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ABSTRACT

This study examined how readily teachers learn the components of the troubleshooting model of Tillman (1982) via a guided design approach, the consistency of the language of the model with the language of teachers, and the concerns teachers express about guided design as an instructional innovation. Forty-five teachers enrolled in a graduate level course in instructional supervision participated in the guided design exercise, "Right or Wrong Triangles," which introduces and requires application of the model. The exercise uses a transcript of a high school mathematics class as the basis for individual and group activities in identifying classroom problems, suggesting possible problem causes, and proposing solutions. Results indicate that the group exercise was an effective tool for student exploration of the troubleshooting model. With regard to stages of concern about innovation, the group is typical of non-user groups in having high concern for information and fewer for consequences and collaboration. For about one third of the group, additional discussion about guided design should focus on the teachers' personal reservations in using it and similar alternative techniques. The guided design exercises used in the study are appended. (LMM)

Teaching a Classroom Troubleshooting Model Via Guided Design

by

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1. What's the Problem?

Needs assessment is generally regarded as a process for determining gaps between what is and what ought to be, ranking the gaps, and deciding which gaps should be closed. Most of the models available in educational literature (e.g., Briggs, 1977) apply this process on a large scale such that the decision making process is conducted by one or more groups and organized to provide a wide base of input. The literature in business and industry, on the other hand, provides alternatives that may be more readily used by the individual (Harless, 1975; Mager, 1970). Drawing from the work of Harless and Mager, Tillman (1982) has developed a needs assessment model, which he calls a "troubleshooting" model, applicable by individual teachers for solving problems. The model was developed over a five-year period of working directly with field-based sections of educational psychology students, with teachers, and with school personnel assigned to help remediate teaching problems.

With the development phase of building the troubleshooting model now complete, this paper initiates a look at how readily the model can be understood, applied, and integrated into teachers' existing ways of identifying and solving classroom problems.

2. What's the Purpose of the Study?

Clark and Yinger (1979) have identified a new dimension in research on teaching. This new approach is based on the assumption that an understanding of teachers' congitive processes

is essential to the understanding of what teachers do in their classrooms. Specifically, they suggest that:

> The study of the thinking processes of teachers - how they gather, organize, interpret, and evaluate information - is expected to lead to understandings of the uniquely human processes that guide and determine their behavior (p. 231).

Clark and Yinger caution, however, that if the results of such studies are to be applied in classrooms, adaptations or translations must be made. This study is concerned with the latter issue - how to adapt or "engineer" ideas from the needs assessment literature so that teachers may use these techniques or modify them for use, in order to solve specific teaching problems. Guided design was selected as an instructional tool for teaching this approach because it ...

- Is a structured approach, not unlike the trouble-shooting techniques for solving problems.
- May reduce the instructional time needed to address this issue.
- Provides an interesting example of an educational innovation that is easily adopted by classroom teachers.

The purpose of this study, then, is to address three issues:

1) How readily do teachers learn the components of a troubleshooting model via a guided design approach?
2) Is the language used by the model consistent with the language used by teachers?
3) Based on this brief experience with guided design, what specific concerns do classroom teachers express about using it as an instructional innovation?

3. Who Were the Participants?

Forty-five teachers enrolled in introductory graduate level courses in instructional supervision participated in this study.

Descriptive data on this group are shown in Appendix A. Highlights from frequency distributions indicate that a typical participant was a female between 26 and 35 years old and had been teaching in an elementary school for six to ten years. In fact, 82% of the group had five years or more of teaching experience.

4. What Did We Do?

A. A guided design exercise was prepared following the suggestions of Wales and Stager (1978). This exercise, entitled "Right or Wrong Triangles," was very similar in format to the "Fishing Trip" (Wales and Stager). It begins with a written transcript of the interaction in a high school mathematics class, asks students individually to identify in writing any problems they perceived occurring in the class, to suggest possible causes of the problems, and to propose solutions. The instruction sheet then directs participants to form groups of three or four members, to discuss the problems they identified, and to develop a group response. Each group then receives written feedback in the form of responses developed by other groups to the same task. Subsequent inquiry dealing with causes and solutions proceeds in the usual guided design format - feedback/instruction, feedback/instruction - in this case through "Feedback G." The intent was to introduce and apply the major principles of the troubleshooting

model (Tillman, 1982). The complete exercise is attached to this paper.

