy to comprehend and serves as an excellent basis on which our knowledge of learning processes can expand practically, according to our own needs and interests. It is also compatible with other learning style and brain integration theories.

The Human Dynamics model reminds us that within each of us there are three basic principles or dimensions: the mental, the relational or emotional, and the physical; and these dimensions interact in the learning process. The mental dimension is mainly responsible for our ideas, thoughts, values, objectivity, focusing and abstract conceptualization. The relational dimension is mainly responsible for our connecting, organizing, feeling, assessing and communicating abilities. And the physical principle takes command of our doing, manifesting, producing, and action-oriented abilities. These three work in concert, but one of these three dimensions is predominant in each of us: we may be primarily mentally- or relationally- or physically-centred in the way we take in and process our information. Thus, given a new learning situation or a place where we are "stuck," we may work primarily with the idea of it, or with organizing and assessing the many parts of it, or we may go right to the doing of it. (Seagal and Horne, The Technology of Humanity.)

All three starting points differ, but each requires a complete process. No one style is better than the other because all three dimensions are brought into play in the complete learning process. After all, doing without ever assessing or conceptualizing can be disastrous--as well as vice versa. What is important is to recognize that we each may start in a different place because that is our "home base." What is practical about this learning style model is that it confirms so much of what educators already know intuitively, and that it makes such sense. It means we can consciously act on what we have been feeling, intuiting, or sensing all along but, until now, have not had the framework to fully understand.

Increasingly, it is important for students to assume responsibility and direction for their own learning. Instructors can foster this independence by introducing learning styles to their students. Once students understand how they learn, they are empowered to become more selfinitiating and directing, to "rescue" themselves when stuck, and to purposefully establish ways to develop their full learning potential. (See Nancy Dixon, "The Implementation of Learning Styles Information," Lifelong Learning, 1985.)

Preliminary research has indicated that 80-85% of the North American population are relationally-centred learners, while 10-15% are physically-centred, and 3-5% are mentallycentred. (Seagal, cited in C. Brooks, <u>Instructor's Handbook:</u> <u>Working with Female Relational Learners</u>, 1986, pp. 58-60; see Appendix A for a brief overview of the learning styles.)

HOW DO YOU LEARN BEST?

TAKE SOME TIME (5-10 MINUTES) TO DESCRIBE HOW YOU LEARN. Think of all the ways you go about learning something. What is your process? What tools/resources do you use? Under what conditions do you learn easily? What hinders your learning? (It may be helpful to think of a time in your life when you learned something really well, and another time when the learning was difficult or seemingly impossible.) Following is a random list of processes associated with learning. PLACE TWO CHECKMARKS BESIDE THOSE WHICH ARE HIGHLY DEVELOPED IN YOUR OWN LEARNING AND ONE CHECKMARK BESIDE THOSE THAT ARE SOMEWHAT DEVELOPED.

Idea development Assessing Practical application Verbalizing Objectivity Demonstration Practice Peer & group learning Observation Visual Planning Modeling Personal expression Creative imagination Time management, Pacing Precision Focus Environmental sensitivity Structure Creative expression Tactile

Completion Rule application Overview Practical problem solving Relating, connecting Attention Personal relevance Repetition, Drill Sensitivity Organizing Auditory Resourcefulness Variety Conceptualizing Kinesthetic Experimenting, tinkering Clarity Hands-on Solitary learning Self-generated lesson Analyzing

REREAD THE LIST AND CIRCLE THE PROCESSES YOU WOULD LIKE TO STRENGTHEN. In the space below, write down the three you feel are most important for you to develop at this time. Beside each, write a plan of action that will help you develop these skills.

When students have been asked to talk about how they learn best, they often say, "I don't know" and <u>then</u> go on to describe how they actually do learn. How they learn-the patterns and the idiosyncrasies--is something that each person internalizes and, given time to reflect, something about which they can usually be impressively articulate. When students write down how they learn best, they begin an informal process of selfobservation, and have been known to add to and refine what they have written throughout the term of their studies and to use the rest of their lives.

No matter which model(s) you use to teach learning styles, always leave time for group discussion. Students become clearer about their own style and its implications when they have the opportunity to verbalize with other students in the class as a whole or in small groups, comparing notes and contrasting preferences.

It is important to remind students that no one way is better than any other - that all are equal, just different, and that the diversity of learning styles enriches every classroom. When we know our strengths, we can build upon them and use them to ease difficult learning situations. When we know the areas we need to strengthen, we can be more purposeful in choosing those learning experiences, resources, tools, strategies and role models that will help us develop those strengths.

DISCREET OBSERVATION

AS AN INSTRUCTOR, WHAT ARE THE THREE OR FOUR TRAITS YOU ARE MOST DRAWN TO AND LIKE WORKING WITH BEST IN STUDENTS? Think of those students you have most liked? What patterns have they had in common?

What Do You "Intuitively" Know About Your Students?

As an instructor you have developed your own intuitive system of working with students, based on your own preferences. In a sense you already have developed your own informal learning styles model which serves as your point of departure in teaching, evaluating students, and assessing your own feelings of competence. The following visualization may provide you with an appreciation for the scope of your skills.

A Visualization Exercise for Teachers

Introduction

Visualizations are a useful way of tapping intuited knowledge. They are being employed increasingly in education, business and athletics to enhance embedded abilities. Recent studies in physics and health have proven their effectiveness.

Some people think in pictures so visualization exercises are natural tools for them. If you don't experience this exercise through the sense of seeing or through pictures, don't feel that this exercise won't work for you. Many people don't "see" in these exercises, but they do "feel" or "register" an experience which they can track through the exercise. Follow the exercise in the way it is most natural for you.

Preparation

Sit up straight in your chair, uncrossing your arms and legs. Maintaining a straight spine, get as comfortable as you can and then close your eyes.

The Exercise

Focus on your breath . . .breathe in deeply. . .and breathe out. . .in. . .out.finding your own rhythm. . . .imagine your breath as it comes into your body and fills your lungs and flows to all the other parts of your body. . . and then sense it as it leaves your body and mingles with all the other air surrounding you - with the universe. breathe in. . breathe out.

Now imagine yourself preparing to teach your students. . . just before your students arrive, look around your room . . . what are your surroundings like. Do you like your teaching environment? How does it make you feel? . . . Is there anything you'd change?. . . If there is, do so in your imagination--make all the changes you want--make the teaching environment exactly how you want it.

Now think about what is going to happen How are you feeling just before your students come in. pay attention to your feelings how would you describe them what word or words would you use?

Now, as your students enter the room, how do you feel? Does anything change? . . . Stay with your feelings for a few moments--just be with your class and your feelings. . .

Now direct your attention to what it is you are going to teach them and how it is you want them to learn.

Now, imagine yourself actually teaching them. what are you doing? What are all the ways you are using to get your points across? How are you showing your enthusiasm for your subject matter?

Look around you. . . .which students are you most easily connecting with? . . . What are the signs that let you know they are understanding you? Which students are you having trouble connecting with? How can you tell that they are not with you--what are the signs?

Now imagine yourself asking this student how they would best like you to teach them . . . and listen quietly for their response. . . . Ask them any questions you wantwhat do they like about how you teach them. . . . What would they like you to change? Just stay with your student for a while longer-listening to them speak to you-listening to them as they teach you

Now, just before your student leaves, is there anything you would like to say to them? Gently tell them whatever you want to say to them

Now, say goodbye to your student--thanking them for whatever insight you gained from them And imagine yourself alone again in your room How are you feeling now? When you are ready, slowly open your eyes and come back to the room. Do this in your own timing. remembering all you've experienced.

TAKE A FEW MINUTES TO IMMEDIATELY WRITE DOWN ANY INSIGHTS, IDEAS OR QUESTIONS THAT YOU HAVE AS A RESULT OF THIS EXPERIENCE.



HOW WOULD YOU DESCRIBE YOUR PRIME TEACHING STYLE? What central traits within you do you express the most when working with students? What teaching strategies do you employ most often?

WHAT DID YOU LEARN ABOUT YOUR STUDENTS IN GENERAL? What were the signs that let you know they were connecting with you? Not connecting?

WHAT DID YOU LEARN ABOUT YOUR MOST CHALLENGING STUDENT?

WHAT CHANGES DID YOU MAKE IN ORDER TO HELP HER/HIM BECOME A MORE EFFECTIVE LEARNER? Did you recognize the skills you employed as your own, but just not as frequently used? Were you pleased to be reminded of how much flexibility you have developed as a teacher? HOW DO YOUR RESPONSES TO THE ABOVE QUESTIONS RELATE TO THE MENTAL, RELATIONAL OR PHYSICAL FUNCTIONS IN THE LEARNING PROCESS?

.Re starting points in learning: yours and the students'?

.Re the needs of the challenging student?

.Re the way you worked with the challenging student?

WHAT CHANGES, IF ANY, DID YOU MAKE IN YOUR TEACHING ENVIRONMENT? Why? How would it help your own teaching abilities? Your mentally-centred students? Your relationallycentred students? Your physically-centred students?

Applying Your Discreet Knowings

Discreet information about students' learning is derived from a position of caring and concern for students' well-being, from being "sympathetically in touch with experience." However, many instructors have spoken of having to balance their subjective knowings with a position of detachment when working with students, so that they do not get overly involved in the sometimes negative details surrounding students' struggles and so that they can maintain a **positive**, **necessary vision of students' potential**.

What Is a Position of Detachment?

A position of detachment does not imply a lack of caring or interest, but does allow the instructor to **maintain a positive overview which students can tune themselves to.** Many of the adult students entering basic skills courses or community-based programs come with a history of little success in the academic setting, problematic experiences with language (written and spoken), or a dispiriting record of unemployment. The negative chronicles accompanying these students to the classroom are as influential in their performance as their current desire to do well. It is important for the instructor to be watchful of this interplay and to reinforce positive self-perceptions.

A position of detachment allows instructors to view discreet data in students' performance and to teach students to observe it for themselves. The term **discreet data** refers to the play of incentive, the at-first-glance inconspicuous clues students give about what actually incites them to learn. These clues are usually nuanced, embedded in routine and mind-set, until noticed and pointed out by instructors. A word or phrase used by a student may sound different from the rest, and therefore provide an opening with which to move onward. Instructors often speak of drawing from intuition or instinct when working with students in this manner. When operating from this intuitive or instinctual position, the instructor is "sympathetically in touch" with the student's experience.

Individual incentive is often linked to remote perceptions in the student which need to be disclosed and utilized overtly in the learning process. These remote perceptions may themselves be part of an ulterior process which students have concealed or discounted. As instructors adeptly listen for innuendos, they develop appropriate notions about what students want to transform in themselves through learning. When this ulterior process becomes apparent to students, they take more responsibility for their own learning and also for their own futures. HAS AN INSTRUCTOR EVER POINTED OUT TO YOU "DISCREET DATA" ABOUT YOUR OWN LEARNING, OR WORKED TO BRING OUT YOUR "ULTERIOR PROCESS?"

WHEN YOU WORK IN THIS WAY WITH STUDENTS, HOW DO YOU FEEL ABOUT YOUR COMPETENCE AS AN INSTRUCTOR? unsure? determined? shy? risk-taking? embarrassed? evoking? positive? or what?

How Is Detachment Developed?

The factors contributing to detachment are focus, objectivity, confidence and a positive point of view. To develop detachment

- 1) Train yourself to take the positive point of view.
- 2) Develop **objectivity** to balance your subjectivity.
- 3) Keep your focus unwaveringly on the goal, which is to help students succeed in the learning process and to develop their own abilitites to enhance their own learning and lives.
- Stay confident in your own discreet observation skills.

THE LEARNING PROCESS

Identifying Starting Points in the Learning Process

The initial impetus to enter a stream of learning is the starting point; it is the "click" students make which lets them know they are interested, motivated and want more. The starting point is both general and highly individualized. For example, a group of people may become attracted initially by an idea, but the qualities and textures surrounding the idea will have appeal in varying degrees to different individuals in the group.

Other people will become involved in the learning process when they discover a personal connection or become intrigued by a personal story of the instructor. And others will enter the learning process first through application or doing, before conceptualizing or verbalizing.

Wherever students start, it is important to remember

- that there are many starting points to learning which must be acknowledged,
- 2) that variety is the reality in the classroom, and
- 3) that ultimately each student must become a diversified learner in order to complete the entire process of learning.

Most North American schools have recognized "ideas" as the beginning of the learning process. For most people, the "idea" is not what helps them actually get started. Sometimes these learners have a harder time in school, with some being mislabeled as "slow", "learning disabled" or "remedial" learners, when in fact it is only that their style of learning is different from the teacher's style of delivery. For example, one student recognized her affinity for learning through implementation. Enrolled in the second year of a community college social work program, she requested that she be able to take a practicum term before her theory term. The request was denied and she continued to struggle unnecessarily with her work. To compensate for this lack of accommodation by the system, she had to spend a lot of time setting up additional practical work experiences during the theory term in order to get through.

THINK OF YOUR OWN LEARNING PROCESS IN BOTH FORMAL AND INFORMAL SETTINGS. Do you know at what point you decisively enter the learning process? When do you find yourself "caught up" in the learning?

WHICH OF THE LEARNING PROCESSES YOU CHECKED ABOVE FIGURE IN THIS INITIAL STAGE OF LEARNING? Which of the three dimensions are they mostly related to?

As stated earlier, each of the learning processes in the list relates to either mental, relational or physical functions. (See S. Seagal and D. Horne, <u>The Technology of</u> <u>Humanity</u>, 1986.) A general, functional starting point can be indicated for each student--i.e., either mental, relational or physical. All three functions make up the entire learning process. Following are some key words which describe how each function operates:

MENTAL idea development, overview, focus, clarity, objectivity, precision, solitary learning, structure, attention, observation, rules, visual, conceptualizing, analyzing.

RELATIONAL personal relevance, verbalizing, relating, connecting, creative imagination, peer learning, sensitivity, resourcefulness, assessing, planning, organizing, auditory, modeling, personal expression, creative expression, variety. PHYSICAL hands-on, practice, practical application, practical problem solving, repetition, drill, completion, kinesthetic, demonstration, pacing, time management, experimenting, tinkering, tactile.

The Complete Process of Learning

Examine the whole learning process, graphically illustrated by the following circle:

X = starting point Where is your starting point?



When instructors have looked at the learning process as a circle with no fixed beginning or end, but with an infinity of starting points, they can immediately see how some of their students operate. They can also see some of their students' blocks. For example, some students spend all of their time planning/assessing and conceptualizing, and find it difficult to move on into doing, following through, or completing. Others would rather stay with doing and feel threatened to move into conceptualizing. Looking this way at the learning process, a general identification of "starting point" and of "diversification needs" can help instructors chart a path with their students.

When students have viewed this circle, they too have been able to identify both their strengths and the places where the process breaks down. Peer and instructor feedback can prove very beneficial in helping students further clarify and assess where they are and what their next step could be. When students take more responsibility for their learning and begin to accept themselves and others as diverse in their styles, their incentive is more apparent.

USING THE ABOVE CHART, THINK OF WHERE YOU USUALLY START IN THE LEARNING PROCESS. Give some concrete examples of how you know this.

THINK OF TIMES WHEN YOU STARTED LEARNING SOMETHING AT A DIFFERENT STARTING POINT. Give some concrete examples.

HOW WOULD YOU COMPARE THE EXPERIENCES?

WHAT TECHNIQUES OR COMPENSATIONS HAVE YOU LEARNED TO HELP YOU GET THROUGH THE WHOLE PROCESS OF LEARNING? I.e., at what point do you almost quit and then think up special strategies to help you through; at what point do you delegate or get help?

Evaluation Techniques

Evaluation of students can no longer be relegated to the testing of the mental function. We must develop ways to evaluate the relational and physical processes within our students. What are needed are tools that give pertinent feedback on the ways in which we relate to and interact with each other, our communities, with the materials and with the task, as well as evaluation procedures that tell us how we are doing in terms of competently applying and carrying our learnings through to completion.

Environments in Which Diversity Prospers

The most important point about learning styles is realizing there is **no one right way to teach anything.** When diversity is accepted and attended to in the classroom, students are inclined to move out of the fixed sets typifying their individual styles, to learn from other students' styles and to benefit from instructors' encouragement to develop new learning skills.

As educators we have all grown accustomed to how we have learned something and have subsequently transferred that to how we teach it. But learning style research tells us that there are many approaches to learning, and our task as educators is to learn to be as flexible as possible in meeting the individual needs of our students. We do this by challenging ourselves to develop a repertoire of teaching strategies that addresses the mental, relational and physical learning processes within our students. We must become aware of and conversant with the general process of learning, and we must **teach our students how to understand their own learning processes.** A significant shift we must make is to understand that our content is initially less important than the learning processes and needs of our students. One way we can apply this understanding is to periodically take time out from the class activity to focus on which learning strategies are presently being utilized by each student to learn the content. When this is done nonjudgementally and sensitively, with respect accorded to each style, and as an adventure in personal discovery, students gain by becoming aware of how they learn best, what areas they need to strengthen, and what resources they can tap to compensate and to develop more fully.

Another way is to always **teach the content in a way that** is relevant to the students' lives, that can help them understand themselves and others better, that can trigger qualitative actions within them so they can enhance their own lives and the lives of others within their family and community.

To do all this we must remind ourselves that we are learners too--that we are co-creators of the learning environment in cooperation with our students. We must learn to **welcome a diversity of thoughts and viewpoints,** keeping in mind that our chief task is to draw these from the students so they --along with us--can examine them for relevance and purpose. As Parker Palmer writes,

. . .knowing and learning are <u>communal</u> acts. They require many eyes and ears, many observations and experiences. They require a continual cycle of discussion, disagreement, and consensus over what has been seen and what it all means. This is the essence of the `community of scholars,' and it should be the essence of the classroom as well. (<u>Change</u>, p.25)

Part II of this manual is made up of classroom models which reflect this diversity in approach.



ADULT LEARNING STRATEGIES

HOW CAN YOU USE THIS MANUAL?

The purpose of this manual is two-fold.

- 1. The manual draws from the current experience of Ontario adult educators as to what works for them in the classroom, that is, what reaches the greatest diversity of students and embraces the entire learning process from the first stimulus to the emerging product of the learning.
- 2. The manual provides instructors with a background in learning styles and ways to present them to students.

Classroom models by Ontario adult education instructors working in math, science, English, communications, life skills, computer literacy, integrated classrooms, and basic trades and technology training are accompanied by a commentary providing a learning styles rationale.

The instructional models are presented simply and can be easily adapted to other content areas.

Notations of learning processes have been made in the right hand column of most of the classroom models to emphasize the ways and means used to teach to each of the three dimensions (mental, relational and physical). There are several examples left un-notated, either because they are apparent or because of repetition. It is important to remember that any one strategy may primarily focus on one of the dimensions within the students because of the way a teacher delivers and emphasizes the unit. Another teacher may use the same or similar content but a very different process and thus work primarily with an entirely different dimension of the student.

The level of each unit is listed as "Basic 1," "Basic 2," "Intermediate," or "Advanced." These correspond approximately to the following grades in the Ontario school system:

Basic 1: Literacy to Grade 5 Basic 2: Grade 6 to Grade 8 Intermediate: Grades 9 and 10 Advanced: Grades 11 and 12

On the following page is an overview (flow chart) of teaching approaches and strategies that are effective in developing varied dimensions in the student.

| DIMENSION | KEY_ASPECTS_IN | ELOW CHART STUDENT POTENTIAL | EXERCISES. ACTIVITIES |
|------------|------------------|--|---|
| 1 | LEARNING PROCESS | IO_BE_DEVELOPED | FOR_STUDENTS |
| MENTAL | Focus | Values Overview Idea, Theory, Abstraction Objectivity | values clarification exercises lecture abstracting, precis developing policy statements developing overview skills: putting information into context of world view precision exercises documenting authorities visualization exercises linear seation allowing for solitary work |
| | | Ċ.*.z | |
| | | Verbalizing, Communicating Assessing, Priorizing | small discussion groups (student directed) .verbalizing what each student is learning |
| RELATIONAL | PERSONALIZING | Organizing, Planning Relating, Connecting | |
| | | Creativity | establish relevance of learning to own life |
| | | Sensitivity, Feelings Subjectivity | and future job Identify individual skills and traits priorizing, assessing, organizing activities use of arts and creative processes to |
| | | : | illustrate points room envirorment conducive to sensitivity .breathing and relaxation exercises flexible seating in room for team/group work *** |
| | | Practicality Concreteness | hands-on application (demonstration and imitation |
| PHYSICAL | APPLICATION | Detail Completing Productivity Comprehensiveness | trepetition drill drill trecitation, games and humour daily classroom rituals use of technical equipment to see or hear use of technical equipment to see or hear use of technical equipment to see or hear time for tinkering time for tinkering toom set up for free flowing movement from one tage |
| | | | |

Meeting Learners' Needs

SAMPLES OF THE SHIFTING PROCESS: MEETING THE NEEDS OF THE LEARNER

Educators have begun to develop methods of producing learner-generated materials and creating programs which shift the focus from content-dominant to context-sensitive. Instead of having to submit to a traditionally determined curriculum emphasizing a certain "quantity" of information, adult students now are exposed to whatever math, language, science, etc. is beneficial to them in achieving their goals and living qualitatively productive lives. Thus, the material they focus on in their classes is sensitive to a particular context of their lives.

This shift in educational point of view is described by Parker Palmer ("Community, Conflict, and Ways of Knowing," <u>Change: The Magazine of Higher Learning</u>, Sept./Oct. 1987, pp. 20-25; referred to below in <u>Change</u>, Mar./April 1988, p. 58). Palmer

articulates what has become a groundswell in higher education; an important epistemological shift is taking place in the discussion of how students learn, moving away from individualistic, objectivist (distancing) ways of knowing, to a recognition of the relational nature of knowledge.

Following upon William Perry's work on cognitive and ethical development, and some of the new scholarship in women's and ethnic studies, there is growing awareness of the strong connection between the power of community and the quality of learning. The importance of the relationship between human context and the making of meaning, between the knower and the known--self and worldmust be acknowledged.

Following are examples of how instructors thoughtfully reflect on the uniqueness of the adult students in each target group, how they have made the shift to student-centred learning, and how they have revised their materials to meet the specific needs of their learners. BASICS OF THE BASIC LEVEL: TEACHING STRATEGIES PHILOSOPHY

(Notes from an OBS Workshop Presentation)

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PART A: WHO, WHAT, WHY?

WHO are the basic level learners? They are ADULTS who seem to fall into "categories" based on internal or external interference with learning:

A. The Learning Disabled/Severely Illiterate Adult (Internal Interference):

.has little or no formal education;

- .often has a learning disability which drastically hinders the ability to read;
- .is a dependent learner with little or no independent reading level, with little or no sight vocabulary, and sometimes little or no knowledge of alphabet.
- B. The Educationally Disadvantaged (External Interference):

.left school because of personal problem (e.g., pregnancy, home problems) OR finished school but without courses needed for career; .has NO learning disability; .has low self-esteem which may interfere with learning; .lacks opportunity, not potential; .may have other barriers to learning (e.g., physical disabilities).

C. <u>The Post English-As-A-Second Language (ESL) Adult</u> (Internal and/or External):

.may have some (or no) formal English instruction; .may be illiterate in native language; .must be able to speak English fairly well.

WHAT learning strategies are best? This depends on WHO we are teaching:

- A. The Learning Disabled/Severely Illiterate Adult:
 - .use a trained tutor if appropriate, BUT move learner toward independence;
 - .use whole language experience and whole language approaches, BUT do not ignore need for word attack through phonics;

B. The Educationally-Disadvantaged

- .focus on reading comprehension skills which are topically and personally related (word attack skills are usually in place);
- .work on the writing process, especially the organization
 of ideas;

.use a variety of materials to give the learner a choice and make learning enjoyable (ED as well as LD adults have often had negative school experiences);

.use group work to improve social skills and self-esteem; .utilize methods and materials which incorporate self-

- evaluation (discussion, conferencing, selfcorrection, etc.) and which explain WHY (ED adults need to be in control of their own lives and learning);
- .be aware of language discrepancies ("slang" and "street talk" may be a strong interference in written expression);
- .focus on job and life skills (they probably have not had any formal instruction in these essential areasindeed, these may be their most formidable barrier to employment;
- .teach compensatory skills as is appropriate to learner (physical disabilities may interfere with learning and/or product, e.g., the use of the computer for the adult with cerebral palsy);
- .employ life skills materials/activities with adults who may be "behaviourally charged" and not capable of seeing the inappropriateness of their own actions (behaviour may be a result of frustration with learning).

C. Post ESL

.focus on spelling skills and written expression (first language may interfere with correct use and spelling);

.employ methods and materials which give grammatical
explanations to provide a framework for language acquisition (they usually have a good foundation in grammar); .use audio-based materials ("fossilized" pronunciation errors can interfere with spelling and writing); .use vocabulary-building materials and activities; .organize group work frequently to expose learner to a variety of possible responses; .focus on appropriate job-search skills and materials (often adults may not fully comprehend our economic environment).

WHY? The "Fragile Learner" NEEDS:

.Success .Improved self-esteem .Individualized programming to meet own needs .To feel less alone, less isolated .To feel in control of own life and learning .Independence .An opportunity to contribute .Life skills to survive and job skills to thrive .To become an independent, lifelong learner

PART B: HOW, WHERE?

HOW can the learning be implemented?

- A. Integrate curriculum components (e.g., math and communications);
- B. Integrate the communication skills (reading, writing, speaking, listening);
- C. Clearly define the goals: Skills Mastery, Effective Communication, Career Clarification, Self-Awareness and Improvement.
- D. Provide structure to the learning environment (organization, predictability, independence, flexibility, and variety);
- E. Clearly state and post <u>WEEKLY</u> timetable. Example based on a 20-hour week:

| Monday | 4 hours | Math |
|-----------|---------|----------------------|
| Tuesday | 4 hours | Math |
| Wednesday | 4 hours | Programs |
| Thursday | 4 hours | Spelling/Job Skills/ |
| | | Shop Skills |
| Friday | 4 hours | Reading/Writing |

F. Clearly state and post <u>DAILY</u> timetable. Example based on a 4-hour day:

1 hour: CONFERENCING

- -Students: .work on individual/group activities at centres; .have 15-30 minutes independent reading; .have 15-30 minutes independent writing.
- -Teacher: .introduces activities at centres; .conferences with each student to assess needs and discuss work.

2 hours: GROUP LESSONS

Based on needs, group lessons provide cohesion in the class, immediate feedback, an opportunity to explore different modalities, a free exchange of ideas, and appropriate preparation for successful test-taking. Depending on needs, lessons can be large or small group.

| 1 | hour: | FINAL | CONFERENCING | AND | SHARED | READING |
|---|-------|-------|--------------|-----|--------|---------|
|---|-------|-------|--------------|-----|--------|---------|

| -Students: | <pre>.take tests; .complete group lesson activities; .complete centre activities.</pre> |
|------------|---|
| -Teacher: | <pre>.delivers tests; .conferences with individuals; .monitors activities.</pre> |
| | |

-Shared Reading: The teacher reads aloud from the newspaper TO the students who have a copy of the text. A short discussion follows. This provides:
.an exposure to parts of the newspaper usually avoided;
.entertainment, information, and informal discussion;
.a painless exposure to the world of reading;
.an excellent way to wrap-up the day's activities.

G. Create learning centres within the learning environment: .Audio: Audio-based materials (e.g., Ministry of Education ABE/ABL, Speak and Math, etc.); .Audio-Visual: VCR or other visual media materials used (e.g., TVO series "Bits and Bytes"); .Library: Any reading materials available (check library for appropriate books, newspapers, magazines, etc.); .Computer: Group or individual work at computer with appropriate materials (computer-assisted instruction is an excellent and patient motivator);

- .<u>Reading/Writing</u>: Reading materials with comprehension activities; newspapers for reading comprehension and writing process;
- .Math: Problem-solving and skills-development activities (practical, applied, employment-related skills);
- .<u>Science</u>: Explore scientific materials and phenomena; develop an awareness of the scientific process;
- .<u>Shop Skills</u>: Hands-on exposure to tools, measurement, etc. used in shops;
- .Job Skills: Employment-related materials (e.g., application forms, typewriters for resumes and covering letters, interest tests, etc.).
- H. Evaluate appropriately:
 - .Use non-threatening, success-oriented objective evaluation to eliminate test phobias, provide exposure to the different types of tests, and allow learner to use test as a study tool;
 - .Utilize more subjective evaluation to encourage selfevaluation (conferencing, group discussions, etc.);
 - .Keep thorough records which are easily accessible to students to provide constant awareness of progress (colour-coded file folders with tracking sheets and test results).
- Provide exposure to job market (fields trips to job sites, guest speakers from business community, etc.).

WHERE can this all happen? A positive adult learning environment based on:

- A. Learning Partnerships (informal pairing of students according to social, academic, personal needs);
- B. Group AND individual activities.
- C. Individualized, student-centred programs with: .learning centres .conferencing .appropriate and varied evaluation methods .accurate and accessible record-keeping methods .direct delivery methods .independent reading, independent writing, and shared reading experiences
- D. Respect and sensitivity to needs of ENTIRE GROUP.
- E. Understanding of the GOALS of the individual, the group, and the program.

PART C: CONCLUSION

WHAT is the GOAL of the program? This should include:

- A. <u>Skills Mastery</u> which will open doors to learning and employment.
- B. <u>Effective Communication</u> (reading, writing, speaking, listening).
- C. <u>Career Clarification</u> so that the individual can compete more effectively in the present job market, maintain employment, and respond to the changing needs of the future job market.
- D. <u>Self-Awareness</u> and <u>Improvement</u> so that self-esteem will be enhanced (i.e., self-evaluation, awareness of own learning styles, appropriate behaviour in various settings, etc.).

ESTABLISHING A BASIC LITERACY PROGRAM

Basic 1

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OBJECTIVES

- To set up a Learning Centre in response to the literacy needs of adult students.
- To design a program responsive to the following questions:
 - -How can a program meet the needs of a wide spectrum of student abilities ranging from grades 0 to 7?
 - -How can broad curriculum objectives of Communication, Mathematics and Life Skills be applied meaningfully in integrated components?
 - -How can a successful learning environment be established as a professional home for both teachers and learners?
 - -How can curriculum objectives be met effectively under a variety of time constraints imposed by the learning limitations of the students, by the financial support systems the students access and by continuous intake of learners each week?
 - -How can a monitoring/evaluation/reporting process be established to offer academic advisement specific to the varied needs of the literacy student?

PROCESS

Three instructors, working as a team, created a system to identify the learners' strengths, weaknesses, needs and goals. This team has determined that the most effective mode of instruction of adult students at this level is through contextsensitive curriculum and materials. Information from student surveys, interviews, informal testing and group discussion are compiled to create learner-generated, learner-centred objectives which are in flux as the student population shifts. A varied and comprehensive selection of learning materials is needed to address both individual and group needs.

Classroom processes are designed to allow for independent learning, one-to-one instruction, small and large group sessions. The choice of methodologies and teaching curriculum constantly reflects current student-generated goals. Context Sensitive/R Learner Generated/R

Solitary Learning/M Peer Learning/R Daily journals of students' progress are kept and there are regular standardized testing procedures. Each month all students meet with an academic advisor (one of the Learning Centre faculty) to review their progress in achieving goals prescribed by the program and set by each individual learner.

Few processes and commercial materials have been designed to suit the format and structure of the Learning Centre. Consequently, the teacher-team is continually designing materials and activities in consultation with the learners.

Examples of this teacher-student collaboration process are "Hooked on Books," "Rap Group," and "SWISH" in this manual.

Verbalizing/R Assessing/R

Focus/M Completion/P

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ORIENTING NEW STUDENTS

All levels

Judith Bali, Conestoga College 460 Speedvale Ave. West, Guelph, Ontario N1H 6N6 519/824-9390

OBJECTIVE

To provide students with a learning environment in which they learn to move quickly and in which they learn to take the initiative in deciding to move from one step to another. To acquaint students with program goals--that this is an adult program in which they are getting something they need for further training, it's a familiarity, not thorough academics.

INTRODUCTION

When the student first comes into the class, we sit together Verbalizing/R and speak at length. I let this continue for as long as needed until I see that the student is at ease. In the beginning, the focus on course outlines and record and progress sheets is bewildering; sometimes lifestyle issues arise (ie. babysitting, part-time study, etc.). I encourage them to talk with me about things that are making them uneasy.

Relating, connecting/R

When they enter, they are so sure that their initiative counts for nothing; they are afraid that their doubts and questions are not legitimate. For the first while I make it a point to check with each student at least every other day to see if there are any questions or difficulties.

Both student and instructor have copies of their program forms with stated program goals and both check them off when units are completed. Giving this responsibility to students Completion/P reinforces their initiative. Records are always open and completed assignments are kept where they can get them on Objectivity/M request.

The program here is structured, but how students reach the structured goals is very flexible, infinitely adjustable. I let the students know that so they see that they have a goal which is not adjustable, but the ways they can reach it are Planning/R variable, and up to their own judgement. STUDENT PHASES DURING THE PROGRAM

At first they need to know they'll make mistakes; the Sensitivity to Learner/R achievement comes later.

Then I make them take the initiative. They have to ask for Planning/R their tests, and make their own decision about when they are Assessing/R ready. The first time is hard, but they learn to gear themselves and develop their own judgement. Objectivity/M

Then I give them certain imposed forms and structures to work Rule presentation/M within, such as paragraph and letter formats as opposed to free-style writing.

HOW STUDENTS LEARN

Some of the students know how they learn best by the time they come here. I let them follow their own style, but as the course progresses, I try to gear them to working in different ways, try to encourage them to take diverse approaches to Experimenting/P learning and to focus on how they learn.

I find that it helps students when their specific learning styles and problems are given names. (The students themselves shouldn't be categorized.) If I say, for example, "Oh, you learn better by listening," a student feels that he/she is a recognizable entity and that his/her experience is acceptable. In the communication class, students learn to tap what they already know and learn to trust that the perceptions and ideas Objectivity/M they have to offer are of value.

BUILDING STUDENT INITIATIVE

In the beginning, <u>build on a strength</u>. If a student writes a paragraph, I emphasize one aspect that is positive and give him/her a <u>personal</u> reaction or feelings about what she/he has written, eg. "very interesting, such and such." Since, in this way the student sees that what he/she writes actually elicits responses in the readers. Then I give one critical comment which the student can work on in the next assignment. Later, students become more interested in expressing ideas clearly and effectively than in knowing the teacher's reaction to the Objectivity/M ideas.

Students choose their own topics for written compositions and Personal relevance/R their books for reading. This lets them explore their own interests and tastes, and gives value to their judgement.

TENSION AND THINKING THROUGH SOMETHING

When students say they can't read a particular article, it's

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often because they're too tense. I suggest to them that when Sensitivity to Lears__/R they find themselves concentrating on "concentrating," they stop, relax, close their eyes and repeat to themselves the Attention/M ideas of what they've just read, and ask themselves, "What is coming next?" I also recommend that they practise this technique with short radio or TV segments--especially to E.S.L. students.

SOME POINTS TO CONSIDER WHEN REVISING WRITTEN MATERIALS TO MEET THE NEEDS OF STUDENTS

Basic 1 and 2

Joyce Combe, Mohawk College, Saltfleet Campus 481 Barton Street East, Stoney Creek, Ontario L8G 3Y4 416/662-3700

and

Elizabeth Holmes, Seneca College 1780 Lawrence Avenue West, Toronto, Ontario M6L 1C7 416/491-5050

POINTS TO BE CONSIDERED

Develop "selective insensitivity" to your content. Teach what Context sensitive/R basic students need to know to get where they are going.

"In University, an instructor's loyalty is to their discipline. In College, you have to be prepared to adapt your discipline to meet the needs of each student." (Elizabeth Holmes)

Review the vocabulary, assuring that words reflect the reading level of the students and acknowledge that they are adults.

Make all examples relevant to an adult's life experience and Personal relevance/R present concerns. This integrates and indirectly teaches life skills.

