

Beyond Behavioral Objectives

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Teaching at a different level - take planning up a notch into the realm of artistic teaching:

There are two alternate forms of writing objectives beyond behavioral ones – they are ***problems solving objectives***, and ***expressive activities that lead to expressive outcomes***. Teachers should know how to use these because they extend the artistry of the profession. More importantly they can be crafted to provide students with powerful types of learning activities that encourage higher level thinking skills and more readily mimic learning experiences in the real world.

Additionally, in using either of these designs both the ownership of learning and the incentives for learning can be taken out of total domination by the teacher and placed into the hands of the learners, or planning can become a partnership between teachers and learners. In constructing and annotating these types of non-behavioral objectives teachers are not compelled to a restriction to wholly use observable language, but may use more general, amorphous words to note the desired learning outcomes such as to know, to understand, to explore, or to appreciate.

Advantages: Problem solving objectives and expressive activities have the following advantages:

- They can be more artistic -- not as rigid.
- They can be more reflective of real life problems.
- Several domains may be combined within one objective.
- The teacher can easily solicit input from students.
- Often evaluation mirrors that in real life as these objectives can be more subjectively evaluated, or authentic.
- When you are integrating material, the non-behavioral formats facilitate integration more easily. Therefore, several subject areas or different content may be easily incorporated into one objective.
- These types of objectives are more open-ended and allow teachers to create related experiences based on students' interests and motivational levels.

Problem Solving - Many Benefits:

Problem solving objectives are a powerful way to teach and have several distinct advantages, plus, they can be used in a number of ways.

- They are more artistic.

- They may be long term -- covering a number of lessons or an entire unit.
- They can be designed to be integrative -- they may combine or cut across subject areas, or they may involve a number of different processes.
- They can be used to combine a number of intelligences or cognitive functions.
- Students may become involved in the criteria statement and the development of parameters, thus giving them ownership in the process and pushing toward more intrinsic levels of learning and evaluation.
- They may allow ownership in that students can help devise parts of problems or their own problems. If students are allowed to create and construct their own problems, again, this would allow them ownership in the process and may help them go beyond problem-solving to problem finding.

Please note that while grading in problem solving is more subjective, this can be done in an objective manner. Remember the stated conditions of a problem and/or the problem parameters provide the framework for judging both the problem solution and/or the end product. These parameters and/or conditions become the contract between the teacher and the students. Students may even be required to judge their own work through some sort of self-evaluation process, and/or peers may evaluate peers. Members of the community may also become involved in the evaluation processes. These may be combined with teacher evaluations, thus creating multidimensional forms of student or product assessment.

Students and/or teachers become learning partners and should decide if they are going to use problem solving objectives as culminating experiences, or as a catalyst for and method of learning new skills. One of the great strengths of this mode of teaching is that problems may be used in either way or by combining both ways. They are versatile.

An Example:

The Harrison Ford Elementary School received a \$100,000 grant to create a nature trail on school grounds. The money is to be used for a trail that is both aesthetic and also one that can be used for environmental study. Create a design for the trail. (Problem based on L. Wilson (1994) *Every child, whole child*. Tucson: Zephyr Press)

Problem conditions:

Conditions often refer to the actual appearance of finished products or are ways in which products are standardized.

- Products must be neat

- Presented on graph or grid paper
- Drawn to scale
- Students will include a key and color code drawings so that they are easily understandable.

Problem parameters:

- Parameters usually deal with restrictions placed on solving the problem.
 - All costs cannot exceed \$100,000.
 - Total area of trail and the areas surrounding the trail cannot go outside of the current property boundaries of the school's grounds.
 - The trail cannot interfere with existing facilities.
 - The total area of the trail must not exceed 1 acre.
 - The trail must be both aesthetically pleasing and must have areas for environmental study.
 - The trail must comply with general safety standards governing parks and playgrounds and be generally accessible to person with disabilities.
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The problem above requires a myriad of skills and knowledge in varied content areas.

Skills needed to solve this problem successfully might be --

- research skills;
- artistic skills;
- interpersonal skills;
- knowledge of ratio;
- botany;
- budgeting;
- mathematical calculations;
- graphics; and
- knowledge of state and federal regulations governing handicap accessibility.

A comprehensive problem solving objective may be used as an entry into a unit of study, thus providing students with a rationale for having to learn certain material and skills. Or, a problem solving objective may be used as a culminating event. In this case it provides a comprehensive way to evaluate students' skills in a number of areas.

** Please note, problems may have either conditions or parameters, or both. Once conditions and/or parameters have been set and/or agreed upon, **they may not be changed without a general consensus or without negotiating changes with the students.** It is unethical to change conditions and/or parameters without some discussion and a firm rationale. Once these have been

agreed upon, products must be judged in accordance with the stated or agreed upon parameters or problem conditions. Assessment may be based on combinations of teacher assessment, self-assessment and peer assessment. Students may be involved in designing a grading rubric for product evaluation.