B. The guided design exercise "Right or Wrong Triangles" was introduced within the context of a regular graduate level course in instructional supervision. Students were given a brief introduction about the assignment and then asked to proceed through the materials, as previously described.

C. Several types of data were obtained from the guided design exercise. First, written individual comments prior to group instruction were collected on problems, causes, and solutions related to the transcript of the high school math class. Second, group responses prior to and after instruction were collected on problems and causes related to the same high school transcript. Comments regarding solutions were obtained after instruction only.

D. Data obtained on every problem, cause, and solution were classified according to focus - teacher or student- and to degree of specificity - behaviorally oriented or broad. Inspection of these classifications indicates whether the obtained data conformed to model requirements. In general, "model requirements" suggest a focus on student behavior for problem identification, a focus on teacher behavior for causal analysis, and a focus on teacher behavior for solution proposals.

E. After completion of the guided design exercise, the Stages of Concern Questionnaire developed by Hall, George, and Rutherford (1979) was administered in order to obtain data on the teachers' specific concerns about using guided design as an instructional innovation. The questionnaire is based on several assumptions about the individual adopter: First, that an individual moves through seven different stages of concern about the innovation, from concerns about self to the eventual concern for maximizing the impact the innovation will have on others, and second, the intensity of concerns will vary between individuals and from stage to stage. Hall et al, in fact, have identified several different types of user profiles. Appendix C identifies and defines each of the seven stages, which incidentally are scored separately.

5. What Did We Predict?

A. Problem Phase. The following predictions were made in regard to differences before and after instruction for the group exercise:

(1) Decrease in attention to teacher behavior.

(2) Increase in attention to student behavior.

(3) Decrease in broad, descriptive language.

(4) Increase in specific, behavioral language.

B. Cause Phase. The following predictions were made in regard to differences before and after instruction

for the group exercise.

(5) Increase in attention to teacher behavior.

(6) Decrease in attention to student behavior.

(7) Decrease in broad, descriptive language.

(8) Increase in specific, behavioral language.

C. Solution Phase. The following predictions were made in regard to differences among individuals prior to the group exercise and to differences after instruction for the group exercise.

(9) Prior to instruction, solution statements made by individuals will already focus more on teacher actions than student actions.

(10) Prior to instruction, teacher-broad statements made by individuals will be greater than teacher-specific statements.

(11) After group instruction, teacher-specific statements will be greater than teacher-broad statements.

The responses to all queries were open ended.

D. The Stages of Concern Questionnaire. The following prediction was made in regard to the Stages of Concern Questionnaire (SoC):

(12) The teachers' concerns will follow the typical non-user profile identified by Hall, George, and Rutherford (p. 37).

6. What Results Were Obtained?

Using t-tests for related groups, the following results

were obtained for each of the above predictions (1) - (11):

Prediction	Confirmed via t-test
Problem Phase	
(1)	No
(2)	Yes
(3)	Yes
(4)	Yes
Cause Phase	
(5)	No
(6)	Insufficient data
(7)	~~Yes~~ No
(8)	~~No~~ yes
Solution Phase	
(9)	Insufficient data, though confirmed via inspection.
(10)	No
(11)	No

Actual t values and means may be found in Appendix B.

For prediction (12), we found that the means for each of the seven stages follow fairly closely the typical non-user profile identified by Hall, George, and Rutherford. A graph of the two profiles is given in Appendix D.

7. What Would We Conclude From These Results?

The group exercise was found to be an effective tool for having students explore the troubleshooting model. During the problem phase, students tended to focus their attention on the teacher and do so in broad statements. After instruction, however,

their responses were more specific and focused on student behavior. During the cause phase, students focused already on teacher behavior and in specific terms. No significant increase in these two trends was found. Decreases in broad, descriptive statements did occur, however. During the solution phase, students focused very directly on teacher behavior. In fact, individuals prior to the group exercise were similarly attentive to teacher behavior. In sum, where there were initial discrepancies between the model and student responses, the group exercise was effective in closing the gap.