Break the assignments into smaller, less overwhelming tasks.

Make sure directions are consistent, clear and include a $\ensuremath{\,{\rm Precision}}$, $\ensuremath{\,{\rm clarity}/M}$ realistic timeframe.

Provide regular, periodic "checks" with the instructor to Time management/P encourage reflective self-evaluation, facilitate immediate Assessing/R feedback, identify any problem areas, and to personally engage Relating/R students in discussions of how they are <u>feeling</u> about their Verbalizing/R progress.

To keep the students engaged and to help relax the learning Sensitivity to tension, make sure some class work is done just for the fun of learner/R it.

REVISING WRITTEN MATERIALS TO MEET THE NEEDS OF BASIC STUDENTS: AN EXAMPLE

Basic 1 and 2

Terry Bernardi, Sault College 443 Northern Avenue, Sault Ste. Marie, Ontario P6A 5L3 705/949-2050

OBJECTIVE

To revise materials so that they are appropriate for basic students.

PROCESS

The words on Example A are not appropriate for many basic Ideas, concepts, students, abstractions/M

The words on Example B are more specific, clearer and easier to understand.

Giving both pages to the students allows for learning of new words, but the emphasis is on having workable steps to use-vocabulary is secondary with this handout.

Example A

DECISION-MAKING/PROBLEM-SOLVING



Relating, connecting, personal relevanc

Example B

STEPS TO HELP YOU SOLVE A PROBLEM OR MAKE A DECISION



INTRODUCTION TO LEARNING

Intermediate and Advanced

Ann Croll, Algonquin College Colonel By Campus, 140 Main St., Ottawa, Ontario, K1S 1C2 613/598-4501

OBJECTIVE

- To provide students with a rationale for various approaches taken in the classroom and for suggestions regarding specific study skills.
- To give students a way of looking at their own study and learning patterns.

TIMEFRAME

10 - 15 minutes.

PROCESS

Put the following chart up for students to see. Cover the percentages and have them guess the %s for each statement. Personal Relevance/R This is a good starting point for looking at learning.

Focus/M

Learner's Ability to Retain Information Studied*

10% of what the learner READS. 20% of what the learner HEARS. 30% of what the learner SEES. 50% of what the learner SEES and HEARS. 70% of what the learner SAYS as he/she talks. 90% of what the learner SAYS as she/he DOES something.

^{*} The chart on "Learner's Ability to Retain Information" was compiled by David Schlect at St. Lawrence College St. Laurent, Kingston, Ont.

Some of the following points can be discussed:

- 1. The more different ways a student acquires information, the better the learning. <u>Seeing</u>, <u>Learning</u>, and <u>Doing</u> all involve different pathways to the brain.
- 2. The best way to learn is to explain or show something to Relating/R another student. Encourage students to form study groups Verbalizing/R of 2 to 4 people.
 Peer Learning/R
- 3. Doing exercises, assignments or labs is essential for Practical application/P longer retention.
- 4. Knowing something now does not mean you'll know it later. Without review, information is retained only about 48 hours. Only review and repetition will store something Repetition/P for longer periods.
- 5. Repeating material out loud (to yourself or to others) Verbalizing/R involves more pathways and improves retention.
- 6. Using 3 x 5 index cards as flash cards is excellent for Attention/M short, frequent reviews.

Instructors who use discussion groups and labs/physical applications can justify their approaches with the above chart. Students pay attention to this chart and begin to talk more in class or in study groups.

For adult students, it is important to justify HOW you teach, Personal relevance/R WHY you teach and WHAT you teach. Always set a relevant context.

Explain to the students that each class will begin with a 10 minute "warm-up." The "warm-up" is a review and is always oral, fast and snappy. Questions are thrown out to the class; Verbalizing/R specific students are never pinned to particular questions. At the end of a warm-up review, remind them that they've just told you the facts that they've learned. Then remind them of the skills they've also learned. Students participate more and more in this as the class progresses.

APPLYING LEARNING STYLE THEORY IN A SCIENCE CLASSROOM: AN HISTORICAL PROGRESSION

Intermediate

Carl Rose, Confederation College P.O. Box 398, Thunder Bay, Ontario P7C 4W1 807/475-6269

Several years ago we developed a self-paced science program based primarily on three or four text books that were loaned to the students. The curriculum was set up into six independent units, each of which was broken up into smaller packages called modules. Each module had quite detailed performance objectives --most of which could be learned from reading text references, performing laboratory exercises, using audio-visual materials in the library, and asking questions of other students or the teacher.

Modules could be completed in anywhere from one hour to six or eight hours, depending on the student and the module. Upon completion of the module, students would write a test in the classroom. If they received 80% or higher, they would advance to the next module. If not, they would correct their errors, study some more, perhaps do additional exercises, and rewrite until 80% was achieved.

At the end of each unit, students would write a unit test in the testing centre. Whatever mark was achieved on this went on their record. There was also a final exam for Intermediate Science. The final mark was an average of the six unit tests plus the final exam.

We soon discovered that our homemade learning materials did not cater to all learning styles. Although students who were visual or mentally-centred learners, or who possessed good reading skills and were able to competently work alone with theory and abstract ideas, progressed at a good pace and liked this method, many other students required longer time and experienced difficulty and some frustration with it.

We then formed two classes: one continued with the paper-based system; the other used exactly the same materials, but with the teacher "teaching" a lesson in a more traditional way, and with the whole class progressing together one unit at a time. The students chose which class they wanted to attend, and surprisingly, the classes were always approximately equal in size.

During that time we had a large laboratory (large enough for both classes) with a room divider in the middle. Flanking both Emphasis on mental dimension

Incorporating the relational dimension

Incorporating the physical dimension

sides of the laboratory were classrooms with an adjoining door and windows so that an instructor in the class could always monitor the students in the laboratory.

In the new "traditional" class, the teacher used a variety of common teaching strategies: socratic lectures, everyday examples of scientific principles, teacher demonstrations and student laboratory exercises. Students were still given the module tests every three or four days to receive rapid feedback on their learning, with the unit test at the end of each fourweek period.

The other class was run the same as before. It also gave us the flexibility of using it as a holding class for students who started part way into a unit. At the end of each unit (fourweek period), students were given the option of switching classes.

Eventually our numbers dropped to the point where we could only have one class, and we dropped the self-paced one and kept the "traditional" one as it met the majority of the students' learning style needs because of its wide range of diversity.

The work done in the self-paced class paid off, however, because we now have a set of quite detailed performance objectives, a set of three or four of each module's tests, and unit tests with a teacher's answer book. This is of great benefit for spare teachers, summer replacements, and new teachers.

Of course, the material is constantly being modified, new tests written, etc. As a result, we feel we are constantly in a state of flux and are never "finished". But, of course, this is the nature of education.

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All dimensions developed



INTEGRATING UNITS: LIFE SKILLS, COMMUNICATIONS, MATH, SCIENCE, COMPUTER LITERACY

Preliminary research suggests that 80-85% of our North American population are relationally-centred learners.(Sandra Seagal, cited in C. Brooks, <u>Instructor's Handbook: Working with</u> <u>Female Relational Learners</u>, 1986, pp. 58-61). This means that everything students hear, everything they speak, and every action they take is connected in a very deep way to everything else they know. It means students are very motivated to learn when the learning relates to something already known and when they understand its personal implications.

This knowledge gives us valuable insight into how we need to re-vision our teaching styles. Realizing that our traditional approaches have been based on a British model which employs techniques geared to the mentally-centred learner (about 3-5% of our population, [see Seagal above]), means we must do some serious restructuring. Alternative methods of teaching that work well for both the relationally- and physically-centred learners include integrating the various disciplines so that everything taught within a program becomes connected and is made personally relevant to the learner. This speeds the learning, assists in retention of the material, and allows for more meaningful and practical application.

Following are teaching strategies that illustrate the principles of integration and personal relevancy. Integrated disciplines lend themselves particulary well to simulations and to context-sensitive education; for example, the relating of subjects taught to one situation, like employment, or to current experiences of the students.

MAKING ACADEMIC LEARNING CONCRETE: INTEGRATING MATH AND LIFE SKILLS

Basic 1 and 2

Ruta Everatt, Canadore College P.O. Box 5001, North Bay, Ontario P1B 8K9 705/474-7600

OBJECTIVE

To give students confidence in financial dealings.

PROCESS

Banking

Stage a mock "Banking Day". Following a brief lesson of "how to," and using actual bank deposit, withdrawal and counter Overview/M cheque slips, set up two "banks." Chequing accounts are Personal Relevance/R established for each student (using pre-computer ledger cards) with an initial balance of \$1,000. Distribute \$500 in cash (funny money) to each student and the fun begins. The only Practical Application7P stipulation is that students pay each other by cheque for "services rendered" or "goods purchased", i.e., seats are "bought" and "sold", air space is "rented", corporations are built and tycoons emerge. At the end of the day, students have to balance their cheque Completion/P record books to the bank's ledger. Overdrafts occur, illustrating the origin of cheque certification. This is a Personal Relevance/R great exercise for students who are unfamiliar with banking procedures, as well as for those interested in banking as a career (these individuals can be responsible for balancing the ledger to the incoming cheques and deposit slips!). Retail To illustrate gross income, net income, profit, overhead, Practical Application/P stock, inventory control, personnel management, advertising, etc., have the students set up their own "store" of donated used clothes and goods. They form a committee to set prices, determine policies and, initially, to staff the store. Math Personal Relevance/R

The money raised goes back into the program in the form of field trips, class parties, etc. A very positive outcome of this exercise for our class was that they were able to help some recent fire victims with a "free" shopping spree. This enabled the students to make a contribution at the community level in a very concrete way.

skills as well as lifeskills are used as such issues as

discount sales, bartering and trading arise.

Relating, Connection Practical Application

INTEGRATING MATH AND LIFE SKILLS: THE INCOME TAX FORM

All Levels

Frances Dungey, George Brown College 21 Nassau, Toronto, Ontario M5T 1M3 416/967-1212

OBJECTIVES

- To help the students understand the Canadian income tax form as a necessary part of their lives.
- To explain the tax form line by line so that the students can better understand the rules related to one's income and deductions as defined by the income tax laws.
- To use and reinforce basic arithmetic skills.
- To eliminate fear of doing their own income tax.
- To provide an enjoyable and rewarding experience.

TIMEFRAME

The amount of time spent on each section will depend on the needs of the class. The entire form can be covered in about two hours.

DESCRIPTION

Teaching this lesson can be extremely difficult, perhaps impossible, if the instructor fails to use humour and a relaxed attitude. It is these "teaching aids" that will help to lessen the frustrations and mental blocks that students tend to have about filling in the tax form.

Sensitivity to Learner/R

MATERIALS

Prepare a simulated T4 that would reflect values relevant to Personal Relevancy/R the economic position of the average student in the class.

Each member of the class should have a copy of both the income tax form and the T4.

PROCESS

The instructor guides the class through the tax form, giving ${\sf Focus}/{\sf M}$ explanations when necessary.

Examples should be used when possible to clarify usage (e.g., Practical Application

the education deduction).

This is an excellent opportunity to teach incidental saving and investment practices (e.g., retirement savings plans).

LESSON IDEAS FOR INTEGRATED MATH AND COMMUNICATION

Basic 1

Heather Lennie-Segsworth, Cambrian College 1400 Barrydowne, Sudbury, Ontario P3A 3V8 705/566-8101

OBJECTIVES

To create an environment, a routine and activities drawn from the students' experience to which they can readily relate in their learning process.

MONDAY MORNING--FOCUSING THE STUDENT

To designate Monday morning for journal writing focuses the class and helps students to settle into the work week. The instructor makes comments on what students have written, but does not correct them. Sometimes the instructor will ask a student about time and sequence or linking word disparities appearing in their journal writing. Occasionally the instructor will suggest a topic for the group-either from a newspaper article

> Step 2-three describing words or action words Step 3-a place you would find the person or thing

Step 4-another name for the person or thing

or finishing "If I won the lottery, I...."

Step 1-name of a person or thing

or a simple poetry exercise, such as a step poem

Focus/M Personal relevance/R

example: Fresh, good on the table delicious Food

EVERY AFTERNOON

Every afternoon before focusing on individual lessons, the class as a whole does an oral component or group activity, eg. Relating/R poetry, newspaper study, game, math puzzle, etc.

PRACTICAL INTEGRATION OF MATH IN DAILY ROUTINE

Some students keep an on-going, daily ledger of money paid for Practical application/P coffee from the coffee pot in the room.

DEAR ANN LANDERS, QUESTIONS AND ANSWERS

Students practice setting up questions in written form and offering practical solutions in writing. Sometimes the Problem-solving/P questions and answers are related to life skills issues and Verbalizing/R sometimes to humorous situations.

Dear Ann, I'm 18 years of age. Over the last 6 months, my drinking is getting worse. From weekend drinking, I am drinking now during the week. I don't want to tell my parents or teacher about it for the fear of the consequences. They might not understand. I would appreciate your suggestion on this matter. Yours sincerely, Sick of Being Sick

Dear Sick of Being Sick, I understand that you have a big problem and do need a lot of help. I suggest that you talk to your parents. There is a lot of help for people like you out there. You are not alone. Go to your nearest AA meeting. I'm sure they will welcome you with open arms. Good luck, Ann

NEWSLETTER

A newsletter designed, written and produced by the students is a very effective way to help students through the complete process of brainstorming ideas--making a plan for newsletter-writing articles--editing, correcting, typing or putting newsletter on the computer--giving out newsletter to friends, family, other students--and receiving feedback. Students may want to highlight some of the work they have been doing. Working together through a task to completion with a product that is public reinforces the students' motivation and interest.

The contents of the <u>Baselit II News</u> are:

- -Editorial (by an individual student)
- -Who Are We? (short personal introductions written by each member of the class)
- -Health Column (by an individual student, writing about the symptoms of a heart attack he suffered and his recovery)
- -Class Creates Problems and Solves Them (Life skills

Personal relevance/R

Completion/P

issues, group problem solving) -Dear Dan (by an individual student, following Dear Ann Landers format) -Recipe Corner -Poetry Corner Stair Poetry Cinquain Poetry Admired by Students -The Baselit Caper (by instructor, a story with the students participating in a lively drama) -Puzzle Page

FILL IN THE BLANKS IN A WEEKEND CARTOON

The instructor takes a large, half-page cartoon from the weekend newspaper and whites out some of the words. Students fill in the words creating their own slant in the cartoon. Creative expression/R This can be done by individuals or the group.

USING CLASS CONTENT IN PRACTICE WITH QUOTATION MARKS AND PUNCTUATION

The instructor writes down sentences used by members of the class and photocopies them for each member of the class. She instructs the class, "Put quotation marks around the exact words that someone has spoken"--

- Heather's husband reponded, Mmm...That's nice. 1.
- 2. I can't take it anymore! cried Danny.
- What did you say? asked Ida. 3.
- Irene spoke up, listen you guys, I'm tired of 4. selling my beadwork.
- 5. Sure, sure, sure, said Ed.
- Caroline asked, Anyone want coffee? 6.
- 7. I hope it's not Healthy, said Tom.

"The next 5 sentences do not have any punctuation marks or capital letters. Put in the appropriate punctuation"--

- how did you manage that asked Diane 1.
- 2. sorry I'm late said Alice
- 3. keith said we need equipment
- jim replied oh I borrowed Tom's lunchpail 4.
- 5. joanne said slow down

Learner Generated/R

Graphs are a non-threatening way to introduce math to students, especially when they first come into the class. Graphs can be clipped from the newspaper or other current periodical. Not only do they acquaint the student with numbers, but they also require that the student use his/her problem solving abilities and communicate her/his understandings. The instructor asks students to give 3 sentences describing anything on the graph.

Questions can also be made up ahead of time as in the following example.

| Linguistic diversity is greater in Canada today than it was 25 years ago. Almost 3 million people have a mother tongue other than English or French. Proportion by province: |
|--|
| - 15%. - 10% - 10% - 5% B.C. ALTA. SASK. MAN. ONT. QUE. N.B. N.S. P.E.I. NFLD. |
| Source: Statistics Canada D. Mati |

CANADIAN TONGUES

- What is the title of this graph? 1.
- 2.
- Is this a pictograph, bar graph, or line graph? Which province has the highest number of people who 3. speak another language other than English or French?
- 4. Which province has the lowest number?
- 5. What can you say about the Western provinces as compared to the Eastern provinces?
- What proportion of people in Ontario speak another 6. language other than French or English?
- 7. State one other fact that you can see from this graph.

Visual/M

Problem-solving/P

Verbalizing/R

BASIC LEVEL INTEGRATION OF MATH AND COMMUNICATION

Basic 1

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OBJECTIVE

To focus on issues relevant to students' immediate experience and build integrated math and communication units around these items.

TIMEFRAME

The units may take 1 day to several weeks.

PROCESS

Materials are generated by local newspapers, students' Learner Generated/R experience and other resources. The instructor creates much of the material and uses texts as back-up.

The event/issue around which one unit was built was the air- Personal Relevance/R show which most of the students were planning to attend. The instructor was aware of this from open discussion among the students. Examples of exercises were--

A. The bulletin board is used throughout the unit and Visual/M referred to when new materials, photos, maps or charts are added.

B. Article on airshow, reading and discussion: Bring in a newspaper article to use as a story; make copies for everyone. Before reading the story as a group ask everyone to read it individually, look up difficult words in the dictionary and Precision/M study the spelling. Underline each of these words in the story as you read.

In the group, each student takes turns reading aloud. At certain points when the instructor feels that a phrase or a subtlety needs to be clarified, she interrupts to see if Verbalizing/R students can explain and <u>amplify</u> or transfer concepts to other settings. The pace is set by the abilities of the students.

C. Sentences with difficult words: The instructor asks

students which were their most difficult words. Some time is spent developing a vocabulary list as a group and then students use the difficult words in their own sentences. The words are also used in phonetics and grammar exercises. The instructor is available to answer questions as the students work. takes care to sit beside students as she overlooks their work. She also uses other gestures and words which indicate that she is not an "authority figure" for students to become dependent upon. Responsibility is consistently placed in the students' hands.

D. Crossword puzzle using difficult words. Facus/M

Ε. Parking map of air show with questions: The parking map to the air show was included in the unit. It was also used as an introduction to road maps and following directions. The Ontario road map and local maps were then used to extend the objectives.

- F. Ticket, food and drink price list with math questions. Personal Relevance/R
- G. After students have attended airshow, discussion.

Η. Article on "Skyhawks" (Canadian parachutists): "Skyhawks" Objectivity/M included much vocabulary work, reading comprehension questions and discussion. This was one of several articles used.

I. Information (communications and math) on aircraft in Verbalizino/R general, discussion and questions, use of difficult words.

"In orbit"--story about John Glenn, discussion, questions, J. use of difficult words

K. Short teacher-written articles with questions.

REFERENCE

The Ontario Times, (Newspaper) Ontario Ministry of Citizenship. Current, interesting articles for students to read and discuss.

Relating, Connectingra

Visual/M

INTEGRATING MATH AND COMMUNICATIONS INTO THE COMPUTER AWARENESS MODULE

All Levels

Yvonne Doherty, Sir Sandford Fleming College, Frost Campus P.O. Box 8000, Lindsay, Ontario K9V 5E6 705/324-9144

OBJECTIVES

To eliminate fear of computers.

- To provide an alternate method of learning and/or to stress concepts already learned in math and communications.
- To teach enough simple computer programming so that the student has a basis for deciding whether or not she/he would like to take a programming course.
- To familiarize the student with a word processing program.
- To provide a means whereby a student may learn or refresh typing skills.
- To have fun (not necessarily last on the list).

DESCRIPTION

The student usually works through all or part of a computer Practical Application/P awareness module which teaches her/him such things as cursor Rule Presentation/M control, editing, order of operations in immediate mode and D.O.S. commands, including loading, saving, formatting a disk, etc. She/he may then work on and do some simple programming Tinkering, Experimenting, using input and data statements and looping.

We have a few disks to help meet other objectives. The students are encouraged to use the word processing program for Personal Relevance/R resumes, essays, etc.

PROCESS

MATH SOFTWARE: (All from Arrakis unless otherwise noted)

- A. Algebra I Vol. 2, Disk 1 (Integers)
- B. Algebra I Vol. 2, Disk 2 (Fractions)
- C. Algebra II Vol. 1, Disk 1 (Algebra Notation, Formulae, Algebraic Expressions)
- D. Algebra II Vol. 1, Disk 2 (Equations, Problems, Exponents)

- E. Geometry Vol. 1, Disk 1 (Measure, Point, Line)
- F. Geometry Vol. 1, Disk 2 (Angles)
- G. Algebra Vol. 3 (Polynomials, Factoring, Quadratics) (from Eduware)

ENGLISH SOFTWARE: (All from Intellectual unless otherwise noted)

- A. Capitalization and More Punctuation
- B. Library Skills: How To Do Research
- C. College Aptitude Reading Comprehension Disk 1
- D. College Aptitude Reading Comprehension Disk
- E. Spell It (from Davidson Software)
- F. Practical Grammar I (nouns, pronouns, verbs)

MISCELLANEOUS SOFTWARE:

Print Shop (and Print Shop Companion) (from Broderbund Software)

Mastertype (Learn to type or brush up typing skills) (from Mindscape)

P.F.S. Write (Resumes, Letters, Documents, Essays, etc.) (from Software Publishing [P.F.S.])

NOTES

We use P.C. Juniors and have trouble with all Intellectual Software (i.e., to get to menu we have to reload).

The students enjoy using Print Shop to make signs and banners.

PFS Write is our most used software.

ORDERING INFORMATION FOR SOFTWARE PACKAGES

All software packages except Intellectual are available from such companies as:

School Services of Canada 66 Portland Street Toronto, Ontario M5V 2M8 416/366-0903 Penny Software, Inc. 8924 Shaughnessy Street Vancouver, B.C. V6P 3Y5 1-800/663-5950

ог

Intellectual software packages are available from:

Intellectual Software 798 North Avenue Bridgenorth, CT. 06606 U.S.A.

Arrakis software packages are also available from:

Grolier Limited 20 Torbay Road Markham, Ontario L3R 1G6 416/474-0330

INTEGRATION OF COMMUNICATIONS AND COMPUTER LITERACY CLASS NEWSLETTERS PRODUCED ON THE COMPUTER

All Levels

Lou Orr, Niagara College P.O. Box 340, St. Catharine's, Ontario L2R 6V6 416/684-4315

OBJECTIVES

- To provide an opportunity for the students to work cooperatively together on a group project.
- To introduce the computer as a friendly tool that works for and with us.
- To give students a sense of pride, ownership and competency when their publicly-displayed written expressions are seen.
- To enable students to practise organizing, analyzing, editing, planning and hands-on skills.
- To provide tangible evidence of learning which can be shared with family and friends.
- To transmit student introductions, creative writing examples, announcements, information, on-going activities, humour, and positive thoughts of interest and relevance to all students.

PROCESS

The newsletter is a classroom project coordinated by the English and computer teachers.

The classes rotate in producing the newsletter. Generally each class will do one every six months so that every student will be involved at least once while in the program.

Teachers know months ahead when their turn will come and can plan accordingly.

The English teacher and class then decide on the organization and format of the paper, e.g., Overview/M Planning, Organizing/R

.editors
.articles to be included
.deadlines
.proof-reading
.printing
.distribution

All assignments are written in the English class and entered on Hands-on/P computer by the students during computer classes.

The English teacher is responsible for written material.

The computer teacher is responsible for the accuracy and format on the computer.

The English and computer teachers work together to coordinate extra time to facilitate printing and distribution. The most difficult part is the actual printing because of the time factor. All printing is done on the computer to show use of the computer from beginning to end in producing the newsletter. This also gives an opportunity for some students who may not have participated in the actual writing of the newsletter to contribute to the project. It is also very <u>inexpensive</u>.

When only one printer is available, it can only be used when other classes are not in the lab. Therefore, it generally takes about a week to complete the printing process.

USING LIFE SKILLS EXAMPLES TO EXPAND VOCABULARY AND DEVELOP FULL SENTENCES

Basic 1 and 2

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Objectives

- To develop a more expansive vocabulary through group discussion.
- To model the formation of complete sentences.
- To encourage increased awareness in subjects relevant to the lives of the students.
- To foster informed decision-making/problem-solving.
- To develop self-confidence and refinement in oral reading.

Timeframe

The initial part of this exercise takes about 20 minutes. If the class is interested and engaged, the topic could be developed over a couple of days.

Description

This exercise can be used spontaneously to utilize group Learner Generated/R dynamics that happen naturally as a result of an expressed need, question or comment from a class member.

Process

Example: Student requests a change in timetable in order to attend a fitness class. Class spontaneously begins a discussion around the importance of physical fitness.

Brainstorm where fitness can take place (recording responses on flipchart to reinforce visually the vocabularly used and proper spelling).

Discuss ways of getting fit and the importance of cardiovascular exercise. Have class develop sentence on how to take a pulse reading (i.e., "You take your pulse by placing your fingertips on your wrist or throat and counting the beats, or pulses").

Verbalizing/R Focus/M Visual/M

Personal Relevance/R Practical Application/P

Develop further vocabulary awareness by writing down how each

Personal Relevance/R

student would describe their "shape", etc., and/or further sentence development by having class brainstorm various factors to consider when choosing an appropriate exercise program, etc. Words and sentences are always written down on board as well as verbalized to reinforce the learning. Then have students do a cloze exercise to use the shared Practice/P

Then have students do a cloze exercise to use the shared developed vocabulary and their own words as they wish. I.e., "I would say I'm in ______ shape. I do ______ for exercise. Usually I exercise at ______. My favourite ______ activity is ______. I find aerobic exercise to be ______. My heart rate is ______ beats per minute. If I ran 3 miles tonight, I would be _______tomorrow. A ______.

Work with them immediately to make any corrections necessary. Dbjectivity/M They make the correction and hand in a perfect copy.

Then have each student write a short story on the topic just Practice/P discussed, using personal experience, opinions, facts, etc.

Again, work with them on any needed corrections.

When everyone has their completed, corrected story, collect Verbalizing/R them and hand out randomly. They then read each others' work Completion/P orally.

The stories may be compiled in a class anthology.

Basic 1 and 2

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OBJECTIVES:

- To prepare students for the writing of resumes, covering letters and thank-you letters required to carry out an effective job search.
- To prompt students to think about issues which are important in looking for, and keeping, a job.

PROCESS

Let students choose preferred colour of composition notebook. Personal Relevance/R They take more pride and care if they choose themselves.

′R

Completion/P

Learner Generated/K

Weekly assign them a 1/2 to 1 page essay. Initially assign suitable personal topics that are on their mind at the time and thus will be easy to write about (i.e., What were your first impressions of this class? What struck you most about coming to this building?). Then progress to such questions as: What are you looking for in a job? What personal skills do you possess that employers will want? What do you see as "professional" clothes for yourself? How do you feel about going on your work placement? Relevant topics will often emerge as a result of the perceived daily needs/fears/barriers/hopes of the students.

Give them one week to complete each essay. Collect when due, Time Management/P reading and returning to them as soon as possible.

Do not make any corrections for the first week. Confidence Building/R

After that time period, essays are marked for writing errors, Rule Application/P and comments are made to guide the corrections (i.e., "not correct tense," "incorrect word form," "inappropriate expression").

Student rewrites and teacher corrects until a perfect copy is Repetition/P written. This may mean 1-4 drafts. At any time the student is Practice/P welcome to consult with the teacher about writing problems. Precision/M

Common difficulties with grammar concepts come to light through this writing procedure and form the basis of the weekly grammar lesson.

Basic 2

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WRITE TO THE END

It was the kind of grey November day where you just know that nothing nice could possibly happen. So as she watched her bus disappear down the street in a cloud of exhaust fumes, Barbara knew that nothing nice was going to happen to her. Just the opposite, in fact. Even though she'd run as fast as she could, she'd missed the bus. That meant she was going to be late for work again, and she could already see the scowl on Mr. Willan's face as he pointed to the office clock. But all she could do was stand at the bus stop gasping for breath and staring after the fading bus with despair in her heart. Suddenly, she felt a gust of wind and heard a thunk behind her as a deep masculine voice said, "Pardon me, ma'am. Could I offer you a lift?" She turned around and saw . . .

What? Superman? A magic carpet? The Ajax white knight? A motorcycle with a silencer? A Fuller Brush sales rep? How would you finish the story?

The hardest part of writing for most students (for most people, in fact) is getting started. The blank page can look very large and empty, and it is a long way from top to bottom.

One technique I have used successfully with students is to start the story for them and get the class to finish it. Relieved of the initial responsibility of beginning, students are often able to let their imaginations wander as they compose the ending.

I have chosen to write a frivolous and rather sexist opening here - a lady in distress rescued by a tall dark stranger. However, in discussion with the class, after reading the opening, the class could brainstorm ways of giving the story a more contemporary ending. Barbara could find the deep voice belongs to a child with a cold; to her Aunt Bessie ("I never knew you lived in this neighbourhood, child!"); to a lady weightlifter. Or she could react in a non-traditional way by pushing the motorcycle to get it started, peddling the child on the bike, or pulling out her secret witch's broom and flying Focus/M

Idea Development/M

Creative Expression/R

Verbalizing/R Idea Development/M
away. The opening is merely that - a beginning - and the ending can go in any of several different directions.

Furthermore, if the class is one with shared interests or concerns, the teacher can present openings which deal with real-life situations or problems and get the students to write endings which offer solutions to those problems or concerns.

- .What would you do if you found yourself in the supermarket line with \$30 worth of groceries and \$26.82 in your wallet?
- .What would you do if a ten-year-old child hadn't come home from school by 6:30 p.m.?
- .What would you do if you needed winter boots and your neighbour had her purse snatched?
- .Or if you got a heavy breather on the phone?
- .Or if you sprained your ankle and couldn't go to work?
- .Or if you dropped a dinner all over a customer in the restaurant?

The openings may also come from magazine articles or short stories at an appropriate level for the students. They can be as simple or as difficult, as fanciful or as serious, as seems best for the particular teaching situation. They can be used in a group situation where there is a chance to discuss choices or with individual students on a one-to-one basis where the teacher can devise an opening to deal with specific reading, writing or life skills problems.

Any reading and discussion of the openings can cover spelling, vocabulary, sentence structure and style. When integrating life skills in the communications class, then reading and discussion of the endings help facilitate individual awareness and problem-solving choices.

It is important to give the students clear instructions on what constitutes a suitable ending, or you may wind up with lots of "So she shot herself" or "Then she walked away" or "I don't know what happens next". Occasionally you may wind up with two pages of prose that rambles far away from the beginning - but this is a problem that I don't mind having.

I find it is necessary to give specific suggestions: .Write five to seven sentences. .Make sure the story is over when you stop writing. .Make sure your ideas make sense in terms of what was written in the opening. .Try to write as well as you can.

It is important for the teacher to remember that this is merely a technique for the teacher to get the students started on writing and not an end in itself. It is, however, one method of helping students to conquer that blank page. It's cheap; it's versatile; it's fun; and it works.

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Context Sensitive/R

Practical Problem Solving/P Analyzing/M

Relating, Connecting/R Practical Problem Solving/P

Personal Relevance/R

Rule Presentation/M

INTEGRATION OF LIFE SKILLS AND COMMUNICATIONS

Basic 2

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OBJECTIVES

- To draw relevant life skills lessons from the immediate concerns or problems that manifest within the group as they attend their daily classes (i.e., a pregnant student becomes the stimulus for a lesson on nutrition).
- To use a communications lesson (i.e., reading and/or writing) plus oral communication to assist students in finding solutions to stated or hidden concerns, whether these be emotional, physical, psychological, educational or sociological, which are affecting their lives at school or at home.

To enhance the learning of reading.

DESCRIPTION

A life skills problem noted by the instructor (i.e., Learner Generated/R snobbery/social stratification influencing and affecting the interaction within the group) becomes the focus for the communications lesson.

PROCESS

Find a story that works with the issue (i.e., the autobiography Connecting, Relating/R of Levi-Strauss found in the <u>Controlled Reading</u> series).

Read the story outloud (especially important for those who have Auditory/R trouble with the visual, and effective for the auditory learner; also sets the mood--basic students love being read to, especially dramatic readings).

Introduce the story using as many visual aids as possiblemaps, pictures, posters, blackboard - and connect it all to individuals within the class or the group as a whole. E.g., "Levi Strauss was born in _____ (place); show us on the map your birth country", etc.

Discuss any background information (history, geography) which Verbalizing/R will make the story more fully understood. Always write newly Visual/M used words on the board.

Students derive from the story how jeans were invented to solve a problem of miners needing pants which could withstand the wear and tear of the mining environment. Make the point that originally jeans were purely functional, brought to California for the making of tents.

Then have a group discussion, asking such questions as:

-What significance do jeans have today? -Why do we wear them? -How many here wear jeans? Why "acid" jeans? -Why don't most teachers? How do you feel when we do? -What do jeans cost? (getting at the fact that many of them may be wearing very expensive jeans - and many may be wearing relatively inexpensive ones) -Are jeans like a uniform? What is the value of wearing uniforms in school? -Do clothes make the person? Discuss. -If not, what does? -What qualities do you like to see in other people? -What qualities do you like to see in yourself? -If all people are born equal, why do we sometimes experience prejudice and snobbery? (Give an example from current events). -On a daily basis, how may we dispel this ignorance?

The students reread the story silently (this gives valuable Repetition/P practice and develops the visual in all learners; also checks Visual/M their own reading power and helps to increase concentration Focus/M span; it is an excellent chance for the instructor to quietly observe learning differences).

Then we do the vocabulary, spelling, and comprehension lessons. Practice/P

This may be followed by paragraph writing, story summary, sentence work or any assignment and/or test which meets the needs of this particular group. There are many possible follow-up activities.

Note: These lessons vary greatly depending on the particular group of students you have at any given time.

REFERENCE

Controlled Reading Series, Educational Developmental Laboratories, McGraw Hill, Toronto, 1965.

Verbalizing/R Focus/M Connecting, Relating/R Assessing/R

INTEGRATION OF LIFE SKILLS AND COMMUNICATIONS SKILLS USING FILMS

Intermediate and Advanced

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OBJECTIVES

- To provide stimulation for learning a good, basic plan for essay writing.
- To promote the development of thinking, analyzing and problemsolving skills.
- To encourage oral communication.
- To develop new skills of writing, listening and research.
- To enhance general knowledge of relevance to the lives of the student.

RATIONALE

Teaching English has two challenges: (1) to stimulate students who have preconceived ideas that the study of English is dull; and (2) to improve writing skills in a way that engages students in drills on subjects that interest them.

Videos work for all learning styles and are very effectively used to portray those issues and dilemnas of life that affect all of us.

PROCESS

Show an appropriate video such as <u>Educating Rita</u> (portrays a Overview/M young woman who returns to school to better herself).

Discuss, asking such questions as:

-What did you notice happen to Rita's learning Observation/M
abilities?
-How did Frank show he cared more than he admitted?
-What three main ideas would you include in writing Focus/M
an essay on this video?
-Does this film remind you of your own experiences Personal Relevance/R
in coming back to school? If so, what scene in
the film most matched your own experience?

Verbalizing/R

Students working toward their Grade 12 credit are assigned to write a five-paragraph essay describing what education Rita $$\rm Analyzing/M$$

really received and how it compared with the education her Assessing/R teacher gained.

Intermediate students are required to write a single paragraph on why the film is called "Educating Rita."

REFERENCES

Recommended videos: -Inherit the Wind -All the President's Men -The Gods Must Be Crazy -The Birth of a Nation -Beckett -On the Waterfront -War Games

THINKING SKILLS AND COMMUNICATION

All levels

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OBJECTIVES

- To use content relevant to students' lives through newspaper articles.
- To teach organization, ranking, and structure as critical communication and thinking skills.
- To help students tie their own experiences to material read and to develop the ability to visualize material read.