Designing lesson plans to include problem-solving objectives.

Problem solving lesson plans may be designed in any number of ways, but **they should include components from the starred items below as a minimum**. Remember that even though these are designed as lesson plans, the course of each problem may vary greatly depending on the components, solutions and skills needed in solving it. Some problems are simple and can be solved in one class period, a day, or over several periods. Other problems are complex and will need days or weeks, or the problem solution and product may comprise an entire unit of study. Remember to plan accordingly, allocating enough time for students to complete the problem successfully. In writing a problem, steps should be arranged clearly and sequentially so that anyone reading the problem could easily follow its progression.

Problem-solving writing tips - Problems must contain:

*** Statement of the problem.**

*** Conditions - include product specifications. These usually refer to how the problem looks or desired standardized components within a final product. Conditions can be used as portions of the assessment procedure. Some problems may be so open that they don't require conditions.**

*** Parameters - are detailed restrictions on solving the problem. These may be either very general or very specific and, again, can be used to help determine assessment.**

*** A partial or complete list of process skills and/or subject areas needed to solve problems.**

*** A listing of district aims and goals met by completing the problem. This may be done before the statement of the problem or after the problem statement, or in a the context of a grading rubric or checklist.**

*** Methods of evaluation and/or evaluation forms.**

Additionally problems may also contain the following:

A rationale statement - this should include a brief statement as to why you are having students do the problem. This may include a restatement or be part of the aims and goals statement.

Materials' list.

A listing of teacher's responsibilities within the problem.

A listing of students' responsibilities within the problem.

Any extraneous support needed to solve the problem -- as in community cooperation.

Expanded lessons related to the problem or possible follow-up activities.

Remember the rules of thumb -- the more conditions and parameters you include, the more conforming, restrictive, and narrow students' products will be. The fewer conditions or parameters, the more diversity and creativity in the products. Some students may require more structure and help in solving problems, others may need less help. Make allowances for both types of students.

Expressive Activities Which Lead to Expressive Outcomes

Expressive activities are the most difficult and artistic form of teaching - teachers literally orchestrate lessons by preparing a field (this is used metaphorically as it is some landscape of learning) to explore, or by developing an immersion experience or investigation, and then allowing students to actively explore and discover ideas and connections within that learning landscape. Learning takes place within the context of students' investigations, as they engage in activities and conversations, or within the context of their own active experimentation. It is a cause and effect relationship.

Although initial or immersion experiences may be planned or structured, these merely serve as learning triggers, or contextual entry points. It is students' curiosity and intrinsic motivation that are the forces which carry learners toward undetermined or unplanned ends. Flexibility, adaptability and preparedness are keys to the success of this type of teaching. When teachers take advantage of a teachable moment, this is the most common form of this type of teaching. Yet, very few teachers add credibility to these types of learning experiences by reflectively or actively evaluating them as formal learning.

Due to the open-ended nature of this form of teaching, learning and actual achievement must be evaluated for achieved objectives **after the activity is completed** or portions of the activity are completed. The teacher has the obligation to the students to inform them of their accomplishments and achievements at the end of each activity or session. This can be done through discussion or

through openly charting progress. Formal assessment may be achieved through annotated records, checklists, observations, projects, portfolios, or presentations.

The logistics are simple:

- The teacher plans an introductory or exploratory lesson knowing and projecting what types of skills may be needed, or which skills might arise during the course of the lesson.
 - The teacher then watches the children's reactions, and waits for questions or related interests to appear. At this point he/she may expand the original lesson based on children's questions and evidence of their curiosity. (this type of planning is highlighted in constructivist teaching, and is closely akin to what teachers do in taking advantage of a "teachable moment.")
 - The actual formal writing process notes in detail the initial exploratory or investigative experiences, and includes **a projection of possible skills** which might be needed, and a projection as to where the lesson might diverge.
 - In the event that students don't respond as predicted, the teacher might note and be ready with possible prompts.
 - The teacher also should include sample types of assessments that might prove helpful in evaluating the lesson. These samples may be included in the initial plan.
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An Example: Drawing in a sand tray -- knowing students and their developmental stages.

In this exercise the primary teacher plans a simple letter recognition exercise as a trigger activity. Students are given their names printed on a piece of cardboard and asked to duplicate them in the sand tray. In the context of justifiable instructional objectives, the purposes of this exercise are to have students:

- recognize and replicate individual letters,
- recognize and replicate their names,
- exercise left to right visual progressions needed for beginning reading, and
- to exercise eye-hand coordination and both small and large muscle coordination.

Being a veteran in observing children, this primary teacher knows that many of her students are highly inquisitive. Off the sand tray she hangs magnifying glasses so that the children can look at the sand in more detail when they have finished writing their names. If they do not do this on their own, she will ask them to do it. She also has a microscope set up and has collected a number of books about the sea, beaches, tides, oceans and marine life, and glass, and so forth. The trick here is for the teacher to either provide an educational environment that is so rich in stimuli that students are

propelled by their own senses of inquisitiveness to ask many questions, or to offer gentle prompts so that the students respond with questions.