These data deal only with how students modify attention to teacher and student behavior within the context of a given classroom problem. It does not provide data on how well they might use these new approaches in other classroom situations or in their own. In other words, they did readily learn the model language but would they use it in other situations, particularly their own classroom?

We also sought to confirm the relationships between teacher and student behavior called for in the model with teaching experience for this particular group of teachers. We expected correlations between number of years teaching experience with the number of statements that specified (a) student related problems, (b) teacher related causes, and (c) teacher directed solutions. Only in case "(b)" did we obtain a significant correlation ($r = -.33$, $p<.05$). Apparently, with increasing experience, teachers tend to rule themselves (or other teachers) out as

possible causes of problems.

The Stages of Concern Questionnaire (SoC) was used to check out the progress of adopter concerns about guided design. Adopters were teachers who were planning to use and/or share this innovation in their own schools. Would the one to one-and-a-half hour experience with guided design provide enough information to these teachers? Would they feel confident about their probable successes with this technique? A comparison of the typical user profile with the profile obtained in this study indicated that this group is very much like any non-user group, for example, having high concerns for information, fewer concerns for consequences or collaboration. A more careful look at the profiles, however, gives yet another story. Profiles were plotted on forty teachers. Of these, 16 (40%) were easily classified as typical non-user profiles. For another 13 (32%), we found no suitable classification. For the remaining 11 (27%), we found some disturbing news: these profiles could be classified in one of two categories, "one/two split" (personal concerns are higher than informational concerns) and a "one/two split with tailing-up 6"). Hall et al refer ominously to these profiles as "negative." For example, they indicate (Hall et al, p. 36) that "In general, when such a 'negative one/two split' occurs, personal concerns (Stage 2) override concerns about learning more about the innovation (Stage 1)." They suggest further than these personal concerns have to be dealt with before the person can view the innovation objectively. And as for the second negative profile, Hall et

al (p. 40) indicate that "... any tailing-up of the Stage 6 concerns on a non-user profile should be taken as a potential warning that there may be resistance to the innovation on the part of the respondent." (Stage 6, Refocusing, indicates the extent to which a person has other ideas that might compete with the proposed innovation.)

We can only conclude that for roughly a third of our group, more discussion about guided design was clearly indicated. The discussion should focus not only on information about the technique but about the teachers' personal reservations in using it and about alternative techniques that are similar.

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Appendix A

Descriptive Summary

Category	Number	Percent
Sex		
Male	16	36
Female	28	64
Age		
20-25	1	2
26-35	25	57
36-45	16	36
46-65	2	5
Years Teaching Experience		
0-5	8	18
6-10	22	50
11-15	9	20
16-20	4	9
21-25	1	2
Years Administrative Experience		
0	26	59
1-5	15	34
5-10	3	7
Current Position		
Teacher	21	48
Administrator	12	27
Other	11	25

Category	Number	Percent
Grade Level		
Elementary	19	43
Middle School	4	9
High School	9	20
Other	12	27
Reaction to Supervision		
Negative	4	9
Neutral	15	34
Positive	25	57

Appendix B

Differences Among Types of Problems
Identified Before and After Instruction

Variable	Pre-Instruction Mean	Post-Instruction Mean	t Value
Teacher Behaviors (specific and broad)	2.92	1.54	1.68
Student Behaviors (specific and broad)	1.69	4.15	2.29*
Specific Behaviors (teacher and student)	1.15	3.31	1.93*
Broad Behaviors (teacher and student)	3.62	2.38	1.85*

* $p < .05$ for one tailed test

Differences Among Types of Causes
Identified Before and After Instruction

Variable	Pre-Instruction Mean	Post-Instruction Mean	t Value
Teacher Behaviors (specific and broad)	2.85	4.07	1.43
Student Behaviors (specific and broad)	insufficient data		
Specific Behaviors (teacher and student)	.62	2.38	2.07*
Broad Behaviors (teacher and student)	3.00	2.38	.84