PROCESS

Ask students to choose an article which interests them from the Personal relevance/R newspaper. Allow them to work in small groups or on their own if they prefer.

Three exercises, from simple to more complex, are used here in this process--

Assessing/R Objectivity/M Idea development/M

.Ranking .Classification .Elaborative Thinking.

Other exercises dealing with hierarchy, syllogisms, analogies and creativity may be added for a more complete unit.

Ranking Exercise and Worksheet

We are often asked to make judgements on how well we like or dislike something, people, ideas, experiences.

Often we are asked to fill out a form ranking in order of how much or how little we like or dislike something, how we feel about something.

Sometimes it is like a quiz with a choice of answers for you to select from one extreme to the other extreme.

For example: How well do you like chocolate ice cream? I hate it 1 2 3 4 5 I love it

Make up some questions with different kinds of ranking order. Practical application/P

- Example: How often do you use the library? Never Sometimes Frequently
- Example: How would you rate the temperature in this classroom? Very comfortable Somewhat comfortable Uncomfortable
- Make up a question and use more than 3 possible answers. Practical application/P
- Example: Do you feel this course suits your needs? Completely Significantly Some Little Not at all
- Make up a ranking order to fit this question: I feel happy--

Classification Exercise and Worksheet

To classify objects or ideas is to arrange them under headings. Assessing/R For example, use the title "Religions" and list the names of some religions under this heading.

Christianity, Judaism, Islam, Buddhism, Shintoism, Taoism, Ba'hai, Hinduism

The word "religion" is the general word, the list of words are the specific words about the general word.

We can do it the other way around. Here is a list of words. Give a title or heading to the list.

pine, hemlock, spruce, tamarack, cedar

Give a classification word for each group below and suggest another word for the list.

Classification

Word

| | Asia, Africa, Europe | |
|------|------------------------|--|
| | South America | |
| | blue jay, cardinal, | |
| | oriole, sparrow, | |
| | chicadee | |
| | grandmother, niece, | |
| | cousin, father | |
| | polishing, scrubbing, | |
| | sweeping, dusting | |
| 2000 | anger, love, saddness, | |
| | happiness | |

Elaborative Thinking Exercises

Elaborative thinking is especially suitable for cooperative Verbalizing/R work. Groups of students of different reading levels seem to Relating/R

develop richer lists of associations than individuals or homogeneous groups.

As an introduction to this exercise, have students look at a current newspaper. Go through and look at photos only. Then ask students what the categories are (ie. social, events, Visual/M sports, political, business, etc.) Then have students select Personal relevance/R an article from the newspaper.

Following are eight approaches to elaborative thinking:

1. While you read or listen to the article, think of topics Idea development/M not covered that you would like to know more about.

For example, in this sentence--"When the man got off the bus there was no one there to meet him," you might ask: How old was the man? What was he wearing? What was he doing there? Was he happy? Sad? Was he a stranger to the place, or was he familiar with the surroundings?

- 2. As you read the article think of things that we could do Practical application/P in the classroom around the information. Example: experiments, research, make a map, have a debate
- 3. Think of people who have an interest in the subject. Relating/R Example: people in your life, famous people who are well known for their views and interests, people in the community you might invite to speak on the topic
- 4. Read for similar experiences. The group should think of Personal relevance/R experiences of their own, or of others near to them that are similar.
- 5. Find other examples of the author's meaning. Example: This writer points out that many road accidents are caused by drunk drivers. Can you think of other causes for accidents?
- 6. Produce a different ending to the story.
- 7. Note relations between the past and the present. As you read this story think of things that would not have been possible in the past that occurred in the article. Examples: medical cures, modern inventions, technological advances, etc.
- 8. Note how the reporter used the 5 W's (who, what, why, Practical application/P when, where) in the article. Write a paragraph using the 5 W's.

USING THE LANGUAGE MASTER MACHINE IN AN INTEGRATED CLASSROOM

Basic 1

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DESCRIPTION

The Language Master is a machine manufactured by Bell and Howell. It is shaped like a box with a slot running the length of the machine through which cards are drawn by a small rotating wheel. (See sketch below.) Each card has a voice tape at the bottom; the answer to the particular concept being learned is printed on the card by the student or teacher. The machine has a built in microphone volume control, teacherstudent switch, record and return switches.

The cards come in varying lengths. The long ones are adaptable to sentences used in English or Language Arts lessons. Addition, subtraction, multiplication and division facts can easily be taught using the Language Master.

When students are allowed to record the answers themselves, self-motivation and self-direction follows. (Adults love to hear their own voices on the tapes.) The students look at the questions, say the answers and then run the cards through the machine to see if they are correct. Since earphones can be used, there is no need for the students to disturb others in the class. Auditory/R Visual/M Hands-on/P Pacing/P Repetition/P Practice/P

The use of the Language Master is an excellent way for adults to build a good functional vocabulary. It also provides beneficial visual and auditory exercises that can be selfdirected.

Besides blank cards, there are several prepared programs available in basic reading and phonics. This machine can be adapted to almost any study area that requires long-term memory exercises. If Bell and Howell is no longer producing the Language Master, any interested teacher could approach schools directly about purchasing one. There are several machines collecting dust in storerooms.



Communications

COMMUNICATIONS

The teaching of communications is the teaching of how to effectively express ourselves in life. Whether the expression is verbal, non-verbal, or written, the most effective communicating takes place when the individual's mental system is clear and focused, the relational system is relaxed and connected (to the audience as well as to the idea wanting expression), and the physical system is capable of making the appropriate gestures to fully bring the idea into concrete form.

When a teacher becomes aware of where the blocks are, he/she can purposely strengthen what is already apparent and begin to devise ways to build upon what needs developing.

Many students have been frustrated and stifled in past attempts to learn communication skills because the emphasis has been placed primarily on the rules rather than on the expression. As educators we know that both are important and that we need to develop a myriad of ways to integrate the two. For many of our students, what is required is a complement of left-brain rules and right-brain creativity. However, the starting point for communication education may well be in the creativity of the right brain. The following examples from <u>Teaching For the Two-Sided Mind</u> illustrate these principles (Linda Verlee Williams, Simon and Schuster, Inc., N.Y., 1983).

The power of right-hemisphere techniques in teaching is demonstrated by the experience of Diane Streeter, an English teacher from Serramonte High School in Daly City, California. Ms. Streeter was assigned to teach eleventh graders an elective class in grammar, that most linear and verbal of subjects. By the middle of the semester all who had mastered the material had been assigned to independent study, and she was left with many students who had studied grammar for a number of years and still couldn't identify parts of speech or analyze sentences. She decided to use fantasy with them. The students were asked to close their eyes and imagine that they were nouns. Afterward they discussed their fantasies; most reported feeling heavy, boxy, immobile. Fantasies with verbs and other parts of speech followed. In other exercises they imagined relationships between different parts of speech, derived symbols, and translated sentences from symbols and vice versa. By the end of the unit the majority of the students had mastered parts of speech and could manipulate those elements in simpler forms of sentence construction. They were so confident in their abilities that some asked if they could be tested with the "smart" students. The "failures" generally equaled and in some cases surpassed

their "smart" classmates. The right-hemisphere technique of fantasy had enabled them to succeed in learning a subject they'd been unable to master through a more linear, analytical approach. Interestingly enough, many of the students who had succeeded at learning grammar by traditional methods had difficulty generating fantasies. Because they'd never been asked to use their imaginative faculty in school, this deficiency had gone unnoticed. While their grades did not reflect it, they suffered from a disability as severe as that of their less analytical classmates. (pp.8-9)

Another study demonstrated that students recalled vocabulary words better when they read the definitions and drew their own pictures to represent them than when they read and wrote the words and the definitions. Tracing a picture of the definition produced better recall than writing the definition, but creating one's own visual image was more effective than tracing. (p.31)

Let's look at how an awareness of learning styles and strategies can interact. Spelling can be taught visually (making a visual image), with auditory input (sounding out the word or spelling it aloud in a rhythmic pattern), or kinesthetically (writing and tracing the word a number of times). There is some evidence that the best strategy for spelling is visual; good spellers "see" a mental image of Therefore, teachers should explicitly teach the word. students the strategy of visualizing spelling words--that is, seeing the image of the word in the mind's eye and copying it from there. However, an understanding of learning styles also tells us that some students may have difficulty with a visual strategy and should be encouraged to use an auditory or kinesthetic approach as well. They can copy or sound out the word while still practicing the use of visual imagery. Explicitly teaching an effective strategy while also exploring possible alternatives allows students to develop the individual approaches that work best for them. (p.49)

. . .a wonderful solution to grading writing assignments is to have your students do a lot of writing. You collect each assignment and keep it in a file, and periodically you give students their files and ask them to select the best two or three papers and submit them for a grade. In this way you grade them on their best work and relieve some of the tension attached to practicing new skills. You also give them a maximum amount of writing practice while spending a minimum amount of time grading. (p.134-135)

These teaching strategies represent successful approaches to overcoming specific blocks commonly experienced by students. Again, not all methods work for all students-- but, certainly, there are ways of teaching every student. Our job is to discover what works for each.

The following examples of instructional units illustrate similar innovations in the teaching of communication. Prominent among them are the models which develop learnergenerated materials, insuring personal relevance for the adult learner. Skills in assessing, idea development, and completion of tasks are also emphasized in order to foster communication effectiveness in the marketplace and in life management.

MAKING ACADEMIC LEARNING CONCRETE: COMMUNICATIONS

Basic 1 and 2

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OBJECTIVE

To break communication skills down into simple, attainable steps.

PROCESS

For New Readers

Write notes/simple instructions to the student. Request a Personal relevance/R written reply. (Immediately, the spouse at home begins receiving notes!) This is alot of fun, yet continually Practical application/P provides the teacher with "learning moments." Special needs Relating, connection 'n are addressed as they arise: notes to a child's teacher, letter to doctor or lawyer, etc.

Journals (As a Vehicle to Creative Writing)

Start short by requesting no more than one-half page doublespaced (i.e., 10 lines). After proofreading and corrections, a final "perfect" copy is produced (either handwritten or wordprocessed) and filed. A store of successful entries is incentive to create more!

Be gentle with criticism; generous with praise. The objective is actually to make writing, then proofreading, a positive Practice, repetition/P experience. Content does not matter; adult learners all have experiences and/or insights to share.

Personal relevance/R

Assessing/R Confidence building/R

FIRST DAY-BASIC COMMUNICATION

Basic 1

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OBJECTIVE

To promote class bonding and a clarifying of goals for teacher and students.

PROCESS

On the first day of a basic communication class, take a sentence like "I want to learn to read and write in a literacy Personal relevance/R program for adults" and write one word each on a separate card. Hand out the cards randomly to students. Each student puts the word on the board and the class as a whole rearranges the words Problem solving/P to discover the sentence.

Learner Generated/R

Next, ask students why they want to come to the class. Write Verbalizing/R down their responses. Have the class read each sentence. Repeat. The following day, bring in the sentences compiled on Relating/R one page with certain words blank for all students to fill in. Attention/M Precision/M

I'd ____to be active in _____.

I'd like to be _____ to go into a _____and to _____the items.

I'd like to _____street _____.

____like to _____able to _____paperwork.

I'd like _____ be able to _____ out a cheque.

I'd like to _____ computers.

I _____ to learn how to _____ and write.

I do _____ want ____ be laughed ____.

I _____to _____advanced.

I _____ to be able to _____ a job _____.

I _____ want to _____ ashamed for my _____.

This exercise checks recall in students. It also provides the first sight words presented to the group. Each student becomes totally involved since he/she must give one reason for wanting to learn to read and write.

RAP GROUP-COMMUNICATION PRACTICE

Basic 1

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OBJECTIVES

- To provide students with practice in oral English to facilitate their functioning in public arenas.
- To improve pronunciation and voice projection.

TIMEFRAME

30 to 60 minutes, two to three times a week.

BACKGROUND

Former ESL students in the Learning Centre indicated that they still had difficulty making themselves understood outside the school environment. Students requested practice in oral Learner Generated/R English to facilitate better communication with the English speaking public: bank tellers, post office employees, social workers, cashiers, their children's teachers and fellow students. Although instructors had seen great improvements, students felt that instructors were the exceptions; they listened with "teacher ears." Everyone agreed to start a conversation class which became known as "Rap Group."

PROCESS

At a class meeting, it was announced that a conversation group would be formed. A sign-up sheet was posted which resulted in a Sensitivity to list of fifteen names. Instructors decided that this was too learner/R large a group for easy conversation. The list was divided into three groups, mixing ethnic groups and levels of ability as Verbalizing/R much as possible. Meeting times and days were assigned for each group.

Initially, discussion topics were instructor-generated: for example, the first week in Canada, folk medicine and political news. Topics of conversation came readily from students once the group was established.

The instructor began with a short statement or opinion and then Modeling/R asked a student to speak. Each student was given the opportunity to speak at each session. The instructor guided the conversation so that one student did not dominate the time.

Many students were hesitant to admit that they didn't understand the conversation. Students disclosed that in public they often didn't tell the speaker they couldn't understand and if they did admit this, the listener sometimes became impatient.

Taking this into consideration, the following process was used to develop appropriate listening skills and behaviour: each participant, student and instructor, holds a card--green on one side and red on the other. It is the listener's responsibility to turn the card to the red side if the speaker is not clear. It is the speaker's responsibility to be clearly understood, either by pronouncing words more accurately, choosing new Verbalizing/R vocabulary or rephrasing the statement.

OUTCOMES

Rap Groups have been very successful in the Learning Centre. Confidence building/R Students have acquired the confidence to ask a speaker for clarification and they have learned to "think on their feet." Precision/M

It is necessary to reorganize the groups on occasion to accommodate new students, to mix ethnic groups and teachers, Experimenting/P and finally to give new listeners to each student.

NOTE

This program requires little teacher preparation and few resources.

PHONICS EXERCISE WITH SHORT VOWELS

Basic 1

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OBJECTIVES

- To utilize rhyming in order to teach new consonant sounds, consonant blends, and consonant digraphs at the beginning of a word.
- To reinforce each short vowel sound by repetition in a large number of one-syllable words.
- To establish common short vowel/consonant(s) combinations found at the end of words or syllables.

RATIONALE

In the area of literacy, the instructor is challenged to teach both reading and writing, with special emphasis upon spelling. Often classes comprise students with a wide range of initial ability and an assortment of disabilities.

The following exercise was designed to improve word-attack skills and spelling skills. The instructor, or group facilitator, determines the order in which the words are read, the speed, and the repetition. The facilitator alternates between asking for individual response and group response. By responding aloud as a group, new readers gain confidence, slow readers master new sounds, poor spellers recognize letter patterns, and good readers gain speed.

Verbalizing/R

MATERIALS

Bristol board posters, one side for each vowel. 30 hand cards, about 14 cm. x 20 cm. Cut a window, about 4 cm. x 6 cm., in the centre of each card. Felt tip pen.

PROCESS

 The instructor chooses a vowel poster (see following) and selects six corresponding hand cards, one for each box on the poster.

- 2. The instructor holds up a hand card and says, "What sound?" Visual/M and the class reads the card. Auditory/R
- 3. The instructor then places the card over the consonant(s) in the appropriate box on the poster, so that the letters showing through the window begin several rhyming words.
- 4. For review, the instructor can skip around within the box, and alternately call for individual and group responses.
- 5. The instructor holds up another hand card and proceeds through steps 2 to 4 again.

Practice/P

- 6. When the class is familiar with one complete vowel poster, the instructor chooses a new vowel poster and proceeds through steps 1 to 5.
- 7. Individuals, pairs or small groups may practice on their own with these materials.

NOTE

This exercise ties in well with the phonics of <u>Laubach Skill</u> Book 2.

REFERENCE

Kirk, E. M. and Laubach, F. C. and R. S. Laubach, <u>Laubach Way</u> to <u>Reading</u>: <u>Teacher's Manual for Skill Book 2</u>, New Readers Press, 1981.

Poster for Short Yowel a:

| | | apple | | a,A | |
|-----|----|-------|-----|------|-----|
| cat | dr | cam | sl | back | qu |
| b | br | d | pr | j | wh |
| p | fl | h | cl | Ī | cr |
| r | sl | r | tr | m | kn |
| S | bl | S | gr | r | st |
| ۷ | sp | t | cr | У | Ы |
| dad | cl | batch | scr | bash | fl |
| f | gl | с | th | с | st |
| g | sh | m | | d | cl |
| h | Br | U.S. | | g | tr |
| m | Ch | h | | h | spl |
| - | 50 | n | | 1 | thr |

Hand Cards for Short Yowel a:

| | at |
|--|-----|
| | am |
| | ack |

| | ad |
|---|------|
| | atch |
| Γ | ash |

| | | Ed | | e,E | |
|-----|-----|------|-----|------|----|
| bed | bl | Ben | wh | bell | sp |
| f | fl | d | gl | d | qu |
| N | sl | h | th | f | kn |
| Г | sp | k | | h | sh |
| Т | sh | m | | S | |
| ₩ | shr | У | | t | |
| get | Br | Bess | dr | lend | sp |
| j | fr | J | tr | m | tr |
| 1 | wh | 1 | bl | S | bl |
| m | | m | str | t | |
| n | | Т | pr | V | |
| P | | | gu | W | |
| W | | | - | | |

Poster for Short Vowel e:

Hand Cards for Short Vowel e:

| - ed | - en |
|-------|------|
| -ell | - et |
| - ess | -end |

| | | in | | l,i | |
|------|-----|------|----|------|----|
| fin | sp | dim | sk | link | dr |
| g | gr | h | wh | m | Ы |
| k | sk | J | tr | р | st |
| Р | th | К | sl | r | th |
| t | sh | r | pr | S | pì |
| W | | ۷ | br | ₩ | cl |
| bill | gr | lick | fl | bit | fl |
| f | qu | W | qu | f | qu |
| J | sk | N | ch | h | gr |
| h | st | R | th | k | sl |
| m | thr | S | sl | р | kn |
| р | shr | t | cl | S | SD |

Poster for Short Vowel_i:

Hand Cards for Short Vowel i:

| -in | – im |
|-------|-------|
| - ink | – ill |
| -ick | – it |

.

| | | Bob | | 0,0 | |
|------|----|-------|----|-------|-----|
| cot | sh | hop | sh | Bob | Ы |
| d | sp | с | cl | с | sl |
| g | sl | m | st | f | gl |
| h | bl | р | dr | g | kn |
| n | tr | t | ch | j | thr |
| P | kn | S | pr | m | |
| dock | fl | box | | mom | |
| h | cl | fox | | Tom | |
| m | sh | pox | | dolly | |
| r | kn | romp | | Molly | |
| S | Ы | stomp | | jolly | |
| 1 | sm | comp | | holly | |

Poster for Short Yowel o:

Høand Cards for Short Vowel o:

-ox * -om * * These hand cards may -op -ob be omitted. -ock -ot

| | | up | | U,u | |
|------|-----|------|-----|-------|----|
| bun | sp | bum | sl | bug | sl |
| f | sh | h | gl | d | dr |
| g | st | g | dr | h | th |
| n | | r | SC | j | ch |
| r | | S | pl | m | gl |
| S | | | | r | pl |
| buck | Ch | bunk | tr | budge | |
| d | tr | h | sk | f | |
| 1 | st | j | dr | n | |
| m | str | р | shr | j | |
| P | cl | S | sp | tr | |
| t | pl | d | pl | sl | |
| | | | | | |
| | | | | | |

Poster for Short Vowel <u>u:</u>

Hand Cards for Short Vowel u:

| -un -1 | uck |
|--------|-----|
|--------|-----|

- -um -unk
- -ug -udge

READING A CITY MAP

Basic 1

Maureen Hynes and Miriam Baichman, George Brown College P.O. Box 1015, Station B Toronto, Ontario M5T 2T9 416/967-1212

OBJECTIVE

To give students practice in reading a city map and in talking about different areas of town.

PROCESS

Note: This exercise is easily adaptable to other cities, towns Personal relevance/R or counties. Functional items such as business districts, libraries, government offices, etc. may also be added to the lists. A tape is made for students to listen to; it includes the names of the areas which make up the town or city, and a conversation between 2 people about the different areas. Following is the process to be followed--Pre-listening, Listening, Speaking--as well as sample worksheets which can be easily adapted to other towns or cities.

I. <u>Pre-listening</u>: Look at the map of the city of Toronto. Visual/M Because this is a map of the city only, <u>not</u> a map of Metro Toronto, it does not include the other cities of Toronto: Scarborough, Etobicoke, York, North York and the Borough of East York. (See sample map at end of exercise.)

You will hear, on the tape, a list of 8 names of the areas of Toronto. Write the <u>number</u> of each area beside the name on the map. For example, if you hear "Number 1 - High Park," put number "1" beside the name "High Park."

II. <u>Listening</u>: In the next part of the tape, you will hear a Aud conversation between 2 women about <u>The Danforth</u> and <u>Chinatown</u>. First, write one question that you have about each area: Pers

Auditory/R

Personal relevance/R

The Danforth:_____

Chinatown:_____

The first time you listen, fill in the chart below with \underline{yes} or Assessing/R no according to the information on the tape.

| | The Danforth | Chinatown |
|---------------------|--------------|-----------|
| main nationality? | | |
| many restaurants? | | |
| quiet streets? | | |
| lots of parks? | | |
| crowded? | | |
| lots of parking? | | |
| narrow, busy street | :s? | |
| friendly? | | |

Speaking: First, if you live in the city, find your area of Personal relevance/R Toronto on the map. Even if you don't, make sure you know the name for your area (check with your teacher).

Find a partner who lives in a <u>different</u> area of Toronto from Relating/R you, and then, together, find a third person to work with you. Two of the people who live in different areas should discuss Peer learning/R the similarities and differences between the two areas. You can use the categories in the listening exercise to help you, or here are some more categories:

-the age of the area;
-the style of the houses and buildings;
-public transportation;
-if there are lots of schools and community services;
-how many stores and restaurants there are.

The third person should take notes on your discussion and later report to the whole class on the two areas.

Attention/M Verbalizing/R



FOLLOWING DIRECTIONS-THE BROKEN DOORBELL

Basic 1

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OBJECTIVES

- To help students with basic language needs (spoken and auditory) to understand how we give and follow instructions.
- To familiarize students with words and phrases that show the order of instructions ("first," "next," etc.) and how people show that they are following instructions.

PROCESS

Strategy: You will learn to recognize when someone is checking to see if you're following, and how to ask someone for clearer Precision/M information, or to repeat the instructions.

Pre-listening: Make a list of 3 things that you'd like to know how to do or fix around your home (for example, put up curtains, hang wallpaper, fix a leaky tap or faucet, strip your floors, etc.). Also make a list of 3 things that you already know how to do, and that you could teach or explain to someone else.

| What I'd like to learn | What I already know |
|------------------------|---------------------|
| | |
| | |
| | |

To prepare you for the listening tape, match the vocabulary on the right to the parts of the picture on the left by drawing a line.



button wire screw screwdriver contact/terminal Verbalizing/R

Personal relevance/R

Look at the following pictures and match the verbs that Practical problemdescribe the action in each picture. Sometimes you can have solving/P more than one verb for a picture.

disconnect, scrape, unscrew, connect, attach, rub, touch



Before you listen to the conversation, put the pictures in the order that you think they should be in when you fix a doorbell. Put a number under each picture: 1, 2, 3, 4.

Listening: Lois lives in a rented flat in an old house. In this conversation she is phoning the landlord, Des, because her doorbell isn't working.

1. The first time you listen, look at the pictures, and, again by numbering them, put them in the order you hear in the taped Assessing/R conversation. Did you predict the same order in your prelistening?

Phrases like these will help you decide the order:

| first | of all | next |
|-------|------------|---------|
| after | doing that | then |
| now | | finally |

2. Sometimes when we are listening to instructions or directions, we get confused because the other person is explaining too quickly, or is using words we don't understand. We can stop following and get lost; or sometimes we get nervous just listening to complicated directions.

When these things happen, it's very important that you express your confusion to the other person so that you can get a chance to go over the points you've missed.

Here is a list of ways to ask for clearer directions in these At situations. With your teacher, first read over these sentences Pr to make sure you're familiar with them.

Attention/M Precision/M Verbalizing/R

Wait a minute--you're going too fast. OK, you need to go over that part again for me. I'm sorry, I'm lost. Could you repeat that last step for me?

What do you mean by the ? I didn't get that. Would you mind repeating it? What I'm not clear about is I'm really confused about this. Could we try it one more time? Could we start all over? I'm not getting this. Let me see if I've got that part right.... Next, have a discussion about which of the above phrases are more or less formal; mark the more formal ones with a "+," and the less formal ones with a "-." Which ones would you use with a supervisor at work? Context-sensitive/R Which ones would you use with a friend or colleague? Why are some of the ways more effective than others? $\frac{Speaking}{follow}$. This task will develop your ability to give and follow instructions. You will have a chance to use the expressions you have heard in this lesson to organize and make clear the instructions you give, and the ways of asking for clearer instructions. Go back to your pre-listening lists of the 3 things you'd like to know how to do, and that you already know how to do. Choose the one you think you'd like to (or need to) learn the most, and write it in big letters on one side of a piece of paper. On the other side of the paper, write in big letters the thing you would feel the most comfortable telling someone how to do. The teacher will divide the class into two groups. Each member of Group A will be looking for a teacher, and each Peer learning/R member of Group B will be looking for a student. The members of Group A should hold up the paper showing what Practical problemthey want to learn; the members of Group B should show what solving/P they can teach. Try to match each other's needs; if this is not possible, try to find someone with similar interests that you can work with. After you have finished this round, Group B becomes the students; the members of Group B should hold up what they want to learn, and Group A will hold up what they can teach.

Note: As you go through this exercise, pay attention to getting clear directions; use the phrases for asking for clearer instructions that you have learned in this lesson.

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Evaluation:

Was there an easy part to this lesson for you? What was it? Assessing/R

Was there a difficult part of the lesson for you? What was it?

Is there any part of this lesson that you think you need more practice in?

TAPESCRIPT: Requests for Action--The Broken Doorbell

- Lois: Des, I have a problem. Do you have a minute?
- Des: Oh, certainly, Lois. What's the problem?
- Lois: Well, the problem is my doorbell. I don't know why, but when I press it, or when anybody presses it, nothing happens.
- Des: Oh, now, let's see. Well, that could be due to the doorbell itself, or it could be due to the fact that the contacts have been exposed to the weather, you know, corrosion sets in--
- Lois: ---oh, you mean the rain?
- Des: Yes, rain, or moisture, or anything like that. Or sometimes it could be that wires have broken inside.
- Lois: Oh!
- Des: Yes. Now, let's take a look at this. If your doorbell doesn't ring, the first thing you should do is get a screwdriver.
- Lois: Yes?
- Des: And, unscrew the bell itself. Then, use the screwdriver again to unscrew the terminals.
- Lois: Oh, what are the terminals?
- Des: Oh, the terminals are the two points to which the wires are connected.
- Lois: I see.
- Des: Right. So unscrew the terminals, and clean the ends of the wires by rubbing them with a piece of steel

wool or by scraping them with a knife.

- Lois: Oh, I could do that, but I suppose there's no danger of my being electrocuted?
- Des: No, no, you don't have to worry about that. Then after you've cleaned the wires, touch the two wires together and press the doorbell to see if they're working.
- Lois: Touch the wires? Do you mean, just touch them, or tie them?
- Des: Just touch them. And that, that's fine. Press the doorbell and see if it's working. Now--if the doorbell doesn't sound, or you get no sound, then it means, perhaps, the problem is with the doorbell itself.
- Lois: Oh, in that case, what could I do?
- Des: Oh, just go over to any hardware store and pick up a doorbell, again. Get a button, one of the standard types.
- Lois: Oh--would I have to take the old button with me? To be sure of the right size?
- Des: Yes, that might be a good idea. Yes, do that.
- Lois: Oh, well, Des, thanks very much.
- Des: Not at all.
- Lois: You've been a good help.
- Des: Not at all. You're welcome.

INTERVIEWING PRACTICE IN A COMMUNICATIONS CLASS

Basic 2

Elizabeth Holmes, Seneca College 1780 Lawrence Avenue West, Toronto, Ontario M6L 1C7 416/491-5050

OBJECTIVES

To develop questioning and listening skills. To encourage writing and verbal expression. To expand experience and general knowledge.

PROCESS

Pair the students with each other. Mix and match according to Relating/R individual needs; that is, try to put a shy person with a talkative one; separate members of the same language or ethnic Sensitivity to group; put a new student with one who is more senior in the learner/R class.

Have them interview each other, writing the answers on a page or so. A list of questions can be prepared (see example below) Verbalizing/R but this is not always necessary. Some topics for the Conceptualizing/M interview could be as follows: How would you like to introduce yourself to the class? If your dreams come true, where will Personal relevance/R you be and what will you be doing?

Example: Students begin their report on the interview this way: I interviewed about her/his plans

for the weekend. This is what she/he plans to do.

Possible Questions:

What are you planning to do this weekend?
.Do you plan to spend time with your husband/wife/children?
.Do you have a weekend job? Can you tell me about it?
.Do you plan to do housework/shopping/laundry?
.Do you plan to see friends?
.Will you have time to do any homework?
.If you could do anything you wanted this weekend, what would it be?

(Note: This exercise lends itself to many topics. Life skills can easily be integrated by asking such questions as: What do you value most about upgrading your education? How do you learn best? What do you most want an employer to know about you? Describe your most interesting work experience to date.)

Context sensitive/R

Practical application/P

ORALS AND CONFIDENCE BUILDING

All levels

Judith Bali, Conestoga College 460 Speedvale Ave. West, Guelph, Ont. N1H 6N6 519/824-9390

OBJECTIVE

To provide an opportunity for students to improve their verbal skills.

PROCESS

I assign short 10-15 minute orals which are important as Verbalizing/R confidence builders. The students mark each other's work and Peer learning/R make comments which are very helpful. They can have notes, but only point form notes. They hate this, but it strengthens them and they see that they can just simply talk after all. Confidence building/R

There is usually a point in their talk when it takes off; I point this out to them, and usually they discover that the "take off" occurred at a point where they forgot their notes and simply talked.

When someone asks them a question, sometimes they freeze. I help them to develop ways of handling this by relating the question to what they know. For example, if a member of the Peer Learning/R audience asks, "Could you use honey instead of sugar in that recipe?" the student tends to answer "I don't know," but can be encouraged to say "I don't know, but I do know that you have to be careful when you make substitutions in recipes."

Following are three formats for these orals:

- A "How-To" Talk. Teach us how to do something. This 1. Personal relevance/R is a chance for the strengths to come out. It is generally a dignifying experience.
- A "Grab-Bag" Talk. In the class we have a bag with 2. lots of topics in it. In this impromptu talk, the student draws 2 topics from the bag and chooses 1. The student writes the topic on the board and has a few minutes to think about it while other students think up questions to ask. (Examples of topics in the grab-bag are anti-smoking laws, over-the-counter drugs, living with unemployment, problems of adolescence, garbage--do Canadians throw away too much, advertising--how much should we believe?)

Focus/M Sensitivity to Learner/R Relating, Connecting/R

Confidence building/R

Objectivity/M

Idea development/M

3. Making a bulletin board, poster, or other display on Visual/M a theme or topic and explaining it to the rest of the Hands-On/P class. Many students enjoy exercising their creativity and skill in their displays, and talking about something they have developed themselves. Verbalizing/R
A COMMUNICATIONS EXERCISE USING THE READING BOOKLETS

Basic 1 and 2

Gloria Hey, Lambton College 265 Front Street, Sarnia, Ontario N7T 7K4 519/542-7751

OBJECTIVES

- To increase reading comprehension through directed reading activities.
- To increase active reading vocabulary by reading the words in these selections and then using the words in prescribed activities.
- To give practice in proofreading and correcting their own work.
- To stimulate independent learning to increase language skills.
- To engage in self and teacher evaluation through regularly scheduled discussions on their progress.

TIMEFRAME

This is required once a week.

DESCRIPTION

The "booklets" are from the Steck-Vaughn Adult Reading Collection (including job/career related activities) and have been broken down and bound in small, "palatable" sections.

PROCESS 1) Select a booklet at your level (check with Personal relevance/R instructor) 2) Read the stories and Visual/M 3) Do the exercises. Write your Conceptualizing/M

answers in the exercise booklet

Analyzing/M



A COMMUNICATIONS EXERCISE USING THE NEWSPAPER

Basic 1 and 2

Gloria Hey, Lambton College 265 Front Street, Sarnia, Ontario N7T 7K4 519/542-7751

OBJECTIVES

- To create a positive attitude toward reading by having the student read an article of their choice and own independent reading level.
- To increase reading ability by locating new vocabulary, using a dictionary effectively and employing newly acquired vocabulary.
- To stimulate the thought processes to make it increasingly easier to write longer pieces, such as essays, thus increasing creative writing skills.
- To provide an opportunity for the student to experience pride in and public ownership of their work.
- To integrate current events of personal interest to the students in the classroom.
- To give practice in following instructions.

TIMEFRAME

This exercise is done once each week.

DESCRIPTION

This exercise is posted on the bulletin board in the exact form it is given below so the students know precisely what they are to do. This helps to reinforce the visual learners and aids all students in learning to follow instructions and consult resources other than the teacher.

PROCESS

| | PART 1 | | |
|----|---------------------------------|--------|----------------------|
| 1) | Select a newspaper | | |
| 2) | Read an article you find inter- | esting | Personal relevance/F |



HOOKED ON BOOKS-READING PROJECT IN COMMUNICATION

Basic 1

Marcia Zizman, Diana Lohnes, Judy Bernstein Learning Centre, Algonquin College, Colonel By Campus 140 Main St., Ottawa, Ontario K1S 1C2 613/598-4501

OBJECTIVES

To provide a framework of experience through which students <u>enjoy</u> reading material and share both orally and in writing their critical interpretation and affective reaction to the material. To encourage students to -read books with comprehension until completion; -distinguish between categories of books, ie. mystery, biography, science fiction, romance, fiction, non-

- Diography, science fiction, romance, fiction, nonfiction; -be familiar with terms like setting, character, plot;
- -describe the essential content in a structured written format.

BACKGROUND

Basic level communication students were <u>not</u> reading. Students were not completing books from beginning to end, nor was there discussion of books or written information of any kind. Enjoying books and sharing information about them was not perceived as a social, pleasurable or communicative activity.

PROCESS

Students' personal interests were assessed by means of inventories completed on entry to the Learning Centre program. A large assortment of reading material was collected to respond to students' varied interests (garage sales, school book sales, publishers' catalogues, students' donations, faculty donations, etc.).

Large group introductory classes used amusing and entertaining media to explore the topics of book identification and categorization, plot, setting, character description and report writing. T.V. soaps were excellent resources for character description. After an hour of watching a soap, students could easily supply information about characters and vocabulary items. T.V. sit-coms and film were effective in communicating plot and setting. Attendance at the above introductory classes

Sensitivity to learner/R

Personal relevance/R

Verbalizing/R

was a pre-requisite to beginning the writing component of the project.

A clear, brief Book Report Form provided a framework for Structure/M describing the main story elements:

-Book Identification and Introduction -Setting -Character -Plot -Reaction

EVALUATION

Attendance at all large group sessions. Completion within a determined time frame. Grades:

- A four books and accepted reports completed
- B three books and accepted reports completed
- C two books and accepted reports completed
- D one book and accepted report completed

OUTCOMES

Students developed the confidence to discuss critically what Verbalizing/R they were reading and were able to describe in a logical format the essential ideas of a book. Vocabulary growth was extensive Idea development/M due to group brainstorming and extension work around the topics of character and setting. Lists and lists of descriptive vocabulary were collected. These words were re-used in all Learner Generated/R aspects of the written communication program.

Interest was so high that books which had been untouched for months disappeared. Motivation and enjoyment were high--for many this was their first opportunity to achieve an "A" mark.