One child goes to the table and gets sand on his hands. Being curious he picks up a magnifier and begins to examine the sand particles more closely. His friends begin to do the same and they start to notice that the particles are different shapes, sizes and colors. These observations initiate a series of questions about the source and nature of sand. The teacher charts the children's questions and these form the basis for a two week long investigation into sand formation, beaches, types of ocean life, tides, weather conditions, vacations and even the formation of glass. The culmination of the unit is a trip to a glass blower. The unit has been extremely interesting for the students because it was initiated by their own curiosity and questions. Unfortunately, like many such spontaneous experiences, the teacher fails to communicate to the students what exactly they have learned.

Closure:

Although this lesson was a great success, and anyone observing these students could not fail to notice their educational growth, this teacher devalued the credibility of this experience by never providing her students with some sort of closure or summation. In this instance, the children leave the classroom thinking that they had fun playing in the sand tray and observing the glass blower.

This form of teaching is highly artistic and very valuable in maintaining children's levels of intrinsic motivation, but as seen in the example, the fault of the teacher was that she failed to appropriately evaluate the experience. Indeed, many teachers using this form of teaching fail to communicate to students exactly what they have learned. Sometimes they also fail to annotate students' specific achievements, thus causing this form of teaching to be greatly devalued. Teachers committed to this very student-centered, constructivist form of teaching should always create evaluative experiences as part of the expressive activity. Students have a right to know what they have achieved and what they have gained from the experience.

What is involved in creating expressive activities?

The expertise and jobs of the teacher in planning expressive activities that will lead to expressive outcomes are multi-leveled. In this form of teaching the teacher acts as a master orchestrator, devising and planning trigger activities that have the potential to lead in many directions and to many different or unique learning processes and experiences. This method of teaching and curriculum development is the most artistic and complex form of teaching.

1. Knowledge of Developmental Stages: First, the teacher must have knowledge and expertise in students' developmental stages and with the process expectations that govern the general curriculum.

In the example of the sand tray, the teacher knows that letter recognition and reproduction are baseline essential skills for her students. She also knows that in order to achieve the cognitive and physical functions related to her trigger exercise students must be physically and developmentally ready. Her knowledge of their readiness extends to the fact that in order to be successful in this immersion activity students must have some eye-hand control and some fine and gross muscle coordination. They must be able and willing to see something and then to attempt to reproduce it. Also, students must have the cognitive maturity to realize that the basis for understanding written language requires knowing that text travels from left to right and that letters are merely abstract representations of concrete spoken sounds.

2. Knowledge of Curricular Expectations: In planning this activity the teacher's general knowledge of the curriculum includes knowing that in addition to letter and name recognition and rudimentary writing skills, there is a general district expectation that students will be able to ask and answer their own questions. In the context of her knowledge about students at her grade level, she knows that the pathway of questioning can lead to the emergence of general research interests and skills.

3. Knowledge of Students' Skills and Talents: From these perspectives the teacher has noted that several of her students are naturally very inquisitive about things in their environment. In devising possible extensions of the baseline activity of letter tracing, she uses all of this knowledge to create an environment that supports students' questions about the nature and sources of sand, thus encouraging students' naturally occurring questions and innate inquisitiveness. In preparation and anticipation, this teacher has collected both literary and reference materials that relate to sand or to its formation. And she had positioned magnifying glasses near the sand tray, as well as a microscope in order to invite questions and chart paper for scribing students' possible questions. If students don't literally "take the bait," the teacher is prepared to ask leading questions in order to get students interested in researching the formation of sand.

4. Ability to Relinquish Control to Students' Intrinsic Learning: Thus, the fourth skill needed to be successful at teaching through expressive activities is that of actively encouraging students to take command of their own learning. Teachers adept at this form of teaching must be able, not only to organize general immersion activities that are age-level appropriate, but they must be willing to relinquish control to students' educational agendas and natural senses of curiosity.

5. Predictive Talent: The next talent needed by teachers adept at expressive forms of teaching are those of being able to envision, imagine, anticipate and predict possibilities and possible outcomes.

They must be prepared that students questions and initiatives might take them in many different directions.

6. Ability to Evaluate in Different Ways: The last component that makes this form of teaching legitimate is that the teacher must be prepared to annotate and evaluate the results of the emergent activities. Results must also be communicated to participating students so that they can begin to make the connections between their questions and their abilities to complete and be engaged in research.

(Support for the above discussion on using expressive outcomes as a legitimate form of curriculum design was briefly discussed by Elliott Eisner of Stanford University. For additional information on this concept see: Eisner, E.W. (1994, 3rd ed.) *Educational imagination: On the design and evaluation of school programs*. New York: Macmillian.118-123)

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