Practical Application/P

Confidence building/R

RESOURCE MATERIALS

Best Selling Chapters, Jamestown Publishers. Algonquin College Communication Module D-10. The Incredible Series, Barnell Loft Ltd. Profiles of Black Americans, Barnell Loft Ltd. Fastback Sports Books, Spy series, Romances, Mystery, Copp Clark Pitman Ltd. Horror, Detective and Doomsday Journals, Copp Clark Pitman Ltd. Follett Adult Basic Reading, Cambridge. Follett Literacy Series, Cambridge.

BOOK REPORT FORMAT

Write your report using these headings on your own paper. Focus/M Write your answers using full sentences.

A. Introduction Student Name
Date Begun _____ Date Ended _____
Title of Book _____ Author_____ Publisher Publisher Copyright (c) Date_____ Number of Pages_____ B. Type of book Fiction Non-Fiction Science Biography Auto-Biography How-To Religion History Other______ Skip Assessing/R Adventure
Science Fiction
Humor
Romance
Mustery Adventure Mystery _____ Suspense _____ Other _____ Note: If you have chosen a non-fiction book, skip to Section E. B. Setting Where and when does this story take place? C. Characters 1. Name three or more characters in your story, and describe Objectivity/M what they were like. (looks and behaviour) 2. Tell how they were important to the story. D. Plot 1. What was a problem in the story? 2. How was this problem solved? E. In Your Own Words 1. Did you enjoy this book? Why or why not? Relating/R 2. Did you learn anything new from this book? If yes, what? If no, why not? 3. Why do you think the author spent his/her time writing this book? 4. List ten new words you learned from this book. Write five Practice/P of them in sentences of your own.

SWISH (SILENT WRITING INTENSIVE SUSTAINED HABIT)

Basic 1

Marcia Zizman, Diana Lohnes, Judy Bernstein Learning Centre, Algonquin College, Colonel By Campus 140 Main St., Ottawa, Ontario K1S 1C2 613/598-4501

OBJECTIVES

- To remove barriers to free written expression.
- To give students high intensity practice in writing immediately and continuously.

TIMEFRAME

5 to 10 minutes, two to three times per week.

PROCESS

During SWISH, students are asked to write continuously without Personal expression/R worrying about spelling, grammar, etc. In this way students do not experience the fear of getting started or blocks due to spelling or grammatical rules. The work is corrected only at the student's request. The aim is to write continuously for 5 to 10 minutes at a time. Both teacher and student participate, Modeling/R with the teacher acting as a model.

SWISH encompasses nearly any kind of writing--copying, writing lists, journal writing, etc.

Words written in the 5 to 10 minute period are counted; this Completion/P helps to "quantify" the experience for the students. Students can ask that the teacher read a specific entry for editing or Precision, clarity/M for content, whichever the student decides.

OUTCOMES

As a result of SWISH, students have gained self-confidence in Confidence building/R their writing skills and abilities. More and more participants ask for teacher feedback concerning their writing and are Objectivity/M better able to accept suggestions for improvement. The volume of writing has increased noticeably.

Other results---source of spelling words for spelling classes -organization of small groups to learn the skill of editing for specific grammar points -insights to students' experiences, families, and feelings -diagnostic information for teacher purposes -identification of learner-generated topics for "rap group," and further writing, reading and class activities.

WRITING WORKSHOP FOR SELF-DIRECTED STUDENTS

All levels

Janet Nisbet, Durham College P.O. Box 385, 2000 Simcoe St. N. Oshawa, Ontario L1H 7L7 416/576-0210

OBJECTIVE

To provide a supervised but open writing time in which students develop skills in

thinking organizing a thought progression brainstorning self-correction

TIMEFRAME

Three hours per week for ten weeks.

DESCRIPTION OF WRITING WORKSHOP

A writing workshop is a method of teaching writing by having the students write. A regular time and place are planned where students can meet for one to three hours. Students from all levels meet once a week to simply write. Resources such as paper, dictionaries, and thesauri should be readily available Environment sensitive/R for the writers. Because of continuous entry, the group changes somewhat from session to session. A group of ten to twelve students is best to work with.

RATIONALE

Research indicates that thinking and writing are closely related. Writing is a process by which a thought is turned into print. Both writing and thinking start with the experience which evolves into the concept or thought. The thoughts are put into words, and the words are organized and reorganized to best reflect the experience. As the words come together, sometimes the thinking changes, and both the thought and the words grow into something different from what the writer had originally intended. Writing not only requires thinking effort but also is itself the process of thought.

Idea development/M

An observation from the workshops--and one that continues to motivate us--is that not only do we as teachers enjoy these

sessions but also our students do as well. Their enjoyment is evident not only from their comments and willingness to participate and help each other but also in the tremendous effort many of them make to say what they want to say. It isn't easy, and some of our students have discarded much of their day's work when they found that only one sentence focused on the idea they wanted. This is a very important step for them to make in refining their work.

In assigning remedial work, we usually concentrate on one problem at a time. This allows our students to concentrate on one weak area until improvement is made.

FORMAT--THREE COMPONENTS

1) The Prewriting Time.

It is hard work generating ideas that will provide the basis for a written composition. Every student, however, brings a wealth of experience to his/her class so that there is a great Personal relevance/R resevoir from which to draw to select an idea. In prewriting, discussions are led by teachers or students--films, poems, Verbalizing/R songs, news articles, current events: any subject can become the basis for the search for a topic. During the prewriting stage, ideas are suggested, discarded, developed, changed, supplemented until a pattern emerges. Techniques such as clustering can be used to help clarify thoughts into a workable Assessing/R pattern.

Writing. 2)

The composing stage is a time for scrap paper and no erasers. Writing may take several drafts. It may mean stopping and starting all over as thoughts change, develop and organize themselves in expected or unexpected patterns.

New thoughts may be generated. At this stage the purpose is to put the ideas on paper and then write as many drafts as needed.

Students have 3 hours to write. We encourage them to complete at least a rough draft during the workshop while they have their fellow students present for conferencing. Successive Successive drafts can be worked on in consultation with the teacher after We prefer to have the final copy completed the workshop. before the student returns for the next workshop.

So much of the initiating of writing has to do with confidence. Miscue research indicates that by the time a person has reached senior high school, he/she has had literally thousands of negative responses to tasks undertaken. In order to encourage students to think for themselves and to dare to make mistakes, we have to reverse the hesitancy patterns resulting from these negative responses to what is essentially a learning process. Unfortunately, many miscues are linked with grammar, spelling, and other expressive forms. We tell the students

Personal Expression/R

Precision/M

Idea development/M

Practice/P

Verbalizing/R

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Completion/P
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Confidence building/R

that essentially what they are trying to do in the writing workshop is to think through a problem and then find a way to The emphasis is on the meaning rather than the express it. conventions. As students stay with the problem they are developing, they become motivated and interested in the different ways of expressing it, including form, grammar, etc.

3) Revising and Editing.

The line between writing and revising is not clearcut, as sometimes revision changes the original writing more than anticipated. To shape the content, attention must be paid to choice of words, sentence structure and variety, and ordering of ideas. Editing is the last stage.

Once the content is acceptable, the writer looks at fine points of grammar, punctuation, and spelling. Students keep track of words whose spelling gives them difficulty. When they start making corrections and changes on their own, we say to them, "Now you are becoming a competent writer."

CONFERENCES

Throughout the workshop there must be time to conference with peers and instructors whenever the writer needs feedback. Peer learning/R Writers can select the members of the class whom they want to read their work to. They know ahead of time that they will be reading their work aloud. They read their work to 2 or 3 students at a time to see if it flows or if all the ideas are there and that they make sense. The other students are not allowed to say whether it is "good" or "bad," just that it makes sense. In this way, they learn to write to the ideas, not to the teacher. Peer refinement is very effective in the Assessing/R conferences.

In a conference, the writers change roles to become readers and Relating/R listeners. This change in itself is instructive as it leads to an awareness of audience and clarity of intent that will help each individual with her/his own writing experience. Picking up on the stimulus of the audience, we have posted some of the work on the classroom wall so that fellow students can share the opinions, experiences, and insights of the writers.

There are different types of conference but the lines separating the types are often obscured in actual practice:

- Content: focuses on the meaning of the writing, the writer's intent
- Design: assesses the appropriateness of the form and genre
- Process: concentrates on the way the ideas are coming together

Problem solving/P

Precision/M

Relating/R Verbalizing/R Objectivity/M

Observation/M

Visual/M Environment sensitive/R

Evaluation: assesses the writer's progress over a period of time.

WRITER'S FOLDER

A folder is kept for each student to store all the rough work, Completion/P all the revisions, all the remedial work, and the final draft of each writing session. All the material from one session is clipped together and headed by a copy of the Assignment Record sheet which the student or teacher will fill out as the tasks are completed.

EVALUATION

The student chooses a required number of assignments out of the total number of assignments completed. These are submitted for a mark for the writing workshop. Improvement in writing takes time and practice. At the present time students in Basic 2 and Intermediate are required to attend five workshops at each level for a total of ten. They are required to submit four assignments at each level for a mark. We have designed a set of criteria, listed on a sheet which is returned to the student with his/her work, to guide us in evaluating and assigning a grade.

Planning/R Objectivity/R

GUIDED-FREE COMPOSITION

Basic 2

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OBJECTIVE

To enable students to build writing competence at their own speed.

PROCESS

In guided-free composition, students begin by copying short stories or portions thereof, doing one of the following: Practice/P

.substituting synonyms for selected words; .changing a male character to a female (with the consequent change in pronouns); .changing the verb tenses from past to present; .or other equivalent activities.

Some Basic 2 students need practice in handwriting, and these exercises serve this function. Other Basic 2 students may be moved quickly to more difficult assignments:

.writing a list of questions to ask a character Conceptualizing/M
.inserting appropriate adverbs at certain points
.inserting "he said", "she asked", and so on.

Focus/M

By the end of the program, all students are writing responses approximately one paragraph long.

It is important to have a well-planned sequence of several Focused progression/M activities so that those students who need lots of elementary practice will get it, and those who do not can be moved quickly to more difficult writing activities. A program of guided-free composition can provide a selection of writing activities for students at different writing levels in the same classroom.

In order to set up a program of guided-free composition, these steps should be followed:

 Choose a reading selection at the students' reading level. Sensitivity to Try to pick something with built-in suspense. Mystery learner/R stories are good.

2. Purchase a class set.

- 3. If the work is not divided into short sections (no more than 250 words), make your own divisions. These could be indicated by a star or other symbol.
- 4. For each section, write three questions.
 5. Begin with copying and substitution; gradually increase difficulty until students are required to
 Creative expression/R
- 6. Monitor students' work carefully, and move each one to his/her level of competence.

write one-paragraph answers.

THE EXPOSITORY ESSAY

Intermediate

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OBJECTIVES

- To use the expository essay as a way to teach students to present facts, views and arguments logically and coherently.
- To encourage thinking and speaking skills during class discussion and brainstorming.
- To give practice in research through the use of the library to document facts.
- To provide an opportunity to further develop computer skills using expository essay as vehicle.

DESCRIPTION

Prior work in developing writing skills should have included lessons on choosing a topic, narrowing the topic, making an outline, writing paragraphs and compositions.

PROCESS

| Read an example of an expository essay (such as an editorial from the local newspaper). | Overview/M Auditory/R |
|---|----------------------------------|
| Ask students to give their views on how this essay differs in content from other essays (descriptive and narrative). | Analyzing/M |
| Form a definition of an expository essay on the blackboard. | Rule Presentation/M |
| Have class brainstorm possible topics for essays and list on the board. | Focus/III Learner-generated/R |
| Do a brief review of pre-writing steps: narrowing topic and making an outline. | Overview/M |
| Have class determine whether topics listed are narrow enough for writing purposes. Go through an example with them. E.g., | Objectivity/M Analyzing/M |
| medicine 💠 ways of 💠 fighting 🛟 chemotherapy fighting cancer disease | |

Students then write an expository essay, 200 to 500 words in length. I.e., Suggested topics: The Supreme Court Ruling on Abortion or The Free Trade Agreement. (If students are not comfortable with the topic assigned, they may choose one that interests them.) The essay is to be typed on the computer. Printed copy is handed in with the accompanying Writing Checklist (see following).

Use Writing Checklist to give preliminary feedback to the $\ensuremath{\mathsf{Assessing/R}}$ student.

Student revises essay and hands in edited computer printout. Completion/P

Final evaluative feedback on Writing Checklist is given.

WRITING CHECKLIST

| NAME | <u></u> | | | |
|----------------|--|------|---------|----------------|
| TITLE | | | | |
| First Draft | | Exc. | Satisf. | Needs Impr. |
| Paragraphs | Introduction Division into para- graphs: | | | |
| | (a) topic sentence(b) specific details(c) linking devicesConclusion | | | |
| Application of | Skill for Lesson | | | |
| Creativity | | _ | | |
| Mechanics | Spelling Sentence Structure Punctuation Grammar | | Ξ | = |
| Comments | | | | |
| Revised Copy | | | | |
| Paragraphs | Introduction Division into para- graphs: | _ | | _ |
| | (a) topic sentence(b) specific details(c) linking devicesConclusion | Ξ | = | Ξ |
| Application of | Skill for Lesson | | | |
| Creativity | | | | |
| Mechanics | Spelling Sentence Structure Punctuation Grammar | Ξ | Ξ | Ξ |
| Comments | | | | |

ESSAY ANALYSIS

Advanced

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OBJECTIVES

- To give students an opportunity to assess good student writing.
- To show students the merits of organizing an essay.
- To examine the elements of an essay.
- To encourage students to aspire to greater levels of competency through an appreciation of their peers' work.

PROCESS

| 1) | Choose a | fine | example | of | a student's | essay | writing. | Peer learning/R Confidence building/R |
|----|----------|------|---------|----|-------------|-------|----------|--|
| | | | | | | | | |

- 2) Rewrite or type the essay (to preserve anonymity).
- 3) Read the essay aloud. Class discussion is structured around the following points:
 - .How is the introductory paragraph developed? Identify the method or methods used.
 - .Identify the thesis statement. Indicate its divisions.
 - .Assess the topic sentences for each of the developing paragraphs in the body in relation to the thesis.
 - .Comment on the concluding paragraph. How does the writer unify the essay through this paragraph?
 - .Identify the method of development used in the final sentences of the concluding paragraph.
 - .Indicate any additional comments negative or positive.

Sensitivity to learner/R

Auditory/R Verbalizing/R Analyzing/M

A VOCABULARY LESSON: WORDS ARE IMPORTANT

Intermediate and Advanced

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OBJECTIVES

To provide experience and drill in the use of a dictionary and thesaurus.

- To give practice in applying word usage.
- To enhance reading and writing skills.

TIMEFRAME

Weekly.

DESCRIPTION

Students must already know how to use a dictionary and thesaurus.

Only Grade 12 words are used because all levels can benefit from the assignment and because adults enjoy using words that enable them to be better prepared for further learning and training situations.

PROCESS

| Ten words are assigned weekly and students have one week to complete the exercise. | Time management/P Planning/R |
|--|--|
| They are to look up each word and write out the meanings. | Practical Application/P |
| Then they do the exercises from the book, <u>Words Are Important</u> (see example below). | |
| When assignment is due, each one in the class takes a turn reading a sentence orally. The class discusses any points that may arise. | Verbalizing/R Auditory/R Analyzing/M |
| After every four lessons, there is a review. | Repetition/ P |

Ten lessons are graded for those students pursuing a credit.

An Abbreviated Example of an exercise taken from WORDS ARE IMPORTANT, Edgar H. Schuster, Hammond, Maplewood, New Jersey, 07040, pp.10-11.

Vocabulary Lesson:

abet abridge alleviate disparage elucidate eschew expedite petrify reverberate satiate

- Exercise A: Each of the following sentences contains a verb in **bold type**. Try to determine the meaning of the verb from the context; then write a possible meaning in the space provided. Check your answers in a dictionary.
- The gambler planned the robbery, but he needed a good safecracker to abet ______ him.
- The chairperson told him to abridge his speech, because the audience was falling asleep.
- 3. He might also **alleviate** ______ their suffering simply by stopping his speech now.
- 4. The sprinter **disparaged** the opposing school's athletic achievements by pointing out that he could run the 100-yard dash faster than any of them.
- 5. Ms. Hendricks is an excellent teacher; she can **elucidate** even very obscure and complex ideas, such as the theory of relativity.

etc.

Working With Words: Verb forms with past (usually -ed) and present (-ing) participial endings may often be placed before nouns in order to modify them. For example, we may speak of an abridged dictionary or an elucidating remark. Try your own hand at creating similar phrases with other words from this lesson. Write your phrases in the blank spaces.

| Present Participles | Past Participles | | |
|---------------------|------------------|--|--|
| <u></u> | | | |
| | (<u> </u> | | |

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- Exercise B: Write a form of one of the lesson words in Exercise A in the blank space in each of the sentences below.
- 2. I was _____ by the Thanksgiving dinner and didn't want to eat again for days.

etc.

Working With Words: Below is a group of eighteen words followed by six words from this lesson. Choose for each of six words three synonyms from the group of eighteen. Write these words in the appropriate blanks below. Check your answers in a dictionary, and if your teacher asks, also check on the precise meaning of each of the synonyms.

| | foment assuage accelerate allay elude instigate | belittle decry construe shun precipitate explicate | evade facilitate incite mitigate expound censure |
|----|--|---|---|
| 1. | abet | | |
| 2. | elucidate | | |
| 3. | eschew | | |
| 4. | expedite | | |
| 5. | alleviate | | |
| 6. | disparage | | |

REFERENCES

Webster's 9th New Collegiate Dictionary.

Roget's International Thesaurus, 4th Edition.

CORRECTIVE SPELLING THROUGH MORPHOGRAPHS*

Basic 1 and 2

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OBJECTIVES

- To improve students' spelling and reading ability by teaching principles that deal with the structure of words.
- To provide an encouraging, participatory environment that promotes student success and improves attitude towards spelling.

DESCRIPTION

Morphographs are defined as "the smallest unit of identifiable meaning in written English." Some important characteristics of morphographs are:

-that morphographs retain the same spelling in all words or they change in <u>predictable</u> ways;
-that there are far fewer morphographs than there are words; therefore a student having learned, say, 100 morphographs, is able to spell over 600 words!

The key to success in this program is the student's prior mastery of basic phonics. Without this, the frustration experienced by the learner will far outweigh any benefits of learned spelling rules. A placement test, therefore, should be administered (a suitable one is included in the Teacher's Manual).

While the authors recommend that students scoring too high on the test be excluded from the class, experience has been that even these students benefit. Many good spellers spell intuitively, not through a conscious application of structural principles. "Morphographs" helps them to apply the principles to new words, thereby increasing their vocabulary and improving their reading skills.

Students scoring too low on the placement test require basic phonics instruction, such as the Laubach Focus on Phonics series, prior to the "Morphographs" program.

Sensitivity to learner/R

Repetition/P

Rule Application/P

^{*}Dixon, Robert and Engelmann, Siegfried, <u>Corrective Spelling</u> <u>Through Morphographs</u>, Science Research Associates (Canada) Ltd., Toronto, 1979.

There is a noticeable improvement in student spelling after the first 5 to 10 lessons, with a definite improvement in <u>attitude</u> towards spelling after only a few.

The high degree of teacher/student interaction and frequent Verbalizing/R group oral work, encourages student participation and, more often than not, laughter.

PROCESS

The presentation of the lessons utilizes repetition, self- Variety/R correction and as much sensory variation as possible.

Morphographs (and later, words) are read, written, spelled Auditory/R aloud by the student, deciphered by the student as spelled by Visual/M the teacher, scrambled, unscrambled and defined. The Practice/P occasional "bingo" type game and spelling contests help keep Repetition, Drill/P the motivation level high.

Positive feedback and success is important, especially with Confidence building/R adults who may be predisposed to a negative attitude towards spelling.

THE CONCEPT OF THE SENTENCE AS A COMPLETE THOUGHT

Basic 2

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Objectives

- To develop in the students an understanding of the concept "complete thought" or "sentence".
- To develop in the students the ability to produce a complete thought and check for its authenticity.
- To encourage in the students the use of the complete thought as the effective language unit in message transference to improve their personal communications.

Process

A. Introduction

The instructor holds an object (e.g., vase, umbrella, doll) and $\mbox{Focus/M}$ asks individual members of the class to tell something about $\mbox{Verbalizing/R}$ the object.

Encouragement is given for statements re the physical appearance, possible use, personal reactions, etc.

Each statement is written on the board. No critical comment is $\sc visual/M$ made.

B. Development

The instructor asks for comments on which statements are the Assessing/R most effective in sending out the message re the object.

Those which are complete thoughts, in that the message is fully $\mbox{Clarity}/\mbox{M}$ understood, will be chosen.

Students then determine what decision they made first when Assessing/R formulating the message and what decision came second: subject, then predicate.

Both elements - what is to be discussed and what is to be said Idea development/Mine about it - must be present for the complete thought.

People, objects, events, etc., become subjects for further oral Practice/P

formulations of complete thoughts and students are asked to Clarity/M verbalize why a particular statement is or is not a complete Verbalizing/R thought.

Students are offered scenarios and encouraged to provide Personal relevance/R scenarios from their own lives where the use of a complete thought would have improved the communication process.

C. Application or Overview

Students are asked to move cards containing fragments of Practice/P thoughts together until they produce a series of complete thoughts.

Students are asked to provide complete thoughts about items Idea development/M they choose from a list and to check for subject and predicate. Practice/P

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THE MYSTERIES OF THE APOSTROPHE

Basic 2

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OBJECTIVE

To give students a technique for remembering apostrophe rules.

PROCESS

The correct use of the apostrophe is difficult for many students because, like a capital letter, it is seen rather than heard.

The above statement may be obvious to the teacher, but it is a new idea for many students. Just watch them murmuring, "Boys? Boy's? Boys'?" as they try to decide where the apostrophe should be placed or, indeed, whether it is required at all.

The solution? Make it visual. Write examples on the board Visual/M with different colours of chalk. Make a gigantic apostrophe. Under-line the mark five times.

Above all, explain to the students that the apostrophe is just like a capital letter. If they approach the problem using their eyes rather than their ears, they have a good chance of mastering it.

Repetition/P

Relating, connecting/R

TEACHING APOSTROPHES

Intermediate or Advanced

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OBJECTIVE

- To provide students with an appropriate working knowledge of the use of apostrophes.
- To help students develop group problem-solving skills.
- To encourage students in self-instruction.

PROCESS

This exercise is based on the "grid" model and "synergogy" theory of Blake and Mouton.

Students are given grammatical explanations to study and a $\mbox{Rule presentation}/\mbox{M}$ worksheet to do on their own.

Three or four students at compatible levels who are working on Relating/R apostrophes are instructed to book a small meeting room where they can go to review their worksheets together and discuss application of the rules. They can take as long as they need for this exercise. In this manner, students verbalize what Verbalizing/R they know. They must all agree on where the apostrophe goes in each phrase and complete a group worksheet based on this consensus.

The group dynamics of this first meeting often result in the know-it-all dominating and the quiet student who really does know, withholding. They bring back their collective work and the instructor indicates the correct answers.

Students compare their initial individual work with how they did in the group. The mark of the group effort should be higher than the marks of individuals. However, often a quiet, withholding student has a higher individual mark than the group mark. It is explained to this student that his/her reluctance to argue through his/her ideas to the group has led to a lowered group mark. A student who achieved individually a lower score than the group mark learns that his/her initial review of the material was superficial and that he/she did not relate the worksheet questions to the explanations. When the students work together on a second worksheet, the group dynamics are radically improved with the quiet student playing Precision/M a more active role, and all the students actively listening and Verbalizing/R explaining their ideas to others.

The unit concludes with an individual test to satisfy their Objectivity/M need to prove themselves individually. Completion/P

RATIONALE

The success of this exercise is based on the fact that many students learn by verbalizing what they know. Students, however, are used to a conventional routine in schools, so the instructor may have to stand against the students' certainty that they're not learning unless they're writing or reading.

TRANSFERABILITY

This format can also be used effectively with <u>picking out</u> subjects and verbs or words often confused.

PROBLEM SOLVING IN THE LIBRARY

All levels

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OBJECTIVE

To expose students to the library and to teach the working skill of finding information using library reference material.

PROCESS

This exercise is an adaptation of an exercise used at Conestoga College for many years. It can be used with all levels as long as the questions and material are adjusted. In some cases, questions could be given orally and sources could be large print 'picture' dictionaries or videotapes, etc.

Some students have never used a card catalogue or micro-fiche, Environment sensitive/R or have never been in a library at all. The instructor explains the classification system to the student and then assigns the student several questions to which the student must find the answer in the library reference books. Examples of Focus/M such questions are "Who invented television?" or "What are the Assessing/R possible causes of hiccoughs?" or "Who is the personnel officer of Toyota Canada in Toronto?" For each question, 3 reference books are suggested as possible sources, the instructor knowing that the required information appears in only one of the 3. Students often become discouraged, but they are encouraged to persevere until they are successful. Completion/P

Benefits of this exercise are the exposure to classification and word-labelling systems, and the confidence gained from persevering even when the answer is not immediately apparent.

A side effect of this exercise is that students lose themselves in the books; the instructor encourages the students to browse as much as they want to. Searching skills are actually being learned while they do this.

A subsequent exercise may be given which is more open-ended. The students are not given suggested sources but must choose appropriate sources themselves. Because of the initial exercise, they will be less apt now to say, "The library doesn't have anything," and more apt to work through as many listings as necessary.

Confidence building/R

Observation/M

Resourcefulness/R

EXERCISE IN CLASSIFICATION, ORGANIZED THINKING SKILLS

Intermediate and Advanced

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OBJECTIVE

- To provide the student with classification skills which will help in both essay writing and study habits.
- To allow the student to realize how many different ways there are to look at something.

PREPARING MATERIALS

The instructor makes a set of cards with labelled symbols on 24 pieces of construction paper (cards). The symbols (which are cut from magazines, catalogues, etc.) are glued to various sizes of construction paper (cards). The background colours of the cards are blue, yellow, pink, orange and green. For this classification exercise, the instructor uses symbols that one sees everyday, ie. traffic signs, international symbols or other commonly occurring pictures.

The student uses this set of cards with a worksheet. The classification exercise carries on with 3 additional worksheets.

PROCESS

The instructions are purposely vague and open-ended. Students are left up to their own devices to figure out connections Assessing/R between cards. At first they think they're in kindergarten playing with pieces of coloured paper, then they think it's Experimenting, stupid, then impossible, and then they do it. Students are tinkering/P told that they may experience different feelings while going through this process.

WORKSHEET 1:

Title: Safety signs.

Look through the 24 cards guickly, then turn them over and Visual/M write down the names of as many as you can remember. Attention/M

| Β. | Organize the cards according to the following categories. There are different possible answers for each section. Ass | | | | | |
|--|---|------------------|--------------|---------------|--------------|-------------|
| 1. | Colour of c | ards | | | | |
| | blue y 4 cards ? | vellow ? | pink ? | orange ? | green ? | |
| 2. | Size | | | | | |
| | <u>small</u> ? | | medium ? | large ? | | |
| 3. | Colours of | signs | | | | |
| | red and whi ? | ite ? ? | ?? | ?? | | |
| 4. | Type of ill | lustration | 1 | | | |
| | photograph ? | ?? | ?? | ?? | ?? | |
| 5. | Meaning | | | | | |
| | ?? | ?? | | ?? | | |
| С. | C. Once again, without looking at the cards, write down the Attention/M names of as many cards as you can remember. | | | | | |
| | | | WORKSHEET 2 | | | |
| This are | worksheet : not labelled | requires : d. | a second set | of 24 to 30 s | ymbols which | |
| 1. Arrange the cards in meaningful groups. | | | | | | Assessing/R |
| 3. 4. | Compose a title for the whole set. Compare your results to the answer sheet. Your results may be correct even if they are not the same as those on the answer sheet. | | | | | |
| Title: | | | | | | |
| Cards included: Category subtitle: | | | | | | |

(provide the student with 12 lines on this worksheet)

WORKSHEET 3

Title: Smoking Withdrawal Symptoms

- Arrange the following symptoms into five meaningful Assessing/R 1. groups. 2. Compose a subtitle and topic sentence for each group. Idea development/M
 - i) itchy hands or feet
 - ii) sleepiness or tiredness
 - iii) uneasy stomach
 - increased cough iv)
 - v) insomnia
 - vi) tremors of the hands and legs
 - vii) excessive perspiration
 - viii) increased mucus production
 - ix) sore scalp
 - x) increased appetite
 - xi) lowered ability to concentrate
 - xii) mild headaches
 - xiii) constipation
 - xiv) occasional dizziness
 - xv) feelings of disorientation

WORKSHEET 4

Title: Career Development Strategies Handout--How To Avoid Being Hired

Instructions: Arrange these points into categories and use them to compose an essay on "How To Avoid Being Hired." The essay should include a brief introductory paragraph, a brief concluding paragraph, and at least three development paragraphs, depending on how many categories you organize.

Handout:*

The Placement Office of New York University lists the 50 reasons that are most frequently mentioned by employers for rejecting job applicants. The information is based on reports from 153 companies. If you are out to land a job, take

Assessing/R

Structure/M Idea development/M Context sensitive/R

Personal relevance/R

^{*}This handout has been widely used in adult education programs for years. While an exhaustive search did not turn up its source, we nonetheless deemed it important to use the material. -Ed.

inventory of yourself in relation to these facts. If you still have a period of schooling ahead of you, start immediately to work on any traits that may hinder you later in getting a job or being promoted. As you read the reasons for rejection listed below, ask yourself how you would rate in relation to each.

- 1. Poor personal appearance.
- Overbearing, overaggressive, conceited, superiority complex, know-it-all.
- Inability to express himself clearly--poor voice, diction, grammar.
- 4. Lack of planning for career--no purpose and goals.
- 5. Lack of interest and enthusiasm--passive, indifferent.
- 6. Lack of confidence and poise, nervousness, ill at ease.
- 7. Failure to participate in activities.
- 8. Overemphasis on money--interested only in best dollar offer.
- 9. Poor scholastic record--just got by.
- 10. Unwilling to start at the bottom--expects too much too soon.
- Makes excuses, evasiveness, hedges on unfavourable factors in record.
- 12. Lack of tact.
- 13. Lack of maturity.
- 14. Lack of courtesy--ill-mannered.
- 15. Condemnation of past employers.
- 16. Lack of social understanding.
- 17. Marked dislikes for school work.
- 18. Lack of vitality.
- 19. Fails to look interviewer in the eye.
- 20. Limp, fishy handshake.
- 21. Indecision
- 22. Loafs during vacations--no job experience.
- 23. Unhappy married life.
- 24. Friction with parents.
- 25. Sloppy application blank.
- 26. Merely shopping around.
- 27. Wants job only for short time.
- 28. Little sense of humor.
- 29. Lack of knowledge of field of specialization.
- 30. Parents make decisions for him.
- 31. No interest in company or in industry.
- 32. Emphasis on whom he knows.
- 33. Unwillingness to go where we send him.
- 34. Cynical.
- 35. Low moral standards.
- 36. Lazy.
- 37. Intolerant, strong prejudices.
- 38. Narrow interests.
- 39. Spends too much time at motion pictures.
- 40. Poor handling of personal finances.
- 41. No interest in community activities.
- 42. Inability to take criticism.

- 43. Lack of appreciation of the value of experience.
- 44. Radical ideas.
- 45. Late to interview without good reason.
- 46. Never heard of company.47. Failure to express appreciation for interviewer's time.
- 48. Asks no questions about the job.
 49. High-pressure type.
 50. Indefinite response to questions.


MATH

The challenge for math instructors is how to recapture the wholeness of math from the layers of sequential parts to which it has been reduced. Many teachers today are recognizing that math is "personal, intuitive and culture-dependent, involving processes which are non-rigorous, informal and creative," as well as a discipline of "logic, objectivity, abstraction and rationality." Math is traditionally taught using only the latter approach, thereby ignoring the learning strengths of a large number of students who find it "irrelevant, impersonal and uncreative." ("Women and Mathematics: Is There an Intersection," IOWME Newsletter, Vol. 3, No. 1, April 1987.)

According to a study reported in <u>Teaching for the Two-Sided Mind</u> (Linda Verlee Williams, Simon and Schuster, Inc., N.Y., 1983), there are two "math styles". Individuals who depend on Learning Style I

prefer . . . a 'recipe' approach to math, in which they follow a step-by-step sequence of operations, moving forward to a solution. They seldom estimate, tend to remember parts rather than wholes, and have a strong need for talking themselves through procedures. . . they are often very precise in carrying it (the recipe) out, but while they may arrive at the right answer, they may remain totally unaware of the logic that gives meaning to what they are doing.

The second general style [Style II] of math learner . . .is impatient with step-by-step procedures and likely to make mistakes while doing them. Such [students] are good at estimating, may spontaneously give a correct answer without knowing how it was arrived at, and are superior at recognizing large-scale patterns. (p. 29)

The study goes on to say,

Knowing where a [student] is likely to encounter difficulty, a teacher can help the [student] develop strategies to deal with those problems. For example, Style I learners can be taught to make the first step of their sequence estimating the answer and the last step checking the actual answer against their estimate. They can be encouraged to talk their way through difficult problems. Style II learners can be taught to use their superior spatial ability and to recognize their own trouble spots and pay particular attention to them. (pp. 29-30) The study also suggests that teachers

tailor the presentation of material to reach students with both learning styles. Problems should be done on the board so that students can see them, and at the same time the teacher should 'talk through' the process so students hear it. Often a problem should be done two different ways; to avoid confusion teachers should explain what they're doing and inform students that they need not master both approaches, only the one that's easiest for them. (p. 30)

Many math instructors throughout Ontario incorporate innovative approaches to facilitate the success of their students. Some begin, for example, by giving dozens of examples from everyday life of how the student is already successfully working with math. Others make math personally relevant to students through student-generated word problems and examples. When working at the board, one instructor uses different colours of chalk. She has noticed that for some learners, the colours will be remembered. Another teacher has some of her Basic students rub out a number on the blackboard with their hand to "feel" what it is like. An Advanced level math instructor reported that he doesn't tell his students they are learning trigonometry until they are already comfortably doing it.

In the following section several math instructors have shared particular approaches that exemplify how creative and invigorating, as well as practical, math can be.

MAKING ACADEMIC LEARNING CONCRETE: MATHEMATICS

Basic 1 and 2

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OBJECTIVE

To make math concrete for beginning students.

PROCESS

Subtraction To illustrate borrowing/regrouping, use concrete objects: Visual/M bundles of popsicle sticks, dimes and pennies. Practical application/P

Multiples

Use a skipping rope, bouncing ball, etc., to establish the Hands-on/P beat. Count by 2's, 3's, 4's, etc., or the number chosen by Repetition/P rolling a die.

Fractions

To demonstrate the concept of "fraction as part of a whole", have the students write fractions to represent shaded and unshaded areas. E.g. doing many versions on an 8 1/2 x 11 piece of paper:

Repetition/P Conceptualizing/M

To teach equivalent fractions, have students examine, shade and cut up strips of paper, such as (use 8-1/2x11 paper and do full size):

| | | | | | | | | | 1 | | | | | | | | | | |
|---|---|---|---|---|---------|---|---|---|---|---|---|---|----|---|---|---|----|---|---|
| | | | | 1 | | | | | | | | | | | 1 | | | | |
| | | ł | | | | | ł | | | | | 1 | | | | | ł | | |
| | 1 | 1 | | | 1 | | | | 1 | | | | 1 | | | | 1 | | |
| T | 8 | H | | ł | | г | 8 | r | 5 | ŕ | 6 | ł | 5 | ŕ | 6 | T | 8 | ł | 8 |
| 뷺 | ħ | * | Ŕ | ħ | 1 70 | * | Ŕ | 4 | 늄 | 뷺 | ħ | * | 49 | * | * | ħ | 70 | 큤 | ħ |

Hands-on/P Repetition/P Conceptualizing/M

MATH FOR NATIVE LEARNERS

All levels

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OBJECTIVES

- To instruct math problems to entry level students who have a propensity for physical learning and whose history with traditional institutions may not be positive.
- To encourage students to use verbal and conceptual skills in their learning process.

PROCESS

The instructor introduces a math unit by showing examples of the same type of problem on the board 5 or 6 times. It is Repetition/P important that each repetition be given freshly and with Modeling/R renewed enthusiasm.

eg. multiplication of a two-digit numeral by another two-digit numeral--36 x 24

The instructor and students do one together, either on the Teach board or in the students' textbook. She explains what she is Rule doing, carefully and slowly, showing the students how to line Rule up the various steps as this is most important. Then she asks them to name other two-digit numerals which can be multiplied Lear again, step by step. Gradually, she gets them to tell her the steps--"What do we do first, what comes next, where do the digits go?" Then when she sees that someone is fairly comfortable with the process, she might ask the student to explain the steps, commenting positively along the way--'that's right, good for you.' Then she might ask them to either do one or two in their books, or to come up to the board.

Next, the instructor gives students 5 or 6 similar math Reproblems to do at their seats. When someone needs help, the instructor always sits down beside them, equal to them. The instructor is careful not to rush their individual rhythm when they are working together in this manner.

After students have finished their problems, the instructor goes around the room and hears each student verbalize their V answer to the same problem. She asks students who understand P the problems to help other students.

Teacher Demonstration/M Rule Presentation/M Rule Application/P

Learner Generated/R

Verbalizing/R

Repetition/P

Verbalizing/R Peer Learning/R During the week, speed drills of similar problems are held Time Management/P which help students practice picking up speed. This is an important aspect for students with already firmly established rhythms—to develop new pacing skills.

Throughout, the instructor asks students to monitor how many Personal Relevance/R repetitions or how much time it takes them until they understand a problem. Evaluation of students is based as much on progress with pacing and entering the learning process as it is on right/wrong answers. Student confidence increases as Confidence Building/R they pick up speed in their work.

GROUP MATH LESSON

Basic 1 and 2

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OBJECTIVES

To present math in a non-threatening, enjoyable way.

To give practice and review by using many modes of teaching: lecture, informal group discussion, board, paper and pencil, one-to-one, peer-tutoring, and computer reinforcement.

DESCRIPTION

Each math day the group (combined levels 1 & 2) is given math Visual/M exercises which are written on the board (as shown below). A word problem is <u>always</u> included (to integrate the English among many other skills).

For Level 1 students, the exercise reflects their present learning; for Level 2 students, it serves as reinforcement and Repetition/P a review.

Instructor always gives a group lesson, either an introduction Relating, connecting/R to new material or a review. As the class works out the problems, the instructor goes from student to student, checking their work and answers, and clarifying any problems. (If more than one student is having the same problem, she works with them on that concept as a group.)

Each student is also assigned 1/2 hour every math day on the Hands-on/P computer to work relevant math software (i.e., Math Maze, Algeblaster, etc.). Computers reinforce the math learning, allow for drill and repetition, give positive feedback, and Repetition/P have endless patience. As well, the student learns how the Practical application/R computer communicates, and how it can be used as a tool.

PROCESS

Level 2

Common Denominators (Instructor questions class verbally: Verbalizing/R When do you need a common denominator? When don't you Analyzing/M need one?)

$$\begin{array}{r} 1/8 \\ 1/20 \\ + 1/25 \\ - 7/20 \\ \end{array}$$

Improper Fractions and Cancellations (Instructor reminds them to do all the steps, grids, checks, etc.)

 $4-5/7 \times 3-4/15 = 3-3/8 \div 15/20 =$

Level 1

Division (and check)

Level 2 (and 1 as appropriate for individual and frustration level)*

Word Problem

You are buying a bedroom suite for \$2161. You get 17% Personal relevance/R discount, Sales tax is 6%.

- What is the discount?
 What is the sales tax?
 What is the final price?

^{*}I have Level 2 students assist Level 1 (but have Level 1 do Peer learning/R the calculations).

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STUDY OF MEASUREMENT ---- MM & CM

Basic 1

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OBJECTIVE

To develop a working familiarity with cm and mm.

LESSON 1

Each student is given a metric ruler. Ask simple questions such as:

- 1) What do we call the unit of measure marked by the numbers? (cm)
- 2) Count how many small markings there are between numbers. (10)
- 3) Therefore, how many mm are there in 1 cm? (10)

As a group look at several classroom objects. Ask students to estimate how long the object is before they measure it. Then students measure the object (eg. book, pencil, desk, paper clip, flash card, etc.).

Exercise on following directions: "For the Birds" eg. Draw a rectangle __cm X __cm. Then follow a series of measuring, marking, labeling and joining instructions. (From Wiggan et al., Everyday Math 2, Toronto Board of Education, 1980, p. 13. The lesson can be put on the board or on an overhead projector if there are not enough copies of the textbook.)

Integration of math and communication (two hours): Objective: To measure in cm and decimals of cm. To follow directions. To stimulate writing skills.

Give the students sketched outlines of some of the constellations which can be found in most astronomy books. Then give them directions for drawing one of the constellations, "Cygnus." Students are not told which constellation they will be plotting.

1) Draw a rectangle 18 cm X 18 cm. 2) Label it: A D B С

Observing/M Experimenting/P Practical application/P

3) On line AD mark the following points, measuring from A K - 16.4 cm E - 2.4 cm H - 6.4 cm I - 7.4 cm $F - 3.8 \, \text{cm}$ J - 11.4 cm G - 5.0 cm From Pt. K, straight down, measure 9cm, label pt. L 4) 5) From Pt. J, straight down, measure 9cm. label pt. M From Pt. I, straight down, measure 5.6cm, label pt. N 6) 7) From Pt. H, straight down, measure 2.4cm, label pt. O 8) From Pt. H, straight down, measure 3.2cm, label pt. P From Pt. G, straight down, measure 6.0cm, label pt. Q 9) 10) From Pt. F, straight down, measure 9.0cm, label pt. R From Pt. E. straight down, measure 10.0 cm, label 11) pt.S 12) On line AB mark the following from A T - 9.0 cm W - 13.6 cmU - 10.6 cm X - 15.6 cm V - 12.0 cm 13) From T, straight across, measure 6.8 cm. Mark pt. Y From U, straight across, measure 3.8 cm. Mark pt. Z From V, straight across, measure 3.4 cm. Mark pt. AA From W, straight across, measure 7.0 cm. Mark pt. BB From X, straight across, measure 5.8 cm. Mark pt. CC 14) Join L \rightarrow M, M \rightarrow Y, Y \rightarrow N, N \rightarrow P, P \rightarrow O, P \rightarrow Q, $Q \longrightarrow R, R \longrightarrow S, S \longrightarrow Z, Z \longrightarrow AA, Z \longrightarrow CC, CC \longrightarrow BB,$ BB ----- Y Those who work quickly can do another constellation, Leo, as well. When completed, discuss what the figure might be (eg. kite, balloon, rocket).

Discussion of constellations in general. Read a Greek legend about Orion and how he got into the sky. Ask students to write about how they thought Cygnus became a constellation. Give pictures of other constellations so that if Cygnus does not appeal to them, another one might.

Personifying/R Personal expression/R

LESSON 2

Objectives

- To become more accurate in measurement of cm & mm.
- To use decimal form.
- To see relationship between mm & cm.

Begin by reviewing that there are 10 mm in a cm. Each student has a page with lines of varying length drawn on it. eg. a)______ b) a) How long is the line in mm? (65) How long is the line in cm? (Answers vary-eg. 6 and a bit, 6 1/2, 6 & 5mm)

Teach that each mm is 1/10 of a cm or .1. Practice counting 1 Practice/P cm — 1.1 cm — 1.2 cm — 1.3 cm — etc. Ask the group to tell you the length of line a) in cm with decimal (6.5). Have lines drawn on the board and write their answers on the board, eg. 65 mm = 6.5 cm. Do several of these together.

Ask if anyone can see a pattern. Even without a background in decimals, most see that 6.5 X 10 moves the decimal one to the right.

Follow-up worksheets

- 1) Measure lines in mm and cm. Name something that you Relating/R think is that length.
- 2) Page with pictures of common objects to measure in cm and mm.
- 3) Skill sheets from Everyday Math 1, measurement. (by Wiggan et al., Toronto Board, 1980.)

(I made the mistake of asking the group to give me an example of something in the classroom that was approximately _____cm. However, when I used the number 7.5 cm, I got the answer I really didn't want. If you can keep your blushing under control, you can be smug in assuming that something was learned that day!)

LESSON 3 (This lesson goes very well.)

Objectives

- To understand visually the length of a metre.
- To see the relationship of cm & mm to metres.
- To see how error in measurement occurs.
- To determine which measuring instrument is
- more appropriate for measuring.
- To learn perimeters.

Introduction: The class is divided into partners and given a metric tape measure or a ruler. They are asked to measure the length and width of the classroom, their arm spans, bookshelf, their height, etc. (see skills worksheet #1 below). Those students using a ruler for the classroom, soon discover that this tool is inappropriate and they want the metre measurement. Because everyone cannot measure at the same time, some work on the skills part of the worksheet while waiting for the room. That way individuals can be helped, one to one.

When everyone is finished, record the findings on the board. This is where students discover <u>error</u> of measurement and discuss it.

Relating/R

Focus/M

Follow the same procedure as before, in that answers are recorded in metres and named in centimetres. Ask if they see a pattern and discover that 100 cm = 1 m

Do a review of multiplying and dividing by 100 in order to do conversions.

Discuss items where it is more appropriate to measure in metres than in centimetres and vice versa.

On an overhead, show a graph from <u>Everyday Math 2</u>, p. 11, to get the feeling of how high certain structures are in metres. Simply discuss the heights.



Breaktime.

After the break, discuss the length and width of the classroom again and record the measurements on the board. Tell the class that you want to buy baseboards to go around the room and ask them how to determine how much we need.

Draw a rectangle on the board with the measurements and point out again what you are looking for.



Most of the class figures out that you add up all the sides.

Explain that this is called <u>perimeter</u> and they are correct in their solution. Because there may be several levels of learning in the group, challenge the more advanced students. Teach the formula P = 2(L+W) and calculate the perimeter that way. The students are told that either method is acceptable. Do some other examples on the board.

Students then practice on some follow-up worksheets, eg. apartment building worksheet (#2) included below.

Practical application/P

Repetition/P

Skills Worksheet 1: 100 cm = 1 mmm = 1 m1. What is the length of the classroom in metres? Personal relevance/R 2. What is the width? 3. How tall are you? 4. What is your arm span? 5. How high is the classroom door? 6. What is the length of our bookshelves? Skills: Multiplying by 100 Practice/P 24.6 2 32.8 43 76.321 34.78 **x**100 x100 x100 x100 **x10**0 **x**100 Skills: Dividing by 100 720÷100= 7,672÷100= 52÷100= 4:100= $76,431 \div 100 = -$ Skills: Add 1.41 9.7 11.4 6.4 9.1 +5.32 +8.2 +15.2 +9.7 30.3 +9.1

Perimeter:

The distance around a figure is its perimeter. You can add all the sides together or you can use a formula, P = 2(L+W).





Worksheet #2: Apartment Building Measurement

REFERENCES

Lorna Wiggan, Janette Musson, Gunter Hartwig, Gordon Barry, <u>Everyday Math 1 and 2</u>, Toronto, A Publication of the Toronto Board of Education, 1980. Variety/R

<u>Mathematics for the Real World</u>, Charles E. Merrill Pub. Co., Columbus, Ohio, 1978.

LEDGER EXERCISE, OR KEEPING YOUR BANK BOOK

Basic 1 and 2

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OBJECTIVES

To practice addition and subtraction skills in a real life format.
To practice the use of decimals (Level 2 students).
To learn to balance a cheque book.

TIMEFRAME

Once a week.

PROCESS

Ask the students to start a ledger, using actual ledger paper. Personal relevance/R Start them off with a balance in their account, examples of Teacher Demonstration/M cheques already written and some deposits so that they have something to follow on the page. Each week give the students 4 Practice/P to 10 new entries.

This exercise can be used at all levels as soon as the students can add and subtract. The amounts can be varied according to skills.

Students with lower capabilities can stay with whole numbers. eg. Balance 200.00 Cheque 40.00 Deposit 10.00 etc.

For those with higher math skills but who need reinforcement in Precision/M adding and subtracting (Level 2 math, Grades 6-8), use more difficult figures such as the following sample:

#1

| 12 Oct. | 1) | You bought a snow shovel for \$65.22 from |
|---------|----|--|
| 14 0-+ | 2) | Van and Rell Telephone \$6% 50 |
| 14 UCC. | 2) | Tou paid bell receptione \$04.00. |
| 15 Oct. | 3) | Uncle Dan sent you \$100 which you deposit |
| | | immediately. |
| 18 Oct. | 4) | You withdraw \$200 for the weekend. |
| 21 Oct. | 5) | You pay your Sears bill for \$752.29. |
| 28 Oct. | 6) | You pay your Hydro bill of \$126.14. |

- 1) On Nov. 2 you wrote a cheque to Sears for \$24.58.
- 2) On Nov. 3 you deposited \$50.00 into your account.
- 3) On Nov. 4 you wrote 3 cheques: ---one to Bell Canada for \$76.28 ---one to Loblaws for \$23.49 ---one to Reitmans for \$22.88
- On Nov. 5 you received \$240.00. You decided to keep \$50.00 and put the rest into your account. How much did you deposit? Put it on the <u>balance sheet</u>.
- 5) On Nov. 9 you withdrew \$25.50.
- 6) The bank has a policy of charging \$.75 for each cheque that you have written. Count how many cheques you have written and pay \$.75 for each. What is the total charge? Record it as <u>service charge</u>. Remember, this is a debit. The date to use is Nov. 15.
- 7) Nov. 16--you receive a birthday gift of \$80.00. You put half of it into your account. How much do you deposit? Put it on your <u>balance sheet.</u>

| м | AST | ER CO BALANCE SHEE | T | NAME - | |
|-------------------|--------------|--|--------|---------------|-------------------------------|
| - | _ | | DEBITS | CRETITS | BALANCE |
| Oct Nov Nov | 31 1 4 | Babace Firmard Datos.t Chequie & Canadian Tire | 22 u | <u></u> ¥2922 | 2324 50 2525 50 2502 38 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

#2

INTRODUCTION TO MEASUREMENT AND FRACTIONS

Basic 1 or 2

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OBJECTIVE

To introduce measurement and fractions through personal, concrete modes, in a hands-on exercise.

PROCESS

Introduce the ruler as a measurement tool. Ask students to Practical Application/P fill out the following sheet containing objects to measure in their own environment as well as objects that are parts of the Personal Relevance/R whole.

Worksheet

| | omputer disk? | How long is |
|----------------------|---|--------------|
| | r ruler? | How wide is |
| | r thumb nail? | How long is |
| | r shoe? | How long is |
| inches long. Glue it | string $5 1/2$ | Cut a piece |
| - | | to this page |
|) inches long, and 2 | paper 9 3/4 | Cut a piece |
| s paper. | wide. Glue i | (mm/cm) inch |
| | | |
| | and the second se | |
| ng. Write down the | : 1 (mm/cm) | Find an ob |

8. Find an object 1 (m) foot wide. Write down the object you have found.

NOTES

1)A similar hands-on approach could be used with volume. 2)Fingermath is an effective tool for students who have little or no concept of number value.

Experimenting/ Tinkering/P Hands-On/P

REFERENCE

Fun With Mathematics, eds. Dr. Shmuel Avital, Kathy Corrigan, OISE, Publication Sales, 252 Bloor St. W., Toronto, M5S 1V6 (monthly publication).

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-On/P

LEARNING MATH THROUGH MEASURING AND MODEL BUILDING

Women Into Trades and Technology, All Levels

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OBJECTIVES

| To teach math fundamentals to adults who do not feel good about traditional approaches to math. To teach math skills using as a starting point, practical application and implementation. To establish an environment in which students teach themselves, receiving only a minimum of attention from the instructor; (the instructor acts in the classroom the way she plays baseball: she tries to avoid telling any more than she should). | |
|--|---|
| PROCESS | |
| Bring a variety of measuring tools to class, e.g. measuring tapes, squares, triangles, combination squares, compass. Ask students to use a variety of measuring tools in the following exercises. | Practical application/P |
| Start by measuring the tiles on the floor. | Personal relevance/R |
| Next, give the students graph paper to work with. Using graph paper, students choose a scale and duplicate anything with a symmetrical shape. In this exercise they figure out area and scale for themselves. | Experimenting, tinkering/P |
| Next, ask them to measure the room and to find a way of representing the size of the room on the graph paper. They have to figure out how to do this. Tell students that they are putting the room "to scale." Using the graph paper, students may build a model of the room. (Math processes: measurement, division, area, division and proportion, algebra) | Practical application/P |
| Show students a miniature model of a house built to scale. A house is a basic unit of interest for all students, something all can relate to personally. Then show students the house design, figured to another scale. Ask them to figure out the relation between the two. | Personal relevance/R Assessing/R Relating/R |
| Either bring in real building materials or take students to a lumber yard. Have them take rulers and measure, so that they see that a 2×4 is no longer 2×4 . They see firsthand what 4 | Personal relevance/R |

x 8 sheets of plywood are. Ask students to graph a 4 x 8 sheet of plywood and to figure out by manipulation of designs with Experimenting, graph paper, how much 4 x 8 material is needed for the gable tinkering/P ends of the roof of the house.

Next, give catalogs from local building supply companies to students. Ask them to figure out how to 1) estimate and 2) order building materials to

Practice/P Assessing/R Variety/R

- lay out a floor with 2x4's, with everything geared to a 4'x8' sheet of plywood
- frame the house
- roof the house
- paint and decorate the house (using square feet to the pint or gallon, etc. figuring out how much paint and wallpaper will be needed)
- plan for curtains at the windows and appropriate coverings
- plan for lighting systems throughout the house.

(Math processes: measurement, addition, subtraction, division, multiplication, square feet, cost estimates)

Give students the following worksheet on which to figure out Overview/M the percentage of wear and tear on equipment and cost of equipment use, cost of materials and cost of time:

| <u>Materials</u> | Tools and Equipment | <u>Time costs</u> |
|------------------|---------------------|-------------------|
| | | |
| | | |
| | | |

GRAPHS GAME

All levels

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OBJECTIVE

To provide students with an opportunity to use graph paper in a non-intimidating manner.

PROCESS

- Each player makes two graph "race tracks" 5 squares deep "A-E" and 30+ squares long.
- 2) Each player makes a path of dots. From beginning to end Assessing/R (50+ dots), the number of dots must be the same. There Planning/R must be no gaps. There may be false trails to mislead the opponent. The second track is left empty and is used to track the opponent's trail.





- 3) Opponents take turns guessing, starting from the first row Verbalizing/R of squares. If a guess is wrong, it is the opponent's turn. Every correct guess earns another turn. Each wrong guess must be marked by both parties by an "x." Each correct guess is marked by the guesser as a dot and by the opponent as a circle around the dot.
- 4) A fully consecutive trail from beginning to end must be Completion/P guessed, ie. no essential dots left out, even though they don't have to be guessed in order.

Hint: Don't waste dots on turns or back-ups that touch and could be short-circuited.





Note: This is a variation of the game "Battleship."

METRIC MEASUREMENT

Basic 1, 2 and Intermediate

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OBJECTIVES

- To develop students' ability to <u>estimate</u> accurately in metric measure.
- To give instruction and practice for accurate measurements.
- To enable students to become proficient with the graduated cylinder, triple beam balance and the metric ruler.

INSTRUCTIONS

Have students construct tables on their own paper and complete Hands-on/P all sections of the tables. These are then handed in for marking. They are to include the <u>units</u> with <u>each</u> number.

PROCESS (presented below as given in the booklet the student receives)*

Linear = measurement of distance

In this module you will be using the metric system of measurement. Set up your results in tables similar to those given in this module in your notebook. These are to be handed in to be marked along with the test on this module.



Estimates:

| (mm) | millimeter | - | thickness of thumb nail | Conceptualizing/M |
|------|------------|---|-------------------------|----------------------|
| (cm) | centimeter | - | width of index finger | Relating, connecting |
| (dm) | decimeter | - | width of man's hand | |
| (m) | meter | - | 1 yard + 3 inches | |

/R

*Only the initial section of the module is presented here. For further information, contact the author. 10 mm 1 cm 10 cm $1 \, dm$ 10 dm 1 m 10 m 1 dekameter (dam) 1 hectometer (hm) 10 dam -

1 kilometer (km)

2 levels

100

As you go from millimeters to centimeters to decimeters, etc. Observation/M the units represent larger distances. E.g., a centimeter is 10 x larger than a millimeter. Therefore, as you convert from one Analyzing/M unit to another going down the table, you will need less of the units; therefore, you will divide.

Repetition/P

5 mm .5 cm .05 dm .5 cm ÷

-10

-10

level -

You divide by 10 for each level of change:

шп

СШ

dm

m dam hm km

10 hm

As you go from kilometers to hectometers to dekameters to Observation/M meters, the units represent smaller distances; e.g., a hectometer is 10 x smaller than a kilometer. Therefore, as you convert from one unit to another going up the table, you will need more of the units. Therefore, you will multiply.

| 5 km | = | 50 hm |
|---------|---|---------|
| 50 hm | = | 500 dam |
| 500 dam | | 5000 т |

You multiply by 10 for each level of change.

mm сп dm m 10 **x 100**0 dam 10 x 100 hm 10 km 1 level 2 levels 3 levels

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Visual/M

3 levels

1000

Analyzing/M

Repetition/P

Visual/M

You will need to know:

Diameter is the distance from one point on the circumference of a circle to another point on the circumference of a circle through the centre of the circle. \$Visual/M\$



Measure the lines in millimeters and in centimeters. Hands-on/P

Hints for Accurate Use of the Ruler

- 1. Start at the 1 centimeter mark as ruler edges become worn.
- 2. Place eye over each end when measuring so that you can tell exactly where the line end and the ruler come together.

| | ESTIMATE | ACTU | AL |
|---|----------|-------|----|
| Lines A | | mm | сп |
| В | | mm | СП |
| С | | mm | CI |
| D | | mm | СШ |
| Your height (mark height on blackboard, then measure) | | cm | dr |
| Textbook Length | | mm | CI |
| Textbook Width | | mm | СІ |
| Base diameter of 50 mL beaker | | TRITE | СП |

Practical application/P

Personal relevance/R

FRACTIONS - A SIMPLE APPROACH

Skiltec: A Generic Trades Training Program for Women

Stella Strachan, Skiltec 755 Wallace Road, North Bay, Ontario P1B 8G4 705/472-2102

OBJECTIVE

To teach the concept of fractions in a meaningful, easy-tounderstand way.

PROCESS

Before beginning fractions, make sure the foundation in multiplication is firmly established.

It is best to begin teaching fractions by using everyday, Personal relevance/R relevant examples (money is quite successful: Here is \$100; how much is one-half? one quarter? etc.).

Since our women work with metal, we talk about cutting a steel bar into equal parts. Diagrams are drawn on the board as we Visual/M discuss the problem. E.g.:



explanation, the easier it becomes for them.



The trick is to use language which will not insult an adult. Sensitivity to Most women are anxious to grasp the idea, so the plainer the learner/R

Once we know what a fraction is, the next hurdle seems to be expressing a fraction in lowest terms. Basic diagrams with Visual/M shading will usually help. E.g.:





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Using the same diagram and shading different parts has proven Repetition/P to be an excellent, simple approach. Practice/P

For trainees who still encounter difficulties, I use circles, Personal relevance/R the face of the clock, or anything in the classroom which is available.

INTRODUCING FRACTIONS (DIVISION)

Basic 2, Intermediate and Advanced

Janet Storey, Georgian College 1 Georgian Dr., Barrie, Ontario L4M 3X9 705/728-1951

OBJECTIVE

To provide students who have never done well in math some physical-visual bases for understanding math processes.

PROCESS

In the beginning, students have trouble figuring out why answers get bigger for division and smaller for multiplication.

Ask a student to divide 2 in half, using 2 pieces of paper to Hands-on/P illustrate. How many pieces of paper does the student have?

Next, give the student the following equation:

 $2 - \frac{1}{2} = 4$

Ask the student, "how are we going to get 4 out of this Experimenting, equation?" Give the student some time to work on it to figure tinkering/P out that the fraction following the division sign has to be inverted.

If it doesn't click yet, have the student work with more pieces Problem-solving/P of paper, noting that there will be more pieces, but they will Observation/M be smaller than the original piece(s). Give the student other Repetition/P equations to look at to figure out the math process of inversion, eg.--

 $3 - \frac{1}{3} = 9$

STRENGTHENING MATH SENSE THROUGH ESTIMATING

Basic 2

Bob Snider, Sir Sandford Fleming College, McDonnel Campus Peterborough, Ontario K9L 7B1 705/743-5620

OBJECTIVES

To provide students with math skills for predicting ranges of answers and for checking work they do with a calculator. To counter math anxiety by not emphasizing one "right-or-wrong" answer, but by helping students to develop confidence in their abilitites to estimate.

PROCESS

The following examples are taken from a math manual prepared by the instructor (listed below).

To estimate answers, round off to a few significant digits Problem Solving/P (depending on the problem). In this section round off Experimenting/P individual numbers to only one significant digit. Objectivity/M

Repetition/P

Example 1 Estimate the answer to 764 + 823 + 117 + 502 Rounded off, this becomes 800 + 800 + 100 + 500 = 2,200We state the answer as $\approx 2,200$

Example 2 Estimate the answer to 173 ÷ 18 + 39 x (14 + 7) Rounded off, this becomes 200 ÷ 20 + 40 + 20 = 10 + 800 ≈ 810

Example 3 Estimate the answer to $(\sqrt{50} + \sqrt{96}) \div 3$ Approximately this is $(7 + 10) \div 3 \approx 6$

Exercise Estimate answers to the following by rounding off each number to one significant digit.

1) 77 + 63 + 48 + 17

2) 785 + 614 + 376 + 723

- 3) 5,786,300 + 5,242,999
- 4) 46,897 + 72,974 87,124
- 5) 28 x 315 33
- 6) $\sqrt{404} \times 12 \div 194$
- 7) 936 ÷ 34 x 72
- 8) $\sqrt{10,126} \times (16 + 5)$
- 9) If you are driving from Kingston to Windsor, a distance of 625 km and the speed limit is 100 km per hour, what will the driving time be?
- 10) If a job pays \$9.25 an hour for a 37 hour week, estimate the weekly earnings.
- 11) A jumbo jet cruises at 725 km per hour. Approximately how many hours will it take to fly from Toronto to England, a distance of 5,290 km?
- 12) A single length of structural steel weighs 277 kg. Thirty-six lengths are to be delivered to a construction project in four equal truck loads. What approximate weight will each truck be carrying?
- 13) In one week a supermarket's daily receipts were \$6,490; \$8,328; \$9,094; \$14,812; \$17,537 and \$10,651. What was the approximate total for the week?
- 14) For the supermarket in Question 13, what would be the approximate total receipts for a year if the same shopping patterns continued that long?

REFERENCE

J. Ross and R. Snider, <u>Mathematics 1</u>, Sir Sandford Fleming College, PeterPatch Publishers, Peterborough, 1987, pp. 3-18, 3-19.

INTRODUCING ALGEBRA TO THE ADULT LEARNER

Intermediate

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OBJECTIVES

To establish a comfortable, peer-oriented, collaborative learning environment conducive to the adult learner. This includes: .being positive about students' ability to accomplish their goals; .facilitating individual interaction; .observing what they often won't tell you verbally (i.e., that they are stuck, afraid, don't understand, can't concentrate, etc.); .allowing for quiet conversation among the group; .never embarrassing a student. To transfer concepts already known to the learning of algebra.

PROCESS

Explain how algebra is like learning a new language. They already know that "5" is only a symbol representing a definite quantity and, as long as they are dealing with these definite quantities, they can do addition, subtraction, multiplication and division. Remind them that they also know the concept of indefinite quantities (bushel, flock, herd, etc.). From there it is a simple process to transfer this knowledge to algebraic concepts because they are building on what they already know.

Give information in very small clusters with a maximum of Repetition/P examples to explain and illustrate each objective.

Use examples with which they are familiar (money, cars, Personal Relevance/R mortgages, etc.).

Example: Every student knows that we can take five (5) cars from one lot, add them to seven (7) cars from another lot and we will have twelve (12) cars. Now try to have them add five (5) cars together with seven (7) trucks. In a similar manner, five (5) "X" and seven (7) "X" can be added with the result of twelve (12) "X", but five (5) "X" and seven (7) "Y" cannot be added.

MATH ORIENTATION

Intermediate and Advanced

Jim Leacock, Sault College P. O. Box 60, 443 Northern Ave. Sault Ste. Marie, Ontario P6A 5L3 705/949-2050

OBJECTIVE

To put learners at ease as they enter math for the first time as adult students.

ORIENTATION

A new student arrives in class and we have our first conversation. I focus on putting the student at ease by Relating/R briefly describing my nervousness on the first day of a new class. I try to relate my experience to what the student has Sensitivity to Learner/R just come through; for example, didn't sleep well, up early, hard to find one's way around new areas.

Next, I explain the placement tests and discuss the student's feelings during testing and how these results are generally not representative of a person's abilities. We discuss my Modeling/R withdrawal from school and then my return with purpose.

I then explain the material the student will be working with. We discuss note-taking, testing and evaluation. By this time I can usually accurately assign beginning work that is well within the individual's capability. I often start with material that is a little below where they are so that they will feel more confident embarking on an anxiety-laden course. When they are able to do the assignment, I say "You must have a background in this...." and they say "Yes, I must have...." This verbalization establishes a positive mind-set in the student and helps to build the student's self-esteem early.

During the first few weeks with new learners, I present, incidentally, information on recent findings on how nutrition, physical activity and addictions affect our mental abilities. I always use the student's name and make contact at least every other class meeting. I make a point of asking some personal questions; for example, "a little tired today?" or "how's your uncle doing?" Students do better in math when they are able to relax and feel a sense of personal worth.

Practical Application/P

Confidence Building/R

Personal Relevance/R

Relating/R

Completion/P

FRACTIONS, DECIMALS, PERCENTAGES, RATIOS, PROPORTIONS

Intermediate and Advanced Francois Savard, Algonquin College, Adult Basic Education 140 Main St., Ottawa, Ontario 613/598-4501

OBJECTIVE

To provide students with necessary concrete and visual experiences of "the whole and its parts" so that they can go on to abstract mathematical representations without confusion.

PROCESS

The key is to go right to the concrete level, and have it settled, <u>before</u> any move is made towards a more abstract, algebraic treatment.

Too often, adult students don't want to admit that they don't understand the actual concrete situation, and also the teacher doesn't consider this possibility.

| There must be <u>so</u> MATHEMATICAL repre | lid links forged sentations. | between VISUAL, VERBAL and | 1 |
|---|------------------------------|-----------------------------------|---|
| VISUAL | VERBAL | MATHEMATICAL | |
| | one-half | 1/2 | |

How to do this? Have students estimate <u>verbally</u>, and represent <u>mathematically</u>, all sorts of partly full containers, etc. Repeat as often as necessary. (If instructors are impatient, they need to take a look at why they are there.)

Visual/M Practical application/P Repetition/P Next step = different mathematical representations:

1/2 = 50/100 = 0.50 = 50% =fifty percent out of a hundred

Give students different representations of the same ratio. When students see one, they should see them all.

Example: "Seventy-five parts out of a hundred."

Visual/M



Another visual representation is in terms of a unit length:

| | UNIT | |
|----------|--------|--------|
| 1/4 | 1/2 | 3/4 |
| 0.25 | 0.50 | 0.75 |
| 25/100 | 50/100 | 75/100 |
| 1 25% | 50% | 75% |

Often, students have jumped to the abstract before understanding the visual and the concrete. Stay with a variety of visual and concrete representations until the student is able to move into the abstract.

Practical Applicat Repetition/P

PROBLEM SOLVING METHODS IN MATH

Intermediate and Advanced

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OBJECTIVES

- To help students understand and draw on their own perceptual sensitivity.
- To assist students in developing relaxation and organizing strategies to use in math problems.

PROBLEM SOLVING METHOD I

When a student approaches me for assistance in math, I ask him/her to start fresh on the problem he/she is unable to solve. As the student begins silently reading, I mentally read along with him/her until the student reaches the point that was confusing. At this point I sense the difficulty the student is having and in my own mind I clearly move through the problem to the correct solution. My perceptual position is positive, clear, pragmatic and silent (telepathic in nature). I wait while the student tries to figure out the problem. In a majority of cases the learner picks up on the correct solution and delights in answering his/her own questions.

Sometimes students may be a bit confused by their new-found route to the correct answer in my presence, but I explain that my presence reinforces their own clarity and ability to reason as they focus on the question. I tell them that these discreet or subtle abilities can be strengthened more and more and can help them to solve problems not only in math but also in other settings.

PROBLEM SOLVING METHOD II

Working with mathematical word problems can be disconcerting for students. I explain at the outset that upon first glance at a problem, I often can't see a clear solution, and if I'm not careful, panic will set in and impede the flow of ideas. However, by using a somewhat structured approach, I can get to work on the question before nervousness constricts the thought process. I tell them that math often has to do with organizational skills.

Sensitivity to Learner/R Focus/M Relating/R

Practical Problem Solving/P

Confidence Building/R

Overview/M

Modeling/R

First I look to see if a word problem can be charted out in a Organization,Plann. diagram. Then I write down what is being asked; for example, unknown quantities, variables, etc.

Next I try to make up a word sentence that equates the unknowns to some given quantity in the question.

I then ask the learner to explain how he/she sees the problem Verbalizing/R and I try to view it from that perspective. Further diagraming Visual/M is often useful at this point. I tell the student to play with Tinkering/P it, to relax and let the words work themselves out.

If I feel the student "tensing up," I suggest we leave the Sensitivity to Learner/R problem and go to one that is less complicated, usually with fewer steps.

After a break, the student can often come back successfully to the problem.

Once this method is imprinted, the student can use it repeatedly with a variety of word problems.

PROBLEM SOLVING IN MATH

Intermediate and Advanced

Francois Savard, Algonquin College, Adult Basic Education 140 Main St., Ottawa, Ontario K1S 1C2 613/598-4501

OBJECTIVES

- To give students the opportunity to see more than one solution to a problem through visual techniques and peer instruction.
- To override math anxiety by integrated cognitive, affective and physical approaches to math.

PROCESS

The process encompasses three parts--1) team problem solving, 2) problem solving map, 3) mathematics games.

1) Give any kind of math problem to small groups of students Verbalizing/R and let them come up with a solution. Then compare the Peer learning/R approaches as a class, emphasizing the diverse ways to find a Assessing/R solution.

2) Then show the following charts outlining the math process Vi both generally and specifically, as a flow chart:







With time, students will become familiar with method A; then, Practice/P they will want to use method B to save time; finally some might go to method C, but it's not necessary.

3) Mathematics Games ("Mathtactics" and "Human Functions/ Relations"). Both games develop essential elements of math performance as presented in the following chart:

"MATH PERFORMANCE DEMYSTIFIED"

Overview/M


Mathtactics. In this game, groups/teams solve a short problem, Peer learning/R seeking as short and elegant a solution as possible.. Each group (ideal size = 2 or 3) then submits a written solution for Assessing/R instructor and class feedback, where originality, brevity and Precision/M elegance can be recognized.

The format of solutions each team comes up with should reflect the following schema:

| | | | | | SAMPLE | F | ORMAT | | | | |
|-----|---|--------------------|----------------|----|--------------------------------------|-------------------|--------------------------------------|----|----------------|--------------------------------|---|
| | The Different Modes of Thinking or Skills | | | | | | | | | | |
| | Involved in Solving a Math Problem | | | | | | | | | | |
| 1. | Symt usir | oolic s ng alge | skills ebra | 2. | Visual skills diagra writte | o , ms n | r verbal using and comments | 3 | 3. C s " | ompu kill: dirt; f ca | tation s: the y work" lculations |
| Set | : up | three | columns | to | solve | a | problem, | as | in | the | following |

example: Solve = 3/4 + 5/3

| 1. Algebra | 2. Diagrams or Comments | 3. Calculations |
|----------------|---|--|
| 3/4 + 5/3 = | -adding fractions -need common denominators -lowest common denom. is 4x3=12 -convert 3/4 & 5/3 | |
| = 9/12 + 20/12 | to twelfths (using rati | {3/4=x/12; {x=9 io rules) {5/3=x/12; {x=20 |
| = 29/12 | -solved | (= =0 |

If this game is played over and over again, with variations in the teams, students will start to get a feel for successful solutions, and for the excitement of mathematics.

Practice/P

Human Functions/Relations. This team game develops Personal expression visualization skills. Students mime a function, using the Visualization/M floor as the Cartesian co-ordinate plane (suitably marked using Personal relevance/R ropes, chalk, what have you). Each student represents a point on the line.

One team of 4 or 5 mimes a given function (y = 2x) while the Peer learning/R other teams try to guess the function's equation. All of this is done without talking (laughing allowed).

Alternately, a team may be assigned a function, and asked which of a number of mimed functions is the one they're looking for.

Students will enjoy the fact that the usually lonely and theoretical struggle with graphs becomes a group thing, and a very physical thing as well.

CONCEPT MAPS IN MATH

Intermediate and Advanced

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OBJECTIVE

To provide students with a system for connecting concepts in order to give them an overview of the subject matter and to stimulate memory retention.

PROCESS

 Concept Maps
 What are they?
 Visual/M

 —diagrams that relate key words and concepts together.
 Overview/M

 Why use them?
 —to learn, students need to see relations between each bit of knowledge they're taking in. The question, "where Assessing/R
 Rēlating/R

of knowledge they're taking in. The question, "where Asses does it fit in?" can be answered using a concept map. Making concept maps helps students <u>master</u>, gain Pract <u>ownership</u> of the concepts and subject matter.

Where, when to use them? -as a review tool and as a study tool once the student has mastered a certain part of the course content.

Examples:

1. Mathematics = 4 concept example =



*The arrow goes from the concept necessary to understand the concept it points to: to understand multiplication, you need to understand addition and subtraction. Practical application/P

2. Physics = 7 concept example =



How to build a concept map?

- Brainstorm for key words in a particular area you're Verbalizing/R studying.
- 2. Select the 10+ most important ones. Assessing/R
- 3. "Cut and paste": Write each word on a small sheet of Experimenting, paper or cardboard. Shuffle them around until a logical tinkering/P sequence or order emerges. Be creative!
- 4. Draw the complete "map" out on a sheet. Colour is helpful Overview/M in enhancing patterns and groups. Relating/R
- 5. A map can be expanded or condensed; maps can be merged.

REFERENCE

Joseph D. Novak and Bob D. Gowin, <u>Learning How to Learn</u>, New York: Cambridge University Press, 1984.

INTRODUCING NEGATIVE NUMBERS

Intermediate and Advanced

Janet Storey, Georgian College 1 Georgian Dr., Barrie, Ontario, L4M 3X9 705/728-1951

OBJECTIVE

To provide students with a visual directional tool which will allow them to say why they are taking a particular step in the math process.

PROCESS

Explain to the students that a signed number (e.g. -2) has two Rule presentation/M separate parts--a) the sign, which gives the direction in which you are moving on the number line and b) the value of the number.

e.g. -2 - 2 value direction in which you are moving on the number line

Give students the following number line:



Add -5 "-5" is the starting point on the number line. "+3" +3 is telling you to move up or to the right three

places. As you are still below zero, the answer is "-2."

Practical applicat: Repetition/P

Plot out the following problems on the number line and find the answers:



At every step have students explain what they are doing, or Verbalizing/R work in small groups to talk about what they would do.

Once students have finished plotting the directions, give them the rules for addition. Make it clear to them that the signs control the action, because in the subtraction process addition of values occurs, and in the addition process, sometimes subtraction of values occurs.

Addition Rules. When the signs are the same (like), add the Rule presentation/M number values and the sign stays the same.

| Example: | -3 | +3 | |
|----------|----|----|--|
| | -5 | +5 | |
| | -8 | +8 | |

When the signs are different (unlike), subtract the number values and take the sign of the larger absolute value.

| Example: | -3 | +3 |
|----------|----|----|
| - | +5 | -5 |
| | +2 | -2 |

Subtraction Rules. In algebra, subtraction means a change in Rule presentation/M direction; therefore, change the sign of the subtrahend or the signs within a set of brackets following a subtraction sign. Once you have done this, then add the signal numbers.

Example: Subtract
$$+3$$

 $+2$
Example: Subtract $+3$
 -2
 $+1$
Now add $+3$
 -2
 $+1$
Now add $+3$
 -2
 $+1$
Example: Subtract $+3$
 -2
 $+3$
 -2
 $+1$
Now add $+3$
 $+2$
 $+5$
Example: $[-3] - [+2] = [-3] + [-2] = -5$

Example: [-3] - [-2] = [-3] + [+2] = -1

Practice/P



SCIENCE

Science, especially in the secondary and post-secondary levels, has suffered the same fate as math in that the way it is traditionally taught appeals primarily to the mental dimension within each of us, often neglecting or even totally ignoring the other two. Thus, many students whose learning styles draw predominately from the relational or physical dimensions have not been as captivated by the learning of science as they could have been. Again, teaching to only one dimension diminishes the development of the other two dimensions and inordinately frustrates students whose prime learning style differs.

For success with most students, a key is to make the material relevant by personalizing it. Begin by establishing a feeling for the content. This can be done by teaching the mysteries of science as though through the eyes of a child who daily catches glimpses of and delights in its magic.

One teaching tool that is gradually coming into its own in the educational field is visualization. This visual journey taps the resources of the right brain, **personalizes and connects** the learning for the students, stimulates the thinking processes, and integrates the left brain's information. An example of its impact follows:

Instead of beginning a unit on chemical bonding by assigning a chapter in the textbook, then discussing the material in class, giving review questions, reviewing, and finally administering a multiple-choice or essay test, a teacher might begin with a fantasy that shrinks students to the size of an atom and takes them on an exciting journey through the world of atoms and molecules. The teacher could guide them into several common substanceswater, air, or salt, for example, describing what they'd see, hear, and feel. After the fantasy, they might draw the molecules as they'd experienced them. These drawings would tell the teacher where confusion existed and make it possible to correct any misconceptions. The textbook reading could then be assigned with a greater likelihood that students would be interested and would understand it. With their corrected drawings before them, the students could discuss the reading. The teacher's lecture would be supplemented by as many pictures as possible as well as by drawings and diagrams on the board so the students could see as well as hear the information. To review and help students integrate their learning, the teacher could set up a problem-solving exercise using balls of clay or Styrofoam and colored toothpicks. Students could construct different types of atoms and put together simple molecules. The test could allow students to demonstrate understanding with drawings or diagrams as well as with words. (Linda Verlee Williams, <u>Teaching for the Two-Sided</u> <u>Mind</u>, Simon and Schuster, Inc., N.Y., 1983, pp. 7-8.)

Another tool is the use of metaphor:

Imagine for a moment the difference between a class where students are introduced to the concept of the infinity of space through the dictionary definition and a few textbook examples, such as the size of the universe and the duration of time, and a class in which the teacher brings in two mirrors and initiates discussion of the metaphors given here as a means of exploring the concept of limitlessness and immeasurability, then asks the students to generate more metaphors of their own. The latter would not only be more interesting but is also likely to produce a deeper and clearer understanding of infinity. Ιt presents students with the concept in ways that make sense in terms of their own experience and challenges them to use the process of metaphorical thinking to extend their understanding. It also enables the teacher to assess exactly how well they understand the concept from the metaphors they offer and to clarify confusion by referring to the student-generated metaphors. (Teaching for the Two-Sided Mind, p.56.)

Other tools are shown in the following teaching strategies and include peer learning, direct experience, hands-on application, audio, visual and computer aids.

AN INTRODUCTION TO SCHEMATIC SYMBOLS, COMPONENTS AND CIRCUITS

Basic 2 and Women Into Trades and Technology

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OBJECTIVES

To introduce functions of components, their schematic symbols and diagrams. To introduce electric circuits.

DESCRIPTION

To catch students' interest and to encourage them to understand (and not just memorize) the material, emphasize how much this Personal relevance/R material is a part of their lives. Whether or not they go further in school, learning basic science will give them a deeper, more confident understanding of the workings of their everyday world.

Personal associations, anecdotes, class participation and humour are essential strategies used in the teaching process. Content is always in second place; the students' needs for Environment focus, comfort and relaxation are top priorities. The benefit sensitive/R of this order is that more content is covered and retention of the concepts is remarkably increased.

I try not to introduce any more than seven pieces of new Sensitivity to information in any one lesson. In the example given below, learner/F some of the material has been briefly introduced in prior lessons (atom structure and electrostatics). This familiarity is reinforced and built upon during the class period.

PROCESS

Begin by defining terms: fuse, lamp, battery, toggle switch, fixed resistor and variable resistor. Do this by first asking if anyone knows what, for example, a fuse is. Then ask if anyone knows what its purpose is (there should be lots of hands). To explain, tell them a simple story to describe the importance and function of the fuse as a safety device (i.e., when I was growing up we were very poor and my mother used a penny instead of buying a new fuse--what burns out first: the penny or the fuse? If I don't want my house to burn down, which will I use?)

Repeat this process for each of the terms, using various anecdotes or ways of personally describing each one.

Show real samples of the components and draw the correct symbols for each on the board. Briefly discuss where, how and why the class uses them in their houses, cars, etc. This will reinforce that they already know something about the components.

As the symbols are drawn, introduce simple memory aids. For example, associate the symbol for resistance (which looks like a series of hills)



with what it's like when they try to run up hills--they have to Relating, connecting/R use lots of energy because they encounter so much resistance. This is the same for electrons--electrons use energy to overcome resistance. And where do they get their energy? From the battery.

Introduce them to schematics by drawing a flashlight (again, something they all know). Review/introduce the concepts of negative, positive, wiring to switch to lamp, etc.).

Demonstrate by having them hold a lamp (or an LED and resistor) across the terminals of a 9 VDC battery, creating a basic "homemade" flashlight. Give a brief explanation of circuit connections (i.e., open and closed circuits, current illuminating the filament in the lamp, sound mechanical connections, etc.).

Then ask them to help you draw the schematic of the flashlight on the board. Guide them through the process by asking such questions as "Where should I put the symbol for the battery?" "Which side should I mark positive?" etc.

Visual/M Peer learning/R Verbalizing/R



Personal relevance/R Confidence building/R

Visual/M

Visual/M

Visual/M Repetition/P

Student demonstration/P

Overview/M

Referring back to the definition and function of a variable resistor, use several examples that they are familiar with (dimmer switches in a dining room, panel lights of a car, etc.).

Now ask the class to help you draw a schematic using a DC battery that represents a circuit controlling the brightness of a lamp.



As the diagram unfolds, continue to give examples of how the components work (battery, lamp, switch, and variable resistor). Any questions or quizzical looks are attended to most effectively with anecdotes and repetition.

It is extremely important to proceed slowly so students can digest and integrate the information component by component. It works well to play "games" with them (i.e., not connecting a wire to a component and asking if the lamp is on or off; having them each draw the correct symbol in the air as the answers are given. etc.).

Prepare them for the next lesson (voltage, current, resistance and introduction to Ohm's law) by briefly introducing how the circuit works.

Explain how the battery is like their homes--they get "pushed" (voltage) out the door to go to school. Each of them is like an electron; the "electrons moving collectively" are current. Each "class" (resistance) they attend uses some of their energy (i.e., each class opposes their free-flowing movement forward, causing them to work harder), with some classes requiring more energy than others. After they finish all their "classes" (resistances), they return "home" (battery) to get re-energized so they can do it all again the next day. (Note: to further illustrate these points, the flow of water, dams/river beds, and gravity can be used effectively as associations.)

Remind them to be thinking about this lesson so they are familiar with all the terms for the next class (the class already knows they are responsible for participating in each day's discussion and thus need to prepare well). Suggest that they

-make flash cards with the symbols for review purposes; Visual/M -look inside a calculator to become familiar with this Practice/P lesson's components as well as other types of components; -take apart a broken appliance/device to look for familiar components, schematic symbols, loose wires, etc.

Relating, connecting/R Repetition/P

Visual/M Verbalizing/R

Repetition/P

Sensitivity to learner/R

Pacing/P

Practical application/P

Overview/M

Relating, connecting/R

Verbalizing/R

Practical application/P

INTRODUCTION TO ELECTRICITY (PHYSICS)

Women Into Trades and Technology

John Parkinson, Fanshawe College 1460 Oxford St. East, London, Ontario N5W 5H1 519/452-4100

OBJECTIVE

To introduce electricity to students in a practical way they can personally relate to.

PROCESS

Through diagrams on the board, students are taught to read Overview/M their meters at home. They are asked to record the reading and Practical application/P bring that in with their last hydro bill.

Students are informed that there are sometimes errors on their hydro bills and that it is important to check them. The bill shows a reading of the daily usage (eg. 50 kw hrs.), the total kw used over the period of time and the total cost. For example, a two-month usage is 2,500 kwh. Ask the students to subtract last month from this month and then check their bills according to the following formula:

--the first 500 kw costs \$37. --the remaining costs 4.9 cents/kwh.

This formula is for London; it varies in other parts of the province. The average use is 40kw/day for a home. Students are asked to check that on their bills and if it's more, to have it checked. Something may be hooked up incorrectly.

Next, students are shown appliances and electrical equipment which have voltage (usually 110) and amps (5,20, etc.) written on them. Students are shown the formula

Amps x Volts = Watts

and are given some samples to figure out. Then they are told that the watts = their power and 1000 watts = 1 kilowatt (kw). They can get over the fancy words by saying that they buy 500 grams of hamburger--a unit of weight. This is simply a unit of power.

Students are given an assignment of looking over a list of wattages of frequently used appliances in order to figure out where they can cut down on usage of electricity.

Personal relevance/P

Practical problem solving/P

Relating, connecting/R

Practice/P

| Lighting Bulbs-ceiling | Watts | Appliances Blender | Watts 600 |
|---------------------------|---------|-----------------------|--------------|
| Floor lamp | 200 | Bottle-warmer | 200 |
| Flourescent tube | 30 | Clock | 200 |
| Table lamp | 100 | Clock-radio | 5 |
| Table Tamb | 100 | Coffee perculator | 700 |
| | | Curling Iron | 800 |
| Appliances | | Deen fryer | 1350 |
| Air-conditioner | 1500 | Electric blanket | 200 |
| Washing machine | 700 | Electric broom | 125 |
| De-bumidifier | 100 | Electric can-opener | 50 |
| Dishwasher | 500 | Electric knife | 5 |
| Elec. baseboard | 200 | Electric toothbrush | 5 |
| heaters | 2000 | Fan (portable) | 100 |
| Clothes dryer | 4500 | Floor polisher | 300 |
| Electric stove | 12000 | Hair drver | 235 |
| Freezer | 350 | Iron | 1000 |
| Lawn mower | 250 | Mixer | 100 |
| Humidifier | 25 | Sewing machine | 75 |
| Micro-wave oven | 100-600 | Shaver | 12 |
| Refrigerator | 150 | Slow cooker | 1320 |
| Ventilating fan | 140 | Stereo | 200 |
| Waste disposal | 1000 | Sterilizer (bottles) | 100 |
| Water pump | 1000 | Television (colour) | 300 |
| Toaster | 1000 | Vacuum cleaner | 625 |
| Toaster-oven | 1500 | | |

Typical Monthly Wattages of Some Home Lights and Appliances

PHYSICS DEMONSTRATION WITH ULTRA-VIOLET LIGHT

Intermediate

Gib MacInnis, Sault College P.O. Box 60, Sault Ste. Marie, Ontario P6A 5L3 705/949-2050

OBJECTIVES

- To introduce the EM spectrum.
- To demonstrate that inanimate objects respond to stimulus.
- To reinforce Newton's 3rd Law.
- To provide a "break" from individualized reading.
- To capture and increase students' interest through a hands-on application of the theory.
- To introduce students to the field of UV research.
- To enhance students' knowledge that we do not have all the answers and to introduce them to the challenges that remain.

TIMEFRAME

Ten minutes plus discussion time.

DESCRIPTION

Through the demonstration, students learn that UV light can be Teacher Demonstration/M used to:

.identify currency and thwart counterfeiting .identify some substances .purify water .detect strain in pipes .sort return mail

They also learn about the hazards of UV light (e.g., sunburn) Personal relevance/R and that all substances do not respond the same.

Students may safely get involved "hands-on" and identify Hands-Dn/P fluorescence in some clothing dyes, starches, false teeth, etc. Practical Application/P

EQUIPMENT

.UV lamp .Suite of fluorescent minerals (i.e., willemite, witherite, chalcedony, autunite, wernerite, resinous coal, tremolite, opalite, hackmanite) .Return envelope with yellow markings .Canadian paper currency

This experiment is ideal for rooms with no fume-hood, water or gas.

PROCESS

Mineral fragments, currency, etc., are shown to students under $~\mbox{Visual/M}$ ordinary light.

The UV lamp is also shown, and the position of its emitted light on the EM spectrum is indicated. The fact of energy transfer is stressed.

The room is darkened and the UV turned on.

Be prepared to answer questions.

Verbalizing/R

ONE METHOD OF TEACHING CHEMICAL NOMENCLATURE*

Advanced

Carl Rose, Confederation College P.O. Box 398, Thunder Bay, Ontario P7C 4Wl 807/475-6269

OBJECTIVE

To name and give the formula of any common inorganic compound.

TIMEFRAME

Six to eight hours of class time to absorb.

PROCESS

Begin with the definition of oxidation numbers and show how they are related to the periodic table. Students are required to memorize common elements that have more than one oxidation number (such as Fe, Cu, etc.). They are given one or two charts to aid in this task.

Define binary compounds and show the three basic methods of naming for elements having more than one oxidation number.

- Use of the numerical prefixes mono, di, tri, etc. (e.g., carbon monoxide CO, carbon dioxide CO₂)
- The Stock system (recommended by IUPAC) using Roman numerals to indicate the oxidation number of the element they follow (e.g., iron (11) chloride FeCl₂ iron (111) chloride FeCl₃)
- An older system still in use using the endings -ous and -ic to indicate lower and higher oxidation numbers respectively (e.g., cuprous oxide Cu₂O; cupric oxide CuO)

*This method for teaching nomenclature is not really my own. Mostly it comes from <u>Chemistry for Secondary Schools</u>, by Croal, Couke and Louden. This was the text I used when I was in High School and the best text that I have seen on this topic. I updated the terminology, but the basic ideas belong to its authors. Overview/M



Teacher Demonstration/M

Provide for a lot of practice in naming binary compounds when given the formulae. (Make up many sheets of exercises as well as using the exercises in the textbook. The number used depends on how fast the students catch on.) Show examples of writing formulae from the name and have students practice. Present a chart for binary gases and binary acids (e.g., HCl - hydrogen chloride HCl (aq) - hydrochloric acid) Students practice on this from formula to name and vice versa. Next the 5 basic oxy-acids and their derivatives are presented:

| per - ic | ic | -ous | hypo -ous |
|----------|--------------------|-------|-----------|
| HC104 | HC103 | HC102 | HC10 |
| | HNO3 | | |
| | H _{2CO3} | | |
| | H ₂ SO4 | etc. | |
| | H ₃ PO4 | | |

Stress that these must be memorized because the ions that come from them are used in so many salts.

| ≙.g., | per | - | ic | acid | P | er | - | ate | ion | |
|-------|------|------|------|------|---|------|------|-----|-----|---------------|
| | per | chlo | oric | acid | Р | ercl | nlor | ate | ion | $(C10_4) - 1$ |
| | - | - | ic | acid | | | | ate | ion | |
| | | | ous | acid | | | - | ite | ion | |
| | hypo | | ous | acid | h | уро | - | ite | ion | |

Show many examples of these salts. Assign sheets of formulae to name and have students write formulae for the names of Practice/P compounds.

Finally, the ammonium ion, hydroxyl ion and acid salts are shown and problem sheets on all of the above compounds mixed together are assigned.

COMPUTER SOFTWARE FOR SCIENCE

Intermediate and Advanced

Gib MacInnis, Sault College P.O. Box 60, Sault Ste. Marie, Ontario P6A 5L3 705/949-2050

GENERAL DESCRIPTION

There have been delivery problems with the software; however, to date, we have had success with the programs listed below.

Arrakis Advantage Chemistry, Volume 1

This two-disc volume allows students to interact with the computer on the structure of the atom. Testing is a bit of a problem, and there is perhaps an over-emphasis on classical chemistry experiments.

Chemicals of Life II (Part II of a Three-Part Series) Only part II has been used, and that was received on approval for the I.B.M. Biology Series. Because of the excellence of this disc for the Advanced Level Biology (and Chemistry), additional I.B.M. software for science has been ordered. The program is especially good on graphics and testing, but the blue background color might distract some individuals.

A nursing faculty member ran through the program and was impressed. However, the standard may have been a bit high for entry into nursing.

ONE STUDENT'S FEEDBACK ON "THE ATOM" PACKAGE

"The software is more direct and simplified in its explanation Over than the text book: Visu .explains the concept step-by-step Repe .gives words and pictures together Conf .builds in complexity by presenting lots of diagrams .repeats major points .gives immediate feedback and testing.

"Would recommend using the software to introduce the concept, then the textbook for detailing, and the software again for review.

"I thought I'd never get through the course, but when I got onto this computer program, it all fell into place." -Intermediate Student Career Goal: Nursing Overview/M Visual/M Repetition/P Confidence building/R REFERENCES

Chemistry Volume 1: The Atom, Grolier, Ltd., 1984. Order from Arrakis Advantage Educational Software, 20 Torbay Road, Markham, Ontario L3R 1G6, 416/474-0330.

I.B.M. Biology Series, 1-800/465-1234.

REVISING SCIENCE CURRICULUM

Electronics

Noel Peters, Fanshawe College 1460 Oxford St. East, London, Ontario N5W 5H1 519/452-4100

OBJECTIVES

- To stimulate motivation through relevant, personalized study modes.
- To improve articulation skills in science.

PROCESS

Small Groups

A course in individualized study, continuous intake, was re-Peer Learning/R designed to incorporate small work-groups of compatible-level Relating/R students, about 5 to 6 students in a group. These work-groups meet for some time each day to talk about what the students are Verbalizing/R working on. The length of time given to the small group varies, depending upon need, which is usually determined by the Objectivity/M instructor.

One requirement of the small group is the use of precise terminology. If students use the terminology properly, they Practice/P understand the concepts and functions better and they become better technicians. At first students resist using the terminology, but in the small groups, this practice is easier to encourage and to sustain. The groups are monitored by the instructor.

A further reason for using precise terminology is that in verbalizing it, students often formulate a mental picture accompanying the words. This picture can be very helpful to them in their technical and problem-solving work.

Visual and Audio Supports

The self-directed learning materials are also personalized. Lectures are recorded on video-tapes which a student can view when he/she is ready for that unit. The videos are used in both initial presentation of material and in reviews. It is easier for a student to relate to a video of the instructor going over the information in a unit than to the written materials which usually comprise units in individualized study. Audio cassettes of the lecture are also available for students to take home to listen to.

Visualizing/M

Precision/M

Practical Problem Solving/P

Personal relevance/R

Repetition, drill/P Visual/M

Auditory/R

Music is used at the beginning and during the taped lecture to Auditory/R illustrate certain points and to refocus students' attention. In one video-taped lecture, the instructor says, "You have to work hard on this" and background music plays to "I never promised you a rose garden." Passages from literature are also used to complement the lesson and to encourage students to Overview/M think more broadly about their work.

RESULTS

Once this system was established, dramatic differences were noticed. Under the old system, only 30% of the students passed the very difficult module, "High Voltage Power Supplies." Under the new system 90%+ pass.

At the end of the first year of the new system, students had covered 20% more material and student performance was up 20%. Improvements were also shown during the second year in which there was more depth/detail possible in each module. Trades & Technical Training

TRADES AND TECHNICAL TRAINING

Hands-on training provides ample opportunities for the **development and integration of visual, auditory, tactile, and kinesthetic skills,** and thus enhances learning for all students.

The mentally-centred are challenged to bring their ideas and abstract conceptualizations into concrete form as they build productivity, practicality, follow-through and consistency into their lives.

The relationally-centred are challenged to develop their focus, precision, patience, objectivity and potential while using their well honed talents to organize, plan, evaluate, verbalize and work with others.

And the physically-centred are challenged to consider the overview, discuss procedures and information, develop assessing skills, and anticipate problems while they draw upon their abilities to translate ideas into practical uses, to work productively and concretely, and to follow-through to completion on detailed tasks.

Technical teaching strategies that incorporate all of the above are presented in this section.

INTRODUCTION TO TOOLS AND NON-TRADITIONAL CAREER CHOICES

Women Into Trades and Technology

Penny Poole, Fanshawe College 1460 Oxford St. East, London, Ontario, N5W 5H1 519/452-4100

OBJECTIVES

- To help students make the connection between use of tools and self-empowerment.
- To make things relational, so they have a spirit, a personality.
- To build confidence and clarity in decision making and goal setting by bringing personal maturation factors to awareness.

PROCESS 1

Before class, a handout on "Being Comfortable with Tools"* is Dverview/M read by students in preparation for the following exercise.

Go around the assembled group of students and have each one Verbalizing/R answer the following question series--you may want to put the questions on the board so that students can refer to them. The feeling of this exercise is like a story-telling session which holds students' focus on tools and their attitudes toward using them. The exercise clears up ambiguous feelings students may have. Before answering the questions, each students reads aloud a paragraph from the handout which has been relevant to Focus/M her. Following are the questions:

Who introduced the first tool to you? What was the tool (traditional or non-traditional)? How did you feel about being shown? Did you feel confident or hesitant? What did you do with that tool?

Afterwards, have the students take any tool and describe it aloud to the class and show the class how to use it. This establishes an immediate relationship between the student and the tool. Relating/R

Hands-on/P Student demonstration/P Verbalizing/R

^{*}This handout is made up of excerpts taken from Jeanne Tetrault and Sherry Thomas, <u>Country Women: A Handbook for the New</u> Farmer, Anchor Press, New York, 1976.

PROCESS 2

On another day, to reinforce students' confidence in the shop area, ask them to talk about positive role models in their lives. Again, ask each person to tell the story of their positive role model. If someone can't come up with a person, ask them to choose a cartoon character or a literary figure.

Who made an impact on you when you were a teenager? It might be a woman or a man. What were the characteristics that most influenced you?

The class usually comes up with people who have been close to them. Examples of some of the responses might be--

Mother: never let anything stop her Father: Leonardo da Vinci style, inventiveness, intelligence Mother: determindedness Girlfriend: encouragement Female friend of mother: lost one arm in factory work and still drove stock cars Male babysitter: men and women can do each other's jobs

From these answers, it is a very simple link for students to $_{\rm Relating/R}$ show how they have incorporated these characteristics into $_{\rm Personal\ relevance/R}$ their approaches to work.

PROCESS 3

Toward the end of the Physics unit, give students a reading from the chapter entitled "Allurement," from <u>The Universe Is a</u> <u>Green Dragon</u>.* Students are asked their own ideas on why they feel they have been attracted to this kind of learning.

Verbalizing/R Personal relevance/R Idea development/M

*Brian Swimmi, The Universe Is a Green Dragon, Bear and Co., 1985. Verbalizing/R

SHOP SKILLS TRAINING STATION

Industrial Woodworking

Dean Price, Canadore College P.O. Box 5001, North Bay, Ontario P1B 8K9 705/474-7600

OBJECTIVE

To provide exploratory experience in hands-on work in a chosen shop and skills area, emphasizing as much as possible the job-related aspects of work in a production shop.

TIMEFRAME

One week.

PROCESS

Students choosing the Industrial Woodworking Shop Option Practical applicati experience a concise module of training, standardized and thorough, on a simple Christmas ornament production project. At the end of the week they will be able to demonstrate competence on some machines, with finished articles, of a known quality Precision/M reference.

The previous method of working with students usually resulted in an amplification of fears of failure by comparing the new students' work to those with a larger experience base. Often they left with a feeling of inadequacy and a fear that they did not possess the "talent" necessary to succeed in a shop environment.

EQUIPMENT

Students are given a better learning experience if certain simple tools and machines are particularly designated for their work during the week. In this way, there is no piece-meal approach to their learning. The following equipment is recommended to be set apart specifically for them:

- 1. Delta 16" bandsaw
- 2. Rockwell 4" jointer
- 3. Rockwell sander grinder
- 4. Delta mitre saw
- 5. Bench with two 9" vices

- 6. Two extension lamps
- 7. Hand and safety tools

SUPPLIES

Approximately \$45 to \$55 of expendable belts and blades will be used each week of production. Since the project itself uses scraps of any type of wood, no material costs of the raw material are necessary. The student produces many finished ornaments during the course of a week. The student receives the choice of the best pair produced during the week. The other finished ornaments will be used as promotional material by the larger course (when tours of secondary students come in, they are given ornaments).

Hands-on/P Repetition/P

WORKSTATION

The new student will be supplied with a well lit and Environment sensitive/R comfortable working environment, integral to the main shop and not facing a wall. The student will feel included in shop activities and will be in a good position to observe and interact with others. This feeling of unity among the students Relating/R results in more experienced students more readily helping work Peer learning/R station students.

Some students have in the past indicated that they were not used to standing all day; the work station will allow for a seated position for repetitious activities on power machines.



The bench accommodates two students, alternating use of the machines. Adequate storage of "blanks" and the finished goods are also included. On the wall is all the information required to reinforce their training, including a production record to show their progress and improvement. Their "safety gear" is also located there, designated for these students, and always within reach.

Visual/M Overview/M Personal Relevance/R TRAINING

The weekly duty roster now in operation in the Industrial Woodworking Shop allows for two students (Workweek Duty Students) to train and monitor the new work station students.

After an hour of introduction to the course and safety procedures, the students work with the experienced Workweek Duty Students to learn the project and all safety procedures on "their" machines. This continues until they are confident that they can demonstrate their competency to the program instructor in a practical test. Upon meeting this requirement, they work "on their own," although constant low level monitoring is always in effect.

Students also learn to follow a flow chart.

TESTING

There is an oral exam on the following:

- 1. Purpose for the finished project
- 2. Knowledge of flow-charted steps
- 3. Methods of safely gaining attention of another person operating machines
- 4. Jointer, sander, bandsaw and mitre-saw safety
- 5. Tool adjustments and operating criteria
- 6. Finishing procedures
- 7. Record keeping

It is possible to complete training and testing of an average student in about 7 to 10 hours. As there are 19 to 21 hours of shop time per week, there is at least an equivalent amount of time available for them to work on their own. Note that during class time, they are allowed to either participate in the class or work on their own, depending on their interest.

With the help of the Workweek Duty Students, each facet of training, testing and production is documented with copies distributed to the new students' home course instructor.

Peer learning/R

Verbalizing/R

Overview/M

Planning/R

INTEGRATING ACADEMICS, LIFE SKILLS AND WORK ADJUSTMENT SKILLS WITH A HANDS-ON WIRING PROJECT

Basic 1*

Lois Thompson, Loyalist College P.O. Box 4200, Belleville, Ontario K8N 5B9 613/962-9501

OBJECTIVES

- To provide a new hands-on learning experience for students to introduce them to and help them assess the possibility of a trades or technical career option. To build confidence.
- To acquaint students with a job-related vocabulary.
- To increase knowledge of a practical, every-day application through math and problem-solving.
- To give practice in
 - .following instructions,
 - .arithmetic skills.
 - .generic tool usage,
 - .using the correct terminology in order to understand the function of the various components.

TIMEFRAME

Best given to a class of eight or fewer after the students have become accustomed to the school setting.

PROCESS

- 1) Show the completed project to point out the components and overall assembly pattern. The students may then use this demonstrator model for reference if they have difficulty Visual/M following the printed instructions. Ensure that this sample project corresponds exactly to instructions.
- 2) Vocabulary
 - Demonstrate/explain each word (meaning) below, a) Relating, connecting/R connecting the word with the function as much as possible.
 - Have students alphabetize the list. b)

Overview/M

Assessing/R

^{*}This could be adapted with some vocabulary changes to Basic 2; popular how-to books usually contain at least Intermediate level vocabulary.

c) Further integrate the vocabulary and give practice in Repetition/P spelling through cloze exercises.

Vocabulary

| wrap | brass |
|-------------|--|
| clockwise | silver |
| direction | connector |
| pliers | fasten |
| strippers | tighten |
| screwdriver | loosen |
| ground | |
| | wrap clockwise direction pliers strippers screwdriver ground |

- 3) Assembly
- a) Tools and materials required:

-for each student

| <pre>screwdriver (multi-head)</pre> | wire strippers |
|-------------------------------------|----------------|
| wire cutters | utility knife |
| needle-nose pliers | steel tape |

12-gauge electrical wire, approximately 90"
1 octagonal box and 2 rectangular boxes, with
 clamps, mounted on 18"x18" piece of 3/4"
 plywood
1 plug, yellow, with ground
1 switch
1 light fixture
1 outlet faceplate

1 switch faceplate
2 Marr connectors

-for classroom

light bulb
isolation transformer
camera (optional; for taking pictures of the class)

- b) Student reads each section of the detailed assembly instructions (see following) and completes each step before proceeding to the next.
- c) Safety becomes relevant after the student has completed the wiring.

Safety Notes: -Instructor must inspect before faceplates are installed (Section 5) -Instructions may vary if different components (e.g., rectangular boxes) are used Personal relevance/R

Focus/M Completion/P -Plug completed projects into <u>isolation</u> transformer.

- d) Check switch and outlet function.
- e) After final assembly, math associated with the project is introduced (see Mathematics section, following).
- f) The final step is a life skills/job readiness discussion (see Life Skills/Job Readiness section, following).

HANDOUTS

Brochures from Ontario Hydro, building supply firms; career selectors (technical and trades), etc.

ASSEMBLY INSTRUCTIONS FOR THE WIRING PROJECT

| 1. | PLUG | Tools <u>Required</u> |
|----|---|--------------------------|
| a) | Remove the 3 screws from the yellow part of the plug. | Screwdriver |
| b) | Cut a piece of 12-gauge wire 24" long. | Wirecutters |
| c) | Slit about 2" of the outside plastic between the wires. | Knife |
| d) | Cut off this outside plastic. | Knife |
| e) | Strip about 3/4" of insulation from the ends of the black and white wires. | Wire Strippers |
| f) | Push the black, white and ground wires through the rubber plug cover. | |
| g) | Loosen the screws of the yellow plug. | Screwdriver |
| h) | Bend the bare end of the black wire. Wrap it in a clockwise direction around the brass screw. | Pliers |
| i) | Tighten the screw. | Screwdriver |
| j) | Wrap the white wire clockwise around the silver screw. Tighten the screw. | Pliers & Screwdriver |
| k) | Wrap the copper ground wire around the green screw. Tighten the screw. | Pliers & Screwdriver |
| 1) | Push the yellow part of the plug back into the rubber cover. | |
| m) | Put in the 3 screws to fasten the parts of the plug together. | Screwdriver |
| 2. | OUTLET | |
| a) | Push the other end of the plug wire into the outlet box. | |
| b) | Cut off about 4" of the outside plastic. | Knife |
| c) | Strip $3/4$ " of the black and white wires. | Wire Strippers |

Hands-on/P

| 2. | OUTLET (Continued) | Tools <u>Reguired</u> |
|----|---|--|
| d) | Loosen the 5 screws on the outlet. | Screwdriver |
| e) | Wire the black wire to one of the brass screws. | Screwdriver, Pliers |
| f) | Wire the white wire to one of the silver screws. | Screwdriver, Pliers |
| g) | Cut another piece of wire 18" long. Push one end of it through the hole in the top of the outlet box. | Wire Cutters |
| h) | Remove the outside plastic and strip 3/4" of the black and white wires. | Knife, Wire Cutters, Strippers |
| i) | Wire the black wire to the other brass screw. | Screwdriver |
| j) | Wire the white wire to the other silver screw. | Screwdriver |
| k) | Cut 2 pieces of copper jumper wire 4" long. | Wire Cutters, 12 Gauge Copper Jumper Wire, Steel Tape |
| 1) | Wire one end of a piece of jumper wire to the green screw on the outlet. | Pliers, Screwdriver |
| m) | Wire one end of the other jumper wire to the ground screw on the bottom of the outlet box. | Pliers, Screwdriver |
| n) | Twist the 4 ends of the jumper and ground wires together. Fasten with a Marr connector. | Pliers |
| o) | Tighten the clamps on the wires. | Screwdriver |
| p) | Push the wires into the box. Be sure that all wires stay on the screws. | |
| q) | Screw the outlet onto the box with 2 screws. One screw goes at the top and one at the bottom. | Screwdriver |

| 3. | SWITCH | Tools Required |
|----------|---|---------------------------|
| <u>,</u> | | Megarrea |
| a) | Push the loose end of the wire from the outlet box into the bottom of the switch box. | |
| b) | Cut off 4" of the outer plastic and strip $3/4$ " of each wire. | Knife & Wire Strippers |
| c) | Fasten the black wire to one of the brass screws on the switch. | Pliers and Screwdriver |
| d) | Cut another 18" wire and push it into the top of the switch box. | Wire Cutters |
| e) | Strip this wire as in step (b). | Knife & Wire Strippers |
| f) | Fasten the black wire to the other brass screw on the switch. | Pliers and Screwdriver |
| g) | Twist the bare ends of the 2 white wires together. | Pliers |
| h) | Fasten these white wires with a Marr connector. | |
| i) | Wire both ground wires to the ground screws on the bottom of the box. | Pliers and Screwdriver |
| j) | Tighten the clamps on the wires. | |
| k) | Carefully push the wires into the box. | |
| 1) | Screw the switch onto the box with 2 screws. | Screwdriver |
| | | |
| , | | |
| 4. | LIGHT FIXTURE | |
| a) | Push the loose end of the wire from the switch into the light box. | |
| b) | Cut off 4" of the outer plastic and strip $3/4$ " of each wire. | Knife & Wire Strippers |

c) Fasten the black wire to a brass screw Pliers and on the light fixture. Screwdriver

d) Fasten the white wire to a silver screw. Pliers and Screwdriver

200
| 4. | LIGHT FIXTURE (Continued) | Tools Required |
|----|--|---------------------------|
| e) | Fasten the ground wire to the ground screw on the bottom of the fixture box. | Pliers and Screwdriver |
| f) | Carefully push the wires into the box. | |
| g) | Screw the light fixture onto the box with the 2 screws. | Screwdriver |

ASK INSTRUCTOR TO INSPECT BEFORE GOING FURTHER

| 5. | FINAL ASSEMBLY | Tools <u>Required</u> |
|----|--|--------------------------|
| a) | Screw the covers onto the switch and the outlet. | Screwdriver |
| b) | Put the light bulb in the fixture. | |
| c) | Plug into isolation transformer to test. | |

MATHEMATICS

| Appliance | Power Used | Appliance F | ower Used |
|------------------|-------------|------------------|--------------|
| Air conditioner | 1300 | Humidifier | 5 00 |
| Blender | 500 | Iron | 1050 |
| Can opener | 150 | Lamp | 60 |
| Clock | 3 | Microwave oven | 6 00 |
| Coffee maker | 750 | Mixer | 150 |
| Dishwasher | 1000 | Radio | 75 |
| Dryer | 4000 | Refrigerator | 30 0 |
| Electric blanke | et 250 | Stereo | 3 00 |
| Fan | 5 0 | Stove, each burn | ner 1500 |
| Freezer | 400 | oven | 40 00 |
| Frying pan | 1100 | TV | 300 |
| Furnace | 9 00 | Toaster | 1100 |
| Hair dryer | 700 | Vacuum cleaner | 900 |
| Heater, portabl | le 1200 | Washing machine | 1500 |
| Hotplate, each h | ourner 750 | Water heater | 4500 |

 Home appliances use different amounts of electricity. Assessing/R Use the chart to answer these questions: Personal relevance/R

.Which 2 appliances use the most electricity? .Which uses the least? .Which appliances do you have? .Add up the power your appliances use.

- 2. Which would use more power to cook a roast, an oven or a frying pan?
- Each number in the chart is the power used in one hour. How much power would it take to run:

.a dryer for 2 hours?
.an air conditioner for 8 hours?
.a TV for 3 hours?
.2 stove burners for 2 hours?
.a washing machine for 1/2 hour?

4. Electrical power is sold by the kilowatt-hour (kwh). Jane used the following number of kwh last week:

Monday 16, Tuesday 10, Wednesday 12, Thursday 17, Friday 11, Saturday 21, Sunday 20.

.How many kwh did she use in total during the week? .If it costs \$.15 for each kwh, what will be her electric bill? 5. Find the total cost of materials for our project. We used the following:

| 1 2 1 1 1 | <pre>piece of plywood light box square boxes switch outlet plug line</pre> | cost: | \$ 3.60 1.90 2.10 each 1.10 1.75 2.35 |
|-----------------------|--|-------|--|
| 1 | light fixture | | 2.00 |
| 2 | covers | | .45 each |
| 1 | light bulb | | 1.00 |
| 5 | feet of wire | | .90 ft. |

LIFE SKILLS/JOB READINESS

1. Discussion questions:

.How much was your last electric bill? .How often do you receive electric bills? .How can you reduce the amount of electricity you use? .What do you check when some outlets or lights do not work? .What are some safety hints for using electricity?

2. Career selection:

.In what jobs would you do wiring? Analyzing/M .Prepare a list of jobs which are related to electricity. Assessing/R

Practical application/P

Personal relevance/R

Verbalizing/R

Relating/R

Problem solving/P

INTRODUCING WELDING

Skiltec: A Generic Trades Training Program for Women

Madeleine Boissonneault, Skiltec 755 Wallace Road, North Bay, Ontario P1B 8G4 705/472-2101

OBJECTIVES

To introduce welding as a generic tool skill. To outline the safety regulations and safeguards. To ease the initial fright and anxiety of the students. To stimulate interest in welding as a possible career option.

PROCESS

Students should learn to solder and to associate soldering with Relating, connecting/R the welding process: the binding of two pieces of metal together.

Personally define welding (e.g., "to me it is an exciting, Personal relevance/R challenging skill that allows me to complete a metal product"; "the first time I approached a welding booth I . . .").

Encourage the students to express their fears and anxieties.

Introduce the machinery and outline the safety procedures. Turn the machine on and off while demonstrating.

Show examples of spot welding done on different thicknesses of metal. Explain how to regulate the heat.

Each student practices running beads one inch long while the instructor supervises. If a student is very scared, guide her hand a few times until the initial tension is eased and she becomes absorbed in her accomplishment.

Draw a chalk line across two pieces of metal and have the students follow this line while welding. This teaches them how to run a bead evenly.

Have them continue to practice until they succeed in making strong, straight welds. They are then ready for production work.

Encourage them to show their welding samples to family and friends. This reinforces the learning.

Verbalizing/R Overview/M Teacher Demonstration/M

Hands-on/P Practice/P Sensitivity to learner/R

Focus/M Practical application/P

Repetition/P

Relating, connectin Completion/P

Computer Literacy

COMPUTER LITERACY

Computers have come into their own as teaching tools. They hold enormous potential for stimulating and enhancing higher-order and creative thinking as well as helping students acquire basic skills.

Computers afford teachers the ability to work with individual learning differences in terms of **pacing**, **competency level**, **hands-on**, **repetition**, **drill**, **sequencing and/or review needs** through the appropriate selection of software. They allow students more control of their learning environment.

Computers are excellent in providing maximum opportunities for practice and refinement, which are basic needs for many students; but they have much more to offer. They can

- .help students overcome fears and anxieties due to past failures;
- .reinforce math, language, science and grammar skills;
- .teach practical life skills (see, for example, George Brown's Computer Life Skills software: The Government Maze, Filling Out Application Forms, and Managing Your Time);
- .motivate and teach through fun, games and graphics;
- .assist slower learners with appropriate personalized experiences, thus minimizing time pressures and retention frustrations;
- .challenge advanced students with a greater variety of information;
- .encourage and expand curiosity;
- .stimulate students to think in a variety of ways; and
- .increase employability as more and more employers want workers who have at minimum a hands-on familiarity with basic computer skills and capabilities.

Following are some of the ways instructors are working with computers in their classroom.

INTRODUCTION TO COMPUTER MEMORY USING THE POCKET CALCULATOR

Intermediate and Advanced

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OBJECTIVES

- To introduce computer memory through useful manipulations on the pocket calculator.
- To help students see calculators as friendlier and more reliable.
- To demystify intimidating formulae.

TIMEFRAME

A few hours.

RATIONALE

Most students are now using pocket calculators but are not aware of the scope, convenience and accuracy available through the memory keys of their instruments. Using the pocket calculator is quick and effective in introducing students to computer memory because of the visual, mental imagery reinforced during this exercise.

PROCESS

Teach how to .store by replacement, .increase or reduce the value in memory, and .how to involve a stored value in a current calculation.

Develop familiarity and versatility by evaluating a variety of algebraic formulae, each with an assortment of keying sequences Rule Presentation/M (alternate approaches or techniques).

Point out procedures which use a minimum of parentheses. Do not allow pencilling (for later reentry) of intermediate results unless absolutely unavoidable.

Demonstrate the storing and accumulating of partial results. Show how this becomes particularly helpful if subsequent items are miskeyed; only the most recent work need be redone.

Practical Application/P

Teacher Demonstrat

Encourage students to start a multi-stage computation at its Experimenting, most complex point, making liberal use of the 1/x and +/- keys Tinkering/P to invert and reverse values as required. Show the existence of guard digits (extra, undisclosed digits for protection of accuracy) as an extra inducement for students to avoid jotting down partial results. Show that the keying sequence M+, -, RM, =, M+, +/- will

exchange the contents of the display and of the memory.

Aside #1: with many calculators, the " = " of the sequence may be omitted. Aside #2: fewer and fewer recent calculators have an "EXC" key which effects this often convenient exchange.

When we move on to discuss computers proper, students are in no doubt about what is meant by "memory" and are comfortably aware of the useful manipulations to which these dynamic entities may be subjected. In our experience, many students want to use the computer as a calculator, so we build on their motivation by starting them out on the computer using equations.

TEACHING COMPUTER LITERACY IN ADULT PROGRAMS: "GETTING READY FOR THE YEAR 2000"

Basic 1+, 2, Intermediate & Advanced

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OBJECTIVES

To give mature students insight into the computer world.

- To establish a friendly, familiar atmosphere so students feel at ease when using or discussing computers.
- To introduce computer vocabulary and functions.
- To enable students to gain confidence with word processing, graphics and spreadsheets through hands-on application.
- To make students aware of other computer-assisted instruction programs.
- To encourage students to "get ready for the year 2000" by learning computers and becoming a part of the flow of our technical achievements rather than remaining alienated or afraid.

PROCESS

Introduce by pointing out everyday devices that incorporate the use of microchips and that the students interact with (appliances, tools, watches, vehicles). The point can also be stressed that the convenience of these devices (e.g., digital watches and clocks) is enhanced by the relatively low price.

Present a brief explanation of the historical development of computers to tie the present with the past (i.e., early use of our fingers, toes, sticks, stones and other counting devices helped us to record and "compute" numbers or figures that helped us survive). A simple sketch and explanation of the use of the Chinese abacus always makes students chuckle because of its simplicity, accuracy and speed. Music boxes, weaving machines and gun development link with today's computers and help to "hook" the sometimes reluctant student.

(Under the most ideal conditions, one-to-one tutoring works the best when the "hands-on" component begins, but that is not always practical. This is also dependent upon the academic level of the student.)

Instructors should make efforts to ensure that the "new" group of learners are as comfortable as possible in a computer lab. Often these labs are cooler in temperature than other rooms so

Personal Relevancy/R

Overview/M

Relating, Connecting/R

Visual/M

Environment Sensitive/R

an early reminder to bring a sweater along alleviates physical discomfort for those who might feel cold. At the same time, a simple reassurance that "these machines will not blow up if you hit the wrong key" eases first tensions and fears. The teacher's own interest and enthusiasm towards computer technology is usually the key factor in assuring students' positive response to computer literacy.

A quick vocabulary listing on the blackboard or overhead screen to familiarizes students with the computer terminology so they can begin to name the components of the system properly. This aids in explanations to the teacher when the student is describing a problem.

If it is possible, a computer system that uses a "mouse" for inputting commands and "pull down menus" makes a world of ease as compared to the more complicated keyboard commands that are required on some systems.

The three main applications that are usually introduced to new computer students are: word processing, graphics and spreadsheets. The level of competence is dependent upon the program, teacher and, indeed, the students themselves. Some instructors prefer to introduce word processing first, while others prefer to use the graphics package. In classes where very few students are familiar with keyboards, graphics is. number one. In situations where students are comfortable with typing and are eager to get into everyday and/or office use of computers, word processing is first.

Another area that should be introduced to students is the computer assisted instruction programs (C.A.I.). These include general tutorials for computer use, and software that ranges from adventure simulations to math, spelling and typing drills. These software programs can often be purchased for a minimal price from computer clubs that have Public Domain material. Most clubs will let you test-run the program and the club experts will help to iron out any problems or changes that you may wish to make. Most retail computer dealers have information as to where and when these clubs meet. Be sure that the type of computer used in the classroom is compatible with the software purchased!

There are also catalogues illustrating and listing a wide variety of material, but sometimes these programs are extremely poor and non-refundable. Make an effort to find someone who has used a particular program and perhaps they can share their insights and comments with you before you commit the computer software budget. When it comes to software: beware. . .and remember that "seeing is believing." Too many teachers are tempted to purchase programs that have an initial visual appeal but become dust collectors after minimal use. Local computer clubs and computer hobbyists are valuable sources of information. Confidence building/R

Modeling/R

Visual/M

Verbalizing/R

Sensitivity to Learner/R

Final remarks before the end of a computer literacy session should include the discussion of the future use of computers in the student's life and in the greater work force. A summation of the advantages and disadvantages of computers connects the student's experience and concerns about a technology that keeps changing. Field trips to places that use computerized lathes Practical Application/P or other computer systems allow the student to witness the practical use of computers in industry and business.

Verbalizing/R Connecting/Relating/R



LIFE SKILLS/LIFE MANAGEMENT

Technology is changing the fabric of our lives, from the personal way we relate and communicate to our public interaction within our jobs and our communities. We can best prepare our students for the 21st Century by teaching them--

> how to think, how to learn, how to be creative.

These major skills must be taught in <u>every</u> discipline; they are by no means the sole domain of a life skills component. However, it is often in the life skills class that the personal links are made which connect the learning to the intended goal.

A life skills course can give specific attention to preparing students to function within the context of the rapid changes that are currently demanded by society. It is in life skills that an understanding of what is happening personally is "drawn out" of the participants in an effort to gain selfknowledge through seeing personal patterns, identifying personal skills and strengths, and establishing personal goals.

Documentation from the Ministry of Education supports this view (<u>Towards the Year 2000</u>: Future Conditions and Strategic Options for the Support of Learning in Ontario, 1984):

A common thread running through most educational research is that a strong and positive personal identity is a psychological prerequisite for successful learning. . . Such a shift implies a reduction in reliance on learning skills related specifically to the mastery of content (most of which depend on linear logic and analytical thinking) to a greater emphasis on learning skills related to the affective domain, interpersonal skills, and the ability to synthesize material. (p. 45)

It is in life skills that the relational dimension receives the fullest attention and support. As Robert Smith (Learning How To Learn: Applied Theory for Adults, Cambridge, 1982.) suggests:

We begin to envision a world of skilled and innovative lifelong learners who possess some of the following characteristics:

vocation: Fulfillment through job and profession for those who seek it; smooth transitions between jobs, roles and careers; productive workers and managers (but not "robots"); **citizenship:** People who are informed about the issues, capable of clear thinking, willing to carry their share of the political and social load, and willing to face such awesome responsibilities as the use of power and resources;

problem solving: A society of problem solvers better equipped to cope with personal and family problems and with the problems of organizations, communities and regions;

personal growth: People who remain open to new experiences and ideas throughout adulthood, who examine life, appreciate the arts, and possess the means for self-expression.(p. 32)

In the following pages, life skills models emphasize personal development in the context of employment preparation, goal setting, thinking and problem-solving skills. These units are geared to helping students recognize how they think, how they learn and how they can be creative so that they will be able to adapt easily to an ever changing work environment.

SELF-ESTEEM

All Levels

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OBJECTIVES

- To teach the concept of brainstorming as a method to focus on an issue and generate individual and group thoughts, feelings and ideas around that issue.
- To work in a concrete, positive way with the students' own feelings about themselves.

To develop group cohesion.

TIMEFRAME

This lesson may be presented in many or few classroom hours, depending upon the instructor and the class. Discussions of some of the topics will take on a life of their own and encompass a whole class hour. This is encouraged, because a show of interest can mean that we have found a sensitive area.

DESCRIPTION

This exercise gets "re-invented" every time it is given because Learner Generated/R it works with each group's personality and energy flow.

PROCESS

Teach the class the concept of "brainstorming". By using Overv brainstorming as a teaching aid, the instructor may insert any ideas considered important, while allowing the class to develop the lesson.

Brainstorm the concept of "self-esteem". The class will generate the majority of the ideas, but the instructor may want to add some; e.g.,

-the ability to give and receive love
-how we see ourselves in relation to others
-the judgement our conscience places on our behaviour
-the difference between the ideal self and the real self

When the definition is complete, discuss each item Idea Development/M thoroughly.

Overview/M

Focus/M Verbalizing/R Relating, Connecting/R

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Brainstorm causes of "low self-esteem". Some examples:
                                                            Verbalizing/R
     -comparing ourselves to others
     -physical appearance
    -being unemployed
    -drugs and alcoholism
     -having a "perfect" sibling
     -lack of education
     -unrealistic standards created by the media
     -divorce
     -colour of skin
     -being handicapped
     -improper parenting
          .too high expectations
          .conditional love
          .neglect (physical and mental)
          .abuse (physical, mental and sexual)
          .favouritism
          .being poor (improper dress, lunches, etc.)
     When students suggest a cause of low self-esteem during Personal Relevance/R
     the brainstorming, there is a good chance that this cause Sensitivity to Learner/R
     is significant to them.
     Sample Discussion: When comparing ourselves to others, we
     are comparing our insides with all our fears and character
     defects to others' polished external veneer that has taken
     many years to construct. How can we win at this game?
     Each cause should be discussed until the class agrees that
                                                                 Repetition/P
     it is not necessary to carry heavy burdens through life
     because of such erroneous conceptions.
Brainstorm the effect that low self-esteem has on our lives.
                                                                  Connecting, Relating/R
Some examples:
                                                                  Verbalizing/R
     -the clothes we wear; where we choose to live
     -the mate we choose; the restaurants we go to
     -the type of work we seek; the number of friends we have
     -anxiety; depression; the ability to experience happiness
     -living as a positive or negative experience
     -compensating for low self-esteem by being loud and
         aggressive
     -fear of participating fully
     -poor mental hygiene; drug and alcohol abuse
    Encourage students to contribute to this list while the
     brainstorming is in progress, but insert own ideas to keep
     the session going until the important topics have all been
    mentioned.
    Discuss each effect at length when the list is complete.
                                                                  Repetition/P
Brainstorm how to improve "low self-esteem". Some examples:
                                                                  Practical Problem
     -dress and groom well
                                                                   Solving/P
     -set realistic goals to improve ourselves (take
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courses,etc)
-define our own morality (what makes us feel good/bad?)
-honestly try to assess how closely we are living to our
 own morality. Where do we need to modify our
 morality? Where do we need to modify our behaviour?

Have a discussion about conscience. Sample Discussion: Part of our brains sits in judgement of every single thing we do. It keeps a ledger with two columns, one being negative and one being positive. All our actions are marked in one column or the other. If we maintain a larger balance in the negative column, we will not feel very good about ourselves. If we maintain a larger balance in the positive column, we will almost surely feel good about ourselves. This is like the old "good news/bad news" syndrome, the good news being that we can improve our self esteem and the bad news being that we will have to be very honest with ourselves and be willing to change. Change takes effort. .

"It has been said that students in literacy programs are, in their essential characteristics, like everyone else. However, while there are healthy, well-adjusted, even wealthy illiterates, adults deficient in basic skills may be prone to economic and health problems, learning disabilities, low self-esteem, and a sense of powerlessness. They may lack faith in education as a prime source of potential help with personal and community problems. . Despite the fact that they have already demonstrated skill in learning in order to have survived, these adults are especially subject to anxiety and doubts about learning ability when entering formal education situations.

Placing his foot on that first step of the schoolhouse is a giant stride for the adult illiterate. To go into the room and sit at a desk demands as much courage for the illiterate as is required of a soldier in the heat of battle. . .[They have to be helped to overcome] their worst fears about themselves - that they <u>could not learn</u>.

The establishment of a climate for minimizing anxiety thus becomes the most crucial condition for learning success in this population." (Smith, 1982, pp. 49-50)

Verbalizing/R

LIFE SKILLS IN A NADAP PROGRAM

Native Alcohol and Drug Abuse Program

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OBJECTIVES

- To provide opportunities for students to see that personal issues are never separate from the community, by developing skills in social analysis.
- To help students move from dependence to independence through a placement project.
- To help students identify and build on their own strengths, evaluate themselves, and develop public presentation and speaking skills through three video-taped teaching units.

PROCESS--DEVELOPING SKILLS IN COMMUNITY/SOCIAL ANALYSIS

Students create the course content focus by bringing in community problems and issues which are confronted in their own living circumstances.

Through guided discussion with the instructor, students move from the personal identification of the feelings associated with the problem or issue which they brought in, to seeing how these feelings are reflected in their community, reserve or band. Emphasis is on analysis skills.

In a small group problem-solving format, students work independent of the instructor 1) to identify and describe a problem and its frustrations, 2) to process the problem and resolution, 3) to discuss ways to build their communities. This problem-solving can result in concrete action by students carried out in their respective communities.

To enhance social analysis and problem-solving skills, the instructor takes students to many regional conferences or assemblies (eg. Conference on Native Violence and Alcoholism or Conference on Racial and Ethno-Cultural Equity). Backup resources are also used (eg. the Alkali Lake video tapes, NADAP Needs Assessment studies and films which anchor students to their culture and their community). Learner Generated,

Focus/M Personal Relevance/R Overview/M

Analyzing/M Verbalizing/R Practical Problem Solving/P

Demonstration/M Modeling/R

PLACEMENT PROJECT

Students come into the program knowing that they will Practical Application/P participate in a student placement at a treatment resource. Students are encouraged to see that the goal of this unit is to help them to move from a position of dependence to one of independence and to transfer learning from the abstract to the concrete.

Direct guidelines are presented for placement: Planning, Organizing/R

- -Student identifies his/her treatment resource
- -Student makes the contact
- -Student structures the initial and subsequent interviews -Instructor provides a cover letter for the student and facilitates the placement only when and as needed by the student.

The instructor is also available at each step for the student to discuss certain points with, but he is careful to let the student lead the process.

VIDEO-TAPED TEACHING UNITS

During the 40-week program, students do a minimum of 3 teaching Verbalizing/R units which they research, plan, resource and communicate. The Practice/P instructor takes them through this process in a series of demonstrations and gives the students exercises for practice of these skills. Students choose the topics of the teaching units and present them to an audience of other students and invited The three units have the following progressive, guests. approximate form:

- 1) 5 minutes, presented alone Time Management/P
- 2) 15-20 minutes, presented alone or with one other student
- 3) 1 and 1/2 hours, groups of three.

The instructor video-tapes the unit and afterwards the student Visual/M and class review certain moments of the presentation in which Assessing/R the student's skills and strengths are most apparent. In this way, students become convinced of their strengths. Without Confidence Building/R noting weaknesses, each student improves, on his or her own, from one presentation to another.

VOCATIONAL COUNSELLING THE MATURE ADULT

All Levels

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Objectives

- To enable the student to examine his/her occupational patterns. To help identify the common threads or themes that exist to
- date.
- To provide a concrete means to assess and build upon work/ life experiences.
- To stimulate creative, expansive thinking.

Description

This method can bring insight to an adult learner who does not see a continuity in his/her life and who is searching for direction. Through the use of visualization and facilitating questions, a common theme emerges (i.e., I've always liked working with my hands).

It is imperative to explain the exercise to the student, saying what it is and why you would like him/her to do it. Proceed only if the student is agreeable and relaxed.

Process

Prepare the student for the visualization by explaining that athletes and business people do it all the time to sharpen their knowledge about their already-developed skills/strengths/ interests and to help determine their next step. Make certain he/she understands that some people "see" things, some "sense", some "feel" and some experience an all-at-once "knowing" that may come immediately or in a few days. The important thing is to relax and go with whatever happens.

Then gently lead him/her through the following, pausing after each question to give the student enough time to formulate a picture or feeling or sensation or thought.

Get comfortably relaxed while sitting up straight in your chair.

Close your eyes and take a few minutes to relax by becoming aware of your breath. Focus on your breathing - bringing the Overview/M

Sensitivity to Learner/R

Pacing/P

air all the way in, deep into your belly; and exhaling slowly and thoroughly, following your breath as it melds with all the other air surrounding you. In - one, two, three; out - one, two, three. Focus/M Now, go back to when you were 5 years old. Try to remember what you were doing. What did you like to play with? . . Relating, Connecting/R . . . Who were your friends? What was your favorite did you admire them? Now, still 5 years old, what did you see yourself doing as a grown-up? Now, move ahead 5 years to your 10th year. As a ten-year-old, Idea Development/M try to remember what you were doing. Etc. Now, move ahead 5 more years to 15 years old. . .etc. to 20 years old. . .etc. to 30 years old. . .etc., etc. Now, come to the present. Who are you now? What do you see yourself doing now? What are your favorite activities? What would you like to be doing now? Creative Imagination/R Forget about what you CAN or CANNOT do - just let your imagination go . . . If you could do anything, what would you do? Now, project yourself 5 years into the future. What do you see yourself doing then? Who are your friends? What are your favorite activities? etc. Now, gently in your own timing, slowly open your eyes and come back to the present. . .remembering all you've experienced. Some facilitating questions might be: Verbalizing/R -How was that for you? Any surprises? Personal Relevance/R -What did you see yourself doing now? 5 years from now? Encus/M -Did you experience anything you did/liked/wanted to be that seemed to be there no matter how old you were? Note: Be open to a wide variety of ways to help the student Sensitivity to Learner/R bring clarity to the experience. For some, the recounting of the visualization is most beneficial; for others, drawing it may be important; and others may find it helpful if you record their words for them and give the paper to them to take home. Encourage her/him to think about the experience over the next Focus/M couple of days to see if it will lend further clarity into the career assessment process. Schedule another meeting with the student, building upon her/his reflections on the visualization and facilitating

her/him to the next step.

INTRODUCTION TO GOAL SETTING

Career Planning/Employment Skills

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OBJECTIVE

To help students enter a unit on goal setting with confidence and to teach them how to draw on what they already know.

PROCESS

During the first class, ask students to write down a goal or an Focus/M achievement they've already reached. In literacy classes, do this verbally.

To help them find the language to relate the goal or Objectivity/M achievement to goal-setting, ask them to complete the sentence,

"I achieved this goal by-----."

Ask them to write down what they want to say. Then ask each Verbalizing/R person to tell the rest of the class. As each student speaks, the instructor writes on the board what each says, eg. "stepby-step, perseverance." Usually the list will include most of what they will be working on in the goal-setting unit. The instructor points out that they already know how to reach goals, so they can go into this topic with confidence. Confidence Building/R

REFERENCE

A complete module on goal-setting can be found in <u>Career</u> <u>Planning Guide (Workbook)</u>, School of Career Development, Georgian College, 1987.

RESUME PREPARATION

All levels

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OBJECTIVES

To consider the purpose of a resume.

- To identify the characteristics of an effective resume (i.e., attractive, clear, easy to read, complete, accurate, focused, grammatically correct and unique) by examining sample resumes with regard to appearance, content and style.
- To determine what information must be included in a resume.
- To organize and present the information clearly and effectively.
- To design a format that uniquely reflects the individual's personality and qualifications.
- To produce a clear, concise, distinctive resume.
- To be able to revise or rewrite effective resumes in the future.

DESCRIPTION

This method is very thorough (takes 8-10 hours) and teaches many practical life skills (thinking, analyzing, resourcefulness, self-evaluation, following directions, clarifying information, independent and cooperative decision-making skills) as well as drawing upon reading, writing, vocabulary, grammar, computer, and formatting skills.

Interests, skills, strengths and goals assessment exercises should be completed prior to the writing of the resume.

PROCESS

Brainstorm the purpose of a resume, what should be included, Verbalizing/R and how it differs from an application form.

Focus/M

Give a true/false guiz on what should be included.

Homework assignment: Class is to read over a long (5-page), Assessing/R badly organized example of a real resume, and to answer the following questions: (1) What are the person's qualifications? (2) What job is she applying for?

Class discusses above and then is given a new 2-page resume for the same person. They discuss the changes and how the revised Modeling/R version makes the resume much more relevant and readable. Students work in pairs to review 15 real resumes, all of which Peer Learning/R were received in application for the same job. They are not to read them at this time, but instead focus on the format and Overview/M attractiveness. The class discusses what each pair discovered and what they liked/disliked about each. Then the class looks at magazine ads, discussing which ones Assessing/R they find attractive (usually those that are bold and simple grab their attention immediately), and comparing the lay-outs to resumes ("self-advertisements"). From these, they brainstorm a list of qualities that make up a successful/unsuccessful resume. Since 17 seconds is the usual time someone takes to review a resume, the implications for the importance of the first page and the attractiveness of the resume are considered. (Note: 4-1/2 to 5 hours to this point) They are then given a job ad to study and asked to list all the stated and hidden qualifications. For homework, they read the 15 resumes that responded to this Repetition/P ad, focusing on the content and deciding on 5 they feel closely Assessing/R match the requirements of the ad. The class is divided into hiring groups, and each group chooses the three resumes they would initiate interviews from, discussing why (pleasing to look at, easy to read, unique, Verbalizing/R qualifications matched well, etc.) and what this means to them for their own resume. They list all the information included in the resume and Rule Application/P discuss the order in which the information has been presented. They decide what is essential in a resume, what an individual may wish to include, and what is better omitted. Returning to the 15 resumes, they then identify possible Examples of a functional and a chronological resume styles. are compared as to how the information is organized. They then look at an example of a modified functional resume. Their homework is to read handouts describing chronological, Assessing/R functional and modified versions of resumes and to be prepared to discuss which style they might choose. They read and discuss a handout that outlines the psychology Verbalizing/R . behind a resume.

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Repetition/P Stylistics (headings, bold face, underscore, space, use of capitals, action verbs, positive adjectives, etc.) are reviewed. They then fill out a form that elicits the basic information Personal Relevance/R about themselves (this gives them something to translate into a resume). Each student rough-drafts a personal resume and types it out on Hands-On/P the computer (this gives computer practice and makes the copy easily correctable). Each student works with a partner (optional) and a critique Peer Learning/R form to review and revise the draft. Verbalizing/R Assessing/R Usually 2-6 drafts are done before it is shown to the instructor. Repetition/P When ready, each draft is passed around the group for final Assessing/R polishing and comments. The result is that every resume is unique, thorough and attractive, and each student is well prepared to proceed to the next stage: interview practice.

CAREER/LIFE PLANNING: IT'S ALL CONNECTED

All Levels

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OBJECTIVES

- To stimulate students to internalize the interconnectedness of the "parts" of their lives.
- To set a framework that encourages clear thinking and better decision-making.
- To provide an opportunity for class interaction and bonding.

DESCRIPTION

Generally what tends to happen is that each student will make only two or three one-line connections at best while they are doing the worksheet by themselves. Doing the exercise as a group, innumerable connections are made as each group member begins to see for themselves that "it's all connected."

This is also a good lead-in to a discussion on the benefits of working with a group - "the whole is greater than the sum of its parts."

PROCESS

Give the students the worksheet (see next page) and have them Relating, Connecting/R follow the directions. This can be assigned as homework or done in class in about 10 minutes.

Then, using the blackboard, a flipchart or an overhead projector, work with the class to map the interconnections. Invite personal examples of each to illustrate more fully. Add anything the class contributes to the list.

End with a general discussion on the fact that there are many Overview/M guidelines and skills that can help us in all our life/ career planning and that these can be learned.

Personal Relevance/R

Visual/M Verbalizing/R Learner Generated/R

CAREER/LIFE PLANNING IT'S ALL CONNECTED . . .

Look over the items below. Can any of the items on one side be connected to any on the other side? Example: Does the amount of self-esteem you have make a difference in your everyday life with your family or the courses you choose to take? If so, make the connections with a coloured line. There may be many connections. Look closely for all of them.

| GENERAL | Family | Self-Esteem |
|------------|-------------------|----------------------|
| | Relationships | Self-Awareness |
| | Volunteer Work | Sex-Role Awareness |
| | Interests | Communication |
| | | -Assertiveness |
| EDUCATION | Choosing Courses | -Listening Skills |
| | Application Forms | -Self-Disclosure |
| | Financial Aid | Values Clarification |
| | Upgrading | Time/Money/Stress |
| | Testing | Management |
| | e | Risk Taking |
| | | Problem Solving |
| JOB/CAREER | Job Exploration | Decision Making |
| | Resume Writing | Goal Setting |
| | Interview Skills | Personal Appearance |
| | Job Change | Motivation |
| | 5 | Attitude Awareness |

PREPARATION FOR THE JOB INTERVIEW

Intermediate

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OBJECTIVES

- To begin to prepare the student for the spontaneous public speaking that occurs in the job interview situation.
- To establish a comfortable, non-threatening environment for students to explore the effects of thinking "on their feet".
- To provide opportunities for positive self-evaluation and feedback that ensures growth.

TIMEFRAME

Allow approximately 10 minutes per student (3 minutes presentation; 3 minutes questions; 4 minutes evaluation).

PROCESS

Prior to this exercise, the students have done an extensive Sensitivity to study of group dynamics. We have reviewed the positive and Learner/R negative characteristics of the group approach and decided on a code of conduct. The participants are well informed on positive group behaviors and the roles of a good listener. At this point, a tight, cohesive group has been formed, thus providing a much-needed support network.

Chairs are set in a circle.

Brief introduction of the need for impromptu speaking as a preparation for job interviews (as well as many other occasions in our lives). Discuss the need to have an introduction, a body and a conclusion.

Each student writes a topic on a piece of paper. The papers are collected and placed in a container.

One by one each student picks out a topic and talks about it for 1-3 minutes. One to 2 minutes is allowed for preparation.

The group then asks questions on the topic, and the presenter responds.

Environment Sensitive/R

Overview/M

Personal Relevance/R Rule Presentation/M

Learner Generated/R

Verbalizing/R

Focus/M Idea Development/M After this, the informal evaluation/feedback occurs. It is important to note that since spontaneous public speaking causes much anxiety in most students, considerable care and consideration is given to establishing a relaxed, "fun" and non-critical atmosphere. It is imperative that <u>only positive</u> feedback is given to each student at the critical first stage. That way students begin to focus on their strengths and continue from there. Negative or "constructive" criticism at the beginning will do much more harm than good as the human tendency is to know very clearly all the things we <u>don't</u> do well and few of the things we do well. It is on the positive that we build.

Assessing/R

Sensitivity to Learner/R

Confidence Building/R

PREPARATION FOR OCCUPATIONAL INTERVIEWING*

Basic 2+

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Objectives

To focus and bond the group.

- To identify resistances to job interviewing and methods to resolve them.
- To develop practical questions that will elicit appropriate information.

To practice interviewing skills in a supportive environment.

To gain understanding of what interviewers are looking for.

Timeframe

Preparation for doing the interview takes approximately 2 hours; then time is needed for group debriefing after the interview has been completed by each student. If videotaping is done, more time is added.

Process

Prepare an Autographs Worksheet* or a variation, depending on the size of the group. Have individuals interview each other to find a person who fits one of the categories or conditions found on the worksheet. As soon as they identify the person, have them obtain that person's autograph on the appropriate line. Then move on to find a description that matches another Repetition/P classmate. They must have a different autograph for each item. Sample descriptions:

Relating, Connecting/R

- Reads poetry: _ 1) Used to smoke, but stopped: 2) 3) Likes to dance: Appears to be friendly: 4) Prefers to work alone: ______ Is from a large family: _____ 5) 6) _____
- 7) Was born outside Canada:

^{*}This exercise has been adapted from the YWCA Life Skills Manual. Detailed worksheets are included in the book.

Lead a large group discussion of how each student filled Verbalizing/R his/her sheet. Some facilitating questions that uncover Assessing/R reluctances to "impose" on others: .Was it hard/easy? Why? .Were you the asker or did you wait for others to ask you? .How did it feel to ask questions? .How did it feel to answer questions? .What are some of the benefits of asking questions? Link to doing occupational interviews. Then have class Relating, Connecting/R brainstorm the pros and cons of doing interviews and what questions are valuable to ask employers. Use blackboard to Overview/M develop a thorough list of appropriate questions. In partners, have each practice being the interviewee and Verbalizing/R interviewer, using the questions listed on the board. It is Practice/P most helpful if the interviewer role-plays a specific employer their partner would like to approach. Make it as realistic as possible. When they both have had a turn at interviewing, have them talk Personal Relevance/R to each other about how the exercise was for them. In the large group, ask for feedback about the exercise and Practical Problem generate a list of helpful suggestions for various problems Solving/P that are brought up (i.e., if someone has never held a job, they could talk about interests and hobbies, etc.). Have individuals practice filling out a Vocational Interview Practice/P Report (see YWCA Life Skills Manual for an example) which helps Clarity/M them to record what they learned from the employer, their own experience, and how they are feeling about this job/themselves as a result of the interview process. Conduct a short group discussion on any insights, questions, or Verbalizing/R comments. Then give a break. In the large group, discuss how to arrange an interview (it is Overview/M ideal to have handouts to use as guides; one version is found in the YWCA Life Skills Manual). Have them work in triads (one is the caller; one is the Peer Learning/R employer; one is the observer) to practice setting up an Practice/P interview. (If desired, this can be videotaped and played back Verbalizing/R as excellent feedback.) Have triads debrief after each "call", asking caller how that was for him/her first, then giving positive feedback and suggestions for improvement. Have each one decide on a prospective job interview they will Focus/M arrange and carry out, either in person or on the phone. Time Management/P Establish a deadline when the Vocational Interview Report is Completion/P due.

TEACHING THINKING SKILLS THROUGH LATERAL THINKING EXERCISES*

All Levels

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Objectives

To teach decision-making and problem-solving skills.

To expand the student's ability to consider the many possibilities and consequences of any anticipated action so as to make an informed decision.

Description

The brain works by organizing information into patterns. Once the patterns are formed, it becomes possible to recognize them, to react to them, to use them. The more frequently the patterns are used, the more firmly established they become.

The procedure of getting up in the morning demonstrates the usefulness of the patterning mechanism. You develop a sort of code--you don't have to recognize all the elements of a pattern; you just have to recognize the code for the whole pattern to begin to operate.

There are, however, some disadvantages to this type of situation. It is extremely difficult to restructure items because the pattern controls the attention. Humour and creativity are two examples of tools that allow restructuring of patterns and escape from limited thinking.

Lateral thinking is a process with specific tools that can be easily taught/learned and practised to increase creativity and breadth of perception. This, in turn, can lead to attitudinal changes and alternative approaches.

The specific tools suggested by Edward deBono can be helpfully applied to (1) generate new ideas, (2) problem solve; (3) design outcome(s); (4) alter perception and perceptual choice; (5) periodic re-assessment and (6) prevent sharp divisions and polarizations.

^{*}All of the ideas and processes described are taken from the various works of Edward deBono, especially <u>Cort Thinking:</u> Teacher's Notes.

Process

The specific examples that follow reflect ways to apply lateral thinking methods to meet the career selection and life-skills needs of students. The specific tools are applicable to a wide range of subjects/areas, limited only by the instructor's imagination.

PMI (Pluses, Minuses, Interesting Points)

The purpose of PMI is to counter the natural tendency to take a view based on emotion and then to use thinking only to back up that view. PMI forces an individual to examine an issue from several specific viewpoints.

1. Briefly explain the purpose of PMI.

Divide a large sheet of flip chart paper into three 2. vertical columns. Label the columns "Pluses", "Minuses" and "Interesting Points".

3. Working either individually or within a group, focus attention on a non-threatening topic for the practise exercise. An example is: Consider the issue of taking on a part-time job while continuing to attend school fulltime.

Brainstorm first all the pluses (or advantages), then all 4. Verbalizing/R the minuses (or disadvantages), and, last, all those points Objectivity/M which are neither pluses or minuses but that are interesting. You may end up with something like this:

| Pluses | Minuses | Interesting Points |
|-------------------|---------------------|----------------------|
| .more income | .might interfere | .might lead to full- |
| .gain work exp. | with school work | time employment |
| .greater social | .family problems | .might lead to |
| interaction | might develop | different career |
| .make network | .might mean loss of | goal |
| contacts | financial support | .how will it affect |
| .gain self- | from sponsoring | school attendance |
| confidence | agency | .might have to set |
| .gain sense of | .might create | priorities re job/ |
| responsibility | health problems | family/school |
| .learn time mngmt | .too much pressure | |

Discuss the brainstormed items, clarifying and weighing 5. their importance. Discuss how some of the minuses can be minimized, especially if someone is suddenly in the position of having to work part-time.

Have each individual consider the information for 6. him/herself and decide whether or not a part-time job while attending school would be a good idea. The resolution for each person will be quite individual.

Assessing/R Practical Problem Solving/P

Personal Relevance/R

Overview/M

Visual/M

Focus/M

Some examples of other PMI topics of interest to students are:

-Consider the idea of doing interest interviews (i.e., talking to someone with first-hand knowledge) when exploring a particular career field.
-Consider the idea of doing aptitude tests when contemplating a career change.
-Consider the idea of doing a work placement when examining a particular job.

C & S (Consequences and Sequels)

The purpose of C & S is to focus on the possible consequences of a decision.

1. Briefly explain the purpose of C & S and give an Dverview/M illustration from history (ancient or contemporary) to demonstrate the benefit of considering consequences before acting.

2. Divide the group into four smaller clusters. Have each Peer Learning/R cluster select a recorder and reporter. Assign each cluster a time frame: immediate; short-term (1-5 years); medium-term (5-25 years); long-term (25+ years).

3. Select a relevant topic to be a <u>practise</u> exercise. For Focus/M example: What do you think the C & S would be for a 12-yearold who leaves school? Dejectivity/M

4. Each cluster examines this question within the time frame Time Management/P they have been assigned.

5. After 5-7 minutes, have each cluster report to the larger $% 10^{10}\,\mathrm{Verbalizing/R}$ group.

6. Follow with a general discussion, asking the group such Analyzi questions as: Do long-term consequences matter? When is it Relation most useful to examine possible consequences?

Some examples of C & S topics of interest for OBS students are:

-Do a C & S on giving up a full-time job to return to school.-Do a C & S on taking a full-time summer course even

though you are a single parent. -Do a C & S on accepting a job that requires your family to move to another location.

Analyzing/M Relating, Connecting/R

Evaluation & Testing

EVALUATION AND TESTING

As educators we need to remember that assessment procedures should benefit the learner. Learning is enhanced when the evaluation or testing gives feedback that

- .enables students to be explicit about what they are learning and how it is relevant to their own purposes; .allows them to test out new learning in real-life
- situations;
- .helps them identify their learning needs and interests; .encourages them to take control of their own learning process.

There are many ways we can minimize the threat that students associate with testing. So much is dependent upon the attitude of the teacher: if the teacher believes tests are primarily to reward the "brightest" (often those who can memorize easily) while embarrassing the rest into more serious diligence, or to have the students regurgitate what has been "fed" them, or to "weed-out"--then the tool is being misused. On the other hand, if the teacher believes that **tests are primarily for the student's self-assessment and knowledge and to aid the instructor's understanding of what is or is not happening in the learning process for each individual,** then the tool is being well used and loses its threatening qualities.

Most evaluation has been traditionally carried out within the mental dimension. Tests geared to determining the quantity of content covered, precision drills, true/false, multiple choice, fill-in-the-blank, analogies, critical thinking skills, and comparisons are all **assessments of the mind**.

Discussion questions, essays, case studies, storytelling, journal keeping, self-evaluations, teacher/peer/mentor feedback, learning contracts, and use of appropriate terminology are tools that are used to evaluate the relational system.

Projects which demonstrate a skill or an application or a change in behaviour, require thoroughness, completion and resourcefulness, and can be judged by standards of quality and degree of refinement test the physical dimension.

Important in all areas of study is the development of evaluation procedures and tools that provide feedback for all three dimensions, not just the mental. When this happens, the needs of relationally-centred and physically-centred students are being recognized and respected.

The examples that follow are models that exemplify these principles.
TECHNIQUES TO SUPPLEMENT STANDARD TESTING PROCEDURES

All Levels

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PROCESS

Many students are reluctant to write tests for a variety of Se reasons: a history of test failure, test anxiety, lack of self-confidence or a threatening classroom atmosphere.

From time to time, the alert teacher will notice that a student is having difficulty with tests and standard test procedures. This presents a perfect opportunity to utilize some new and creative test techniques.

Most students come to the course carrying with them memories of failed tests. They are already well conditioned to failure. It is up to the teacher to break the cycle and encourage new, successful test-taking experiences. Tests can be seen as insurmountable obstacles to students who suffer from test anxiety or a lack of confidence. They may put off writing a test as long as possible, offering excuses of nonpreparedness. These individuals need to be encouraged to get over the first test hurdle and prove to themselves that they are capable students.

Probably one of the most difficult areas for the teacher to deal with is the threatening classroom atmosphere. What may seem normal to the teacher may be frightening to some students. Stern body language, brusqueness, an indifferent attitude, even misused humour can affect some students adversely. They may try to avoid contact with their instructor and fail to ask for help.

It is important to ensure that tests are used to build student self-confidence and not set up as barriers to further progress. Students should be encouraged to learn through their mistakes and be encouraged to see tests as an opportunity for individualized instruction in areas that need more review.

Practical Application/P

PROCESS

"Talk through" a test with a student. Sometimes students with <code>Verbalizing/R</code> good listening skills can understand more clearly what is <code>Clarity/M</code> required when they are tested orally.

Sensitivity to Learner/R

Try assigning the test in "bite-sized" pieces. Students gain Confidence Building/R self-confidence after getting a couple of questions correct and can go on to surprise themselves by doing very well on a test they feared.

Watch out for "test avoiders". Encourage these students to write tests even if they are not completely prepared. They may use this excuse to put off tests indefinitely.

Make sure to take up tests with students. This helps students Personal Relevance/R learn from mistakes and do better on the next attempt. It Focus/M allows some extra, personalized instruction time on specialized topics.

MAKING ACADEMIC LEARNING CONCRETE: EVALUATION

Basic 1

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EVALUATION

Use as much concrete, positive reinforcement as possible. Personal tracking cards and displaying completed units motivate the student to continue. Periodic reassessment of all areas of study helps the student see their achievements and therefore feel successful. This is key to improving self-confidence and risk-taking skills.

Confidence Building/R Focus/M Assessing/R Objectivity/M

Following are two examples of possible formats.

Example 1

STUDENT OPTION SHEET LEVEL 1 (6 WEEK REVIEW)

| Student Name: | |
|---------------|------|
| Career Goal: | |
| Start Date: | |
| End Date: | |

OPTIONS

| Communications | In Progress | Complete | Completion/P |
|---|-------------|----------|--------------|
| Alphabet | | | |
| Phonics | _ | | |
| Alphabetizing | | _ | |
| Skill Development Series Reading Comprehension | | | |
| | | | |
| Critical Reading/Thinking | | | |
| Corrective Spelling | | | |
| Listening Skills | | - | |
| Oral Presentations | _ | | |
| Conversational Skills | | | |
| Interviewing Techniques | | | |
| | | | |

| Job Search Resume | | |
|----------------------|---|---|
| Ito build | | |
| Pocket Resume | _ | - |
| | | |
| Covering Letters | | _ |

Comments:

| Mathematics | |
|--------------------------|-------|
| Whole Numbers | 1.000 |
| Addition | |
| Subtraction | |
| Multiplication | |
| Division | |
| Fractions | |
| Decimals | |
| Metric Measurement | |
| Money Management | |
| Percentage | |
| Ratio/Proportion | |
| Negative Numbers | |
| Combined Operations | |
| Introduction to Geometry | |
| Introduction to Algebra | |
| | |
| Computer Skills | |
| Orientation | |
| Macpaint | |
| Macwrite | |
| Data Storage | |
| Data Retrieval | |
| Hard Copy Production | |
| Word Processing | |
| | |

Comments:

Example 2

SIX WEEK EVALUATION FORM

| Name: | | Date: |
|-------------|---|-------|
| Start Date: | | |
| End Date: | | |
| Instructor: | · | |
| Attendance: | Days in programme to date: Unexcused absences: Permitted absences: Late: | |

| Assessment: | Above <u>Average</u> | Average | Area of Difficulty |
|----------------------------------|-------------------------|---------|-----------------------|
| Attitude | | | |
| Effort | | | |
| Progress Ability to Work in | | | |
| Small Groups Participation in | | | |
| Discussions Ability to Handle | | | |
| Problems | | | |

Comments:

TESTING

Intermediate and Advanced

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DESCRIPTION

After the preliminary intake assessments (ABLE and DRP), I Assessing/R administer a test I have personally developed which helps Objectivity/M pinpoint both strengths and weaknesses and further clarify an Clarity/M individual's plan of action.

In addition, I have been using the 7-minute Reading Progress Scale test since September. To date I have found a 100% correlation to the one-hour ABLE and DRP tests.

PROCESS

One Example from each part of my own test is as follows:

ENGLISH

A) <u>Punctuation</u> (make any changes or additions necessary)

.Theres to be an inspection of the students lockers.

B) Sentence Structure (underline the correct choice)

.We don't (loose, lose) more (than, then) five dollars.

C) <u>Sentence Form</u> (rewrite only the sentences that are incorrect. You may add to the sentences)

.Quietly munching hay I watched the horses in the pasture.

- D) <u>Paragraph Writing</u> (make a plan for <u>any one</u> of these topics. Then write a rough draft. Write a final copy in good form. Hand in the plan, the draft and the final copy. Instructor will supply paper.)
 - .Examples of topics: responsibilities of a parent; Persona why every family should have a pet; why I am returning to school; topic of their own choice.

Personal Expression/R

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E) Spelling Test

Writing plural forms of words
Adding ei or ie to spell words
Adding al or el or le to spell words
Writing the correct spelling of words with a letter ommitted
Writing words which contain a common prefix
Defining OR using given words in a sentence
Counting the number of syllables and dividing the words into syllables
Writing the word which stands for each given abbreviation.

MATH

.Addition, multiplication, subtraction, division, fractions, decimals, rounding off, equivalent values, negative numbers, algebra and factoring are all included (one or two examples of each). Rough work is to be shown.

Practical Application/P

REFERENCE

Carver, Ronald P., <u>Reading Progress Scale</u>, 207 West 116th Street, Kansas City, Missouri 64114, 1970.



APPENDIX

OVERVIEW OF THE MENTAL, RELATIONAL AND

PHYSICAL STYLES OF LEARNING*

MENTALLY-CENTRED LEARNING

Mentally-centred learners use the visual to stimulate learning. These learners focus on the idea, the theory or the data rather than on people or action. They tend to learn what they value. They appear to depend more on their value system than on personal experience or feelings in deciding what is important to them. Some instructors have worked with students to help them expand their value system and thereby increase their effective participation in educational experiences. Once they value a subject to be learned, these learners, more than the other two groups, are content to work in a solitary manner; many students have no difficulty in remaining focused on what they are learning, no matter how long it takes.

These learners respond well to ideas and content which are validated by documentaiton or authorities. Their objectivity allows them to develop overviews and abstracts of what they are learning.

In the learning process, language and communication are used to ask questions, probe issues, debate and discuss theories and ideas.

RELATIONALLY-CENTRED LEARNING

Relationally-centred learners use the auditory faculty to intensify learning. These students need interaction in the learning process; conversing back and forth with the instructor or other students helps sustain attention and involvement. This group starts by speaking from the personal point of view-their experience of what they are learning, their feelings about it and the difference it will make in their lives. When they are personally encouraged, they respond positively. Personal stories from instructors about how they learned stimulate these students.

^{*}This information on learning styles is directly attributable to S. Seagal (Human Dynamics, Topango Canyon, Ca.). This section entitled "Overview" is taken from C. Brooks, <u>Kina</u> <u>Waabge: The Circle of Learning</u>, 1987, pp. 12-15.

Because feelings are a vital aspect of their openness to learning, it is important for them to feel relaxed in the environment and to feel good about themselves. The sensitivity of this group is notable. When students feel at ease and centred, this sensitivity heightens the degree to which they learn. When their sensitivity is threatened or is vulnerable, learning is more difficult.

Relationally-centred learners accommodate well to variety and diversity. Creative art processes are often effective routes to learning for this group.

PHYSICALLY-CENTRED LEARNING

Physically-centred students learn best when their learning is part of the whole context. They prefer to concentrate on the task, on the doing. Many of them have said that if they can watch someone do something, they can do it themselves given enough time for practice and repetition. Comprehensiveness is a prime value in the process.

Verbal communication does not appear to be necessarily central in the learning process. Information may be transmitted discreetly, indirectly or non-verbally, but when an instructor uses words to introduce a lesson, it is helpful if the words are concrete and to the point and do not overload students. These students appear to gather considerably more data than students with other learning styles; carefully chosen words in explanations facilitate the learning process.

Having enough time to practice and complete tasks is essential for these learners. There is an inclusive, thoroughgoing aspect, a largeness in what is undertaken that may sometimes require more time than for the other two styles. The physical rhythm may be more measured than it is for the other styles. The pacing of learning exercises in North American schools often does not suit the style and needs of the phsycially-centred learning process. Sometimes these students may be mistakenly placed in remedial classes. Given correct conditions to support their learning, these students work effectively and excel.

Physically-centred students are most at ease in the learning environment when their strong sense of belonging to a community, group or family is acknowledged. Their identity is congruent with the group they are part of. When the group is appreciated in the learning environment, these students' identity is positively effected; when the group is injured or not integrated into the learning process, students experience discontinuity and disruption. There are two aspects for consideration in the identity issue. <u>First</u>, students' identity is enhanced by positive cultural content. <u>Second</u>, students respond to learning more readily when their class has bonded; life skills techniques and small task-group formats are particularly helpful. In addition to the issue of enhancement of identity, there is incorporated in this strong sense of belonging a need to have their learning be of practical use to their group.

SUMMARY

While the initial processing of information is experienced differently by the three groups, it is important to remember that the whole process includes all three dimensions--mental, relational and physical--fully interactive.

The purpose of this learning styles work is to help people develop all aspects of themselves by understanding more clearly their own processes. Bibliography

BIBLIOGRAPHY

This bibliography is divided into two sections: 1) Editors' bibliography on Learning and Related Issues; 2) Instructors' bibliography on Communications, Math, Science, Integrated Units, Life Skills, Computer Literacy, Trades and Technology, and Evaluation and Testing.

LEARNING AND RELATED ISSUES

- Adair, M., <u>Working Inside Out: Tools for Change</u>, Wingbow Press, 1984.
- Baker, R., Dixon, N.M., & Kolb, D, <u>Personal Learning Guide</u>, McBer & Company, 1984.
- Benton, I., Stalking the Wild Pendulum, Bantam, 1977.
- Brooks, C., <u>Kina Waabge: The Circle of Learning (Learning</u> <u>Styles in Native Adult Education Programs</u>, Nokee Kwe Occupational Skills Development Program, London, & Ontario Ministry of Skills Development, Toronto, 1987.
- , Instructor's Handbook: Working With Female Relational Learners in Technology and Trades Training, Fanshawe College & Ontario Ministry of Skills Development, 1986.
- Burton, L., "Women and Mathematics: Is There an Intersection?" International Organization of Women and Mathematics Education Newsletter, Vol. 3, #1, April 1987, pp. 4-7.
- Capra, F., The Turning Point, Bantam, 1982.
- , The Tao of Physics, Bantam, 1975.

Cetron, M., et al., Schools of the Future, McGraw Hill, 1985.

- Combs, A., "The Humanistic Approach to Learning of Adults," in <u>Adults As Learners</u>, ed. by Bretner, et al., Penn State University, Conference Proceedings, May 1976.
- Cornette, C., <u>What You Should Know About Teaching and Learning</u> <u>Styles</u>, Phi Delta Kappa Educational Foundation, Bloomington, Indiana, 1983.

- Cross, K.P., "Patterns of Adult Learning and Development," in K.P. Cross, <u>Adults As Learners</u>, Jossey-Bass, San Francisco, 1981.
- Dance, T., "Community-Based Training for Women in the New Technology," Address to the World Congress on Education and Technology, Vancouver, B.C., May 1986.
- Dennison, P., & Hargrove, G., <u>Personalized Whole Brain</u> <u>Integration</u>, Edu-Kinesthetics, Inc., Glendale, California, 1985.
- Dennison, P., <u>Switching On: The Holistic Answer to Dyslexia</u>, Edu-Kinesthetics, Inc., Glendale, California, 1981.
- de Bono, E., <u>CoRT Thinking: Teacher's Notes</u>, Pergamon Press, Willowdale, Ontario, 1986.
- _____, Lateral Thinking, Harper and Row, 1970 (and any of de Bono's more recent work).
- Dixon, N., "The Implementation of Learning Styles Information," Lifelong Learning, Vol. 9, #3, Nov. 1985, pp. 16-18, 26.
- _____, "Recognizing Learning and Teaching Styles: Who Is Responsible?" <u>Community College Frontiers</u>, 1980.
- Dunn, R. & K., <u>Teaching Students Through Their Individual</u> Learning Styles: A Practical Approach, Reston, 1978.
- Edwards, B., Drawing on the Right Side of the Brain, 1979.
- Ellis, D., <u>Becoming a Master Student</u>, College Survival, Inc., Rapid City, S.D., 1984.
- Fales, A., "Learning From Experience," University Education News, Vol. 2, No. 2, Toronto, December 1981.
- Ferguson, M., "Liberating Knowledge: News from the Frontiers of Science," <u>The Aquarian Conspiracy</u>, J. P. Tarcher, Inc., 1980, pp. 145-187.
- Freeman, M., "The Teacher as Midwife," Faculty of Education, Queen's University, Kingston, Ont.
- Griffin, V., "Learning Theories: Comparisons of 4+ Major Categores of Theory)," Department of Adult Education, OISE, Toronto (Unpublished paper), 1976.

Halpern, S., Sound Health, Harper and Row, 1985.

Hammer, Signe, "Stalking Intelligence," <u>Science Digest</u>, Vol. 93, #6, June 1985. Huder, J., The Tao of Leadership, Bantam, 1985.

- Huff, P. et al., <u>Teaching and Learning Styles</u>, OSSTF, Troonto, Ont., 1986.
- Hunt, D., Beginning with Ourselves: In Practice, Theory and Human Affairs, OISE Press, Toronto, 1987.
- Hynes, M., <u>Access to Potential: A Two-Way Street (An Educa-</u> <u>tional and Training Needs Assessment of Metro Toronto's</u> <u>Diverse Racial and Cultural Communities</u>, Interim Report, George Brown College, Toronto, July 1987.
- Joudry, P., <u>Sound Therapy and the Walkman</u>, St. Peter's Press, Muenster, Sask., 1984.
- Keirsey, D., & Bates, M., <u>Please Understand Me: Character and</u> <u>Temperament Types</u>, Prometheus, 1978.
- Keller, E., <u>A Feeling For the Organism</u>, W.H. Freeman and Co., N.Y., 1983.
- Kolb, D., et al., <u>Organizational Psychology: A Book of</u> <u>Reading</u>, Prentice-Hall, 1983.
- "Learning For Our Times," The Royal Bank Letter, published by the Royal Bank of Canada, 1986.
- Livingstone, C. and K. Richardson, <u>The Needs of Community-Based</u> <u>Training Programs for Women in Metro Toronto: Some</u> Recommendations, ACTEW, Toronto, Ont. 1985.
- MacLean, H., "Experiential Learning," University Education News, Vol. 2, #2, Toronto, December 1981.
- MacLean, H., & Denis, M., "Reflection and Learning," University Education News, Vol. 2, #2, Toronto, December 1981.
- McCarthy, B., The 4Mat System: Teaching to Learning Styles With Right/Left Mode Techniques, Excel, Inc., 1980.
- McCoy, V., "Adult Life Cycle Change," <u>Lifelong Learning: The</u> <u>Adult Years</u>, 1977.
- Naisbitt, J. & Aburdene, P., <u>Re-Inventing the Corporation</u>, Warner Books, 1985.
- Ostrander, S. & Schroeder, L., Superlearning, Dell, N.Y., 1979.
- Pagals, H., The Cosmic Code: Quantum Physics as the Language of Nature, 1984.

- Palmer, A., "Learning Cycles: Models of Behavioral Change," Annual Handbook for Group Facilitators, University Associates, 1981.
- Parker, P., "Community, Conflict, and Ways of Knowing: Ways to Deepen Our Educational Agenda," <u>Change: The Magazine of</u> <u>Higher Learning</u>, Vol. 19, #5, Sept/Oct. 1987, pp. 20-25.
- Participatory Research Group, Series of Instructional Manuals, 229 College St., Suite 309, Toronto, Ontario M5T 1R4. (Excellent manuals for basic classes, adaptable to a variety of subject areas.)
- Seagal, S. & Horne, D., <u>The Technology of Humanity</u>, Human Dynamics, Topanga Canyon, California, 1985.
- , "Overview," (A video on personality patterns), 1985.

, "3 Business Cultures: An Ethnographic Study," 1986.

- Shane, H., <u>Teaching and Learning in a Microelectronic Age</u>, Phi Delta Kappa Educational Foundation, Bloomington, Indiana, 1987.
- Smith, R., Learning How to Learn: Applied Theory for Adults, Cambridge, The Adult Education Company, N.Y., 1982.
- Swimmi, B., The Universe Is a Green Dragon, Bear & Co., 1985.
- Tomatis, A., "The Assimilation of Modern Languages," no date.

, "Introduction to the Listening Test: Observations Made During the Third International Congress of Audio-Psycho-Phonology, Anvers, 1973.

- Towards the Year 2000: Future Conditions and Strategic Options to Support Learning in Ontario, Review and Evaluation Bulletin, Ontario Ministry of Education, Vol. 5, #1, 1984.
- Wilbur, K., <u>The Holographic Paradigm and Other Paradoxes:</u> <u>Exploring the Leading Edge of Science</u>, New Science Library, 1982.
- Williams, L., <u>Teaching For the Two-Sided Mind</u>, Simon & Schuster, Inc., N.Y., 1983.
- Zukov, G., <u>The Dancing Wu Li Masters: An Overview of the New</u> <u>Physics</u>, Bantam, 1979.

SELECT TEACHING RESOURCE MATERIALS

AS RECOMMENDED BY ONTARIO ADULT EDUCATORS

COMMUNICATIONS

- Angres, et al., <u>Canadians All: Portraits of Our People</u>, Methuen, Toronto, 1976.
- <u>Adult Basic Literacy</u>, Ministry of Education, Independent Learning Centre, Ontario. Recommended: Part 1, Lessons 1-8; Part 2, Lessons 1-8; and Adult Basic English, Parts 1 & 2. (Caution: Some students feel the voice on the tape is condescending.)
- Audio-Language Series: Read Along (audio cassettes and transcript of classics), Audio Language Studies, Inc., 25 Mallard Road, Don Mills, Ontario.
- Barndt, D. et al., English at Work. A Tool Kit for Teachers, Community Outreach in Education Foundation, Toronto, Ont.
- Bestseller Series, David S. Lake Publisher, Belmont, Ca. 1979.
- Calkin, Lucy McCormick, <u>The Art of Teaching Writing</u>, Heinemann Educational Books, Inc., Portsmouth, New Hampshire, 1986.
- "Capitalization and More Punctuation"; "Library Skills: How To Do Research"; "College Aptitude Reading Comprehension Disk 1"; "College Aptitude Reading Comprehension Disk"; Practical Grammar I (Nouns, Promouns, Verbs)," Intellectual Software, 798 North Avenue, Bridgenorth, CT.
- Chapman, B., et al., <u>The Mott Basic Language Skills Program</u>, Allied Educational Press, P.O. Box 78, Galien, Michigan.
- Controlled Reading Series, Educational Development Laboratories, McGraw Hill, Toronto, 1965.
- Controlled Reading Study Guide, Educational Developmental Laboratores, McGraw Hill, Toronto, 1965.
- Dixon, R., & Engelmann, S., <u>Corrective Spelling Through</u> <u>Morphographs</u>, Science Research Associates (Canada) Ltd., Toronto, 1979.
- Elbow, P., Writing with Power: Techniques for Mastering the Writing Process, Oxford University Press, N.Y., 1981.
 - N.Y., <u>Writing without Teachers</u>, Oxford University Press, N.Y., 1973.

- <u>Government in Canada</u>, Ontario Ministry of Citizenship and Culture. Copies distributed free from the Newcomer Services Branch, 5th Floor, 77 Bloor Street West, Toronto. Call collect 416/965-9919.
- Kirk, E., et al., <u>Laubach Way to Reading: Teacher's Manual</u> for Skill Book 2, New Readers Press, Box 131, Syracuse, N.Y., 1981.
- Language for Living: Newspapers in Education., Toronto Star Educational Services, 416/869-4141.
- Laubach, E., et al., Laubach Way to Reading, Skills Books 1-4, New Readers Press, Box 131, Syracuse, N.Y.
- _____, Laubach Way to Reading: More Stories.
- Murray, D. M., <u>Write to Learn</u>, Holt, Rinehart and Winston, N.Y., 1984.
- Newman, J., ed., <u>Whole Language: Theory in Use</u>, Heinemann Educational Books, Inc., Portsmouth, New Hampshire, 1985.
- Olson, C. B., ed., <u>Practical Ideas for Teaching Writing as a</u> <u>Process</u>, California State Department of Education, Sacramento, Ca., 1986.
- "Spellicopter," "Spellograph," and "The Grammar Examiner," DesignWare Software, D. C. Heath & Company, Educational Publisher, Lexington, MA.
- "Spell It," Davidson Software, School Services of Canada, 66 Portland Street, Toronto, 416/366-0903.
- Swinburne, L. and J. F. Warner, <u>Reading Skills for Adults</u> (Series), Steck-Vaughan Co., Austin, Texas, 1986.
- <u>Teaching Spelling, Canadian Word Lists and Instructional</u> <u>Techniques</u>, 2nd ed., Gage Education Publishing Company, Toronto. This book contains 3,000 words most frequently written and 200 most frequently misspelled.
- "The Ontario Times." Available and distributed free throughout Ontario. To Order call collect: Ontario Times, 416/965-9919. Designed to help people develop reading skills and become more familiar with life in Ontario and Canada. There are three levels of difficulty: The one-star (*) articles are the easiest and the three-star (***) the most difficult. Especially recommended are the crossword puzzles.

.

- The Right to Read: Tutor's Handbook for the S.C.I.L. Program, Frontier College, 35 Jackes Avenue, Toronto. An excellent resource; it contains countless ideas, useful in basic literacy classes.
- The Standards Visual Dictionary, Jean-Claude Corbeil, Stoddard Publishing Company, Toronto, 1986.
- Triple Takes (Series), Readers Digest Educational Division, Pleasantville, N.Y., 1979.
- Trocki, P., Spell It Out: Reading/Spelling Workshop, Books 1-4, Globe Book Company, Toronto.
- Weber, Ken, The Globe Modern Dictionary, Globe/Modern Curriculum Press, Toronto, 1984.
- "Word Spinner," "Word Wheels," and "Magic Spells", Computer Software, The Learning Company, 545 Middlefield Road, Menlo Park, Ca.

MATH

- "Algebra I, Vol. 2, Disk I (Integers)"; "Algebra I, Vol. 2, Disk 2 (Fractions)"; Algebra II, Vol. 1, Disk 1 (Algebra Notation, Formulae, Algebraic Expressions)"; "Algebra II, Vol. 1, Disk 2 (Equations, Problems, Exponents)"; "Geometry, Vol. 1, Disk 1 (Measure, Point, Line)"; and "Geometry, Vol. 1, Disk 2 (Angles)," Arrakis Software, Grolier Ltd., 20 Torbay Road, Marham, Ontario, 416/474-0330.
- "Algebra, Vol. 3 (Polynomials, Factoring, Quadratics)," Eduware Software, School Services of Canada, 66 Portland Street, Toronto, 416/366-0903.
- Avital, S., et al., eds., <u>Fun With Mathematics</u>, OISE, Publication Sales, 252 Bloor St. W., Toronto, monthly publication.
- Brown, R., <u>Basic Arithmetic</u>, Scott, Foresman & Co., Glenview, Illinois, 1985.
- Chapman, B., et al., <u>Mott Basic Numbers & Money</u>, Allied Educational Press, P.O. Box 78, Galien, Michigan.
- Gattuso, L. and R. Lacasse, <u>Les Mathophobes: une experience de</u> reinsection au niveau collegial, CEGEP du Vieux Montreal, Services pedagogiques, Sept. 1986.

TRADES AND TECHNOLOGY

- Brooks, C., <u>Instructor's Handbook: Working With Female</u> <u>Relational Learners in Technology and Trades Training</u>, Ontario Ministry of Skills Development, 1986.
- Tetrault, J. & Thomas, S., <u>Country Women: A Handbook For the</u> <u>New Farmer</u>, Anchor Press, N.Y., 1976.
- Women Into Trades & Technology: A Training Profile, Ministry of Education/Ministry of Colleges and Universities, Skills Development Division, 1981.

EVALUATION AND TESTING

Carver, R., <u>Reading Progress Scale</u>, 207 West 116 Street, Kansas City, Missouri, 1970.



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Communications. 24-29,46-49.50-51,55-56,57-58, 59,60-61,62-63,64-65,66-68, 71-130,195-203,216-217 Computer. 52-54, 55-56, 136, 185-186, 205-210 Conferencing. 27, 107–108, 234–235 Electricity. 88-92, 176-178, 179-180 Environment. 19, 28, 32, 159, 208, 215, 234 Estimating. 148, 151-153, 157-158 Evaluation. 19, 28, 31, 108, 113, 135, 160, 227, 233-240 Films. 64-65, 216-217 Fractions. 136–137, 146, 154–155, 156, 161-162 Graphs. 49, 141, 147-148, 149-150, 168 Integrated Units. 26, 42-70, 131, 195-203 Intuition. 2, 8, 13, 118, 163 Job Preparation. 59, 128-130, 195-203, 218-219, 221-223, 228-229 Learning Centres. 27-28, 30-31, 69-70, 100-102, 192 - 194Learning Processes. 6, 15-19, 21, 22, 30, 33, 71-72 Learning Styles. 1-20, 33, 38, 40, 42, 131-132, 211-212, 241-243 Ledgers. 43, 44-45, 144-145 Life Skills. 43, 44, 52-54, 57-58, 59, 60-61, 62-63, 64-65, 95-203, 211-232

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