* $p < .05$ for one tailed test

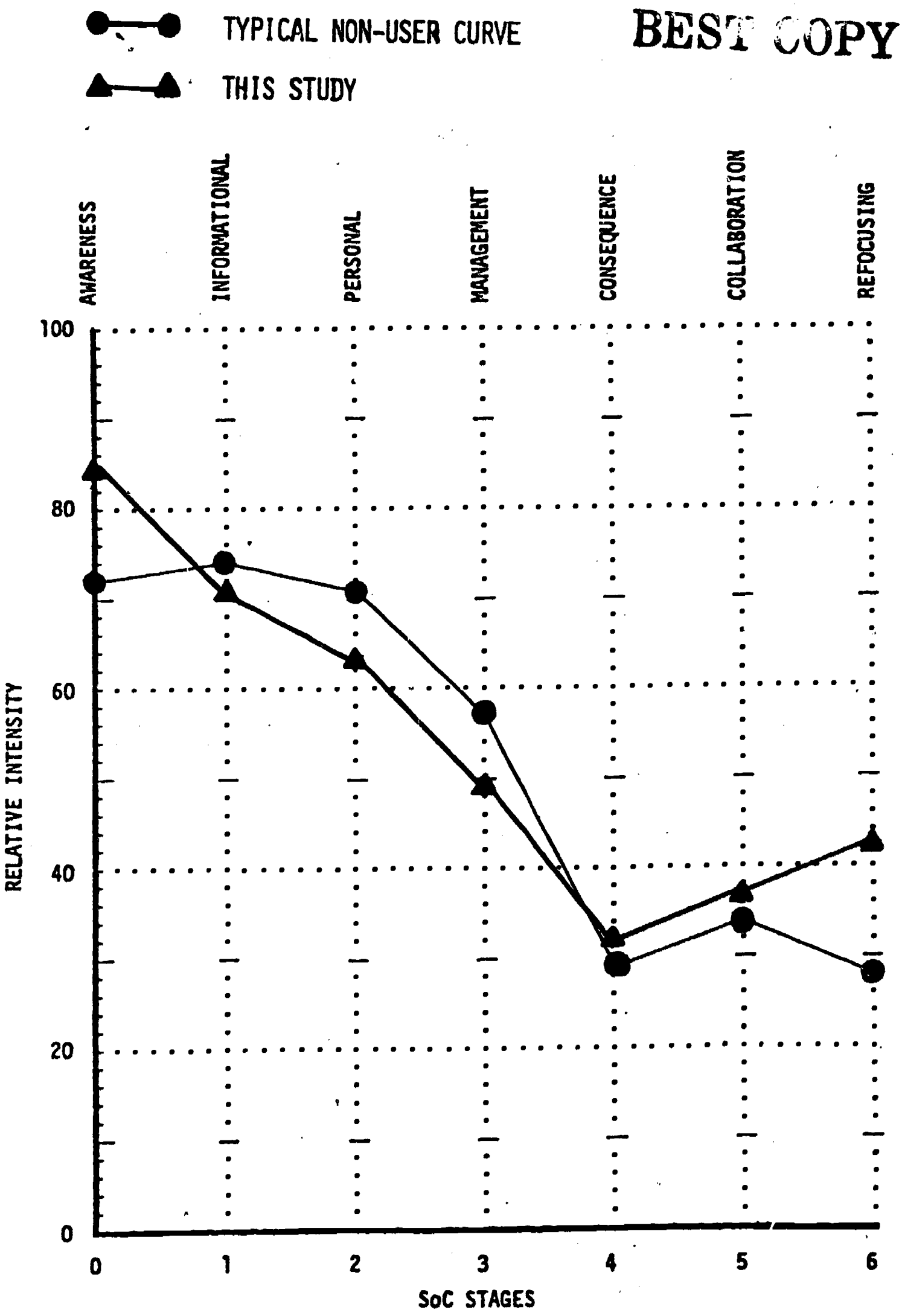
Specific and Broad Teacher-Focused Solutions
Identifed Before and After Instruction

Variable	Specific Teacher Mean	Broad Teacher Mean	t Value	Significance <.05
Pre-Instruction (individual)	1.91	1.59	.38	N.S.
Post-Instruction (group)	3.15	2.46	.65	N.S.

Relation Between Years Experience Teaching and Number of Correctly Focused Problems, Causes, and Solutions Identified Before Instruction

Variable	Mean	r	Significance < .05
Student-Focused Problem	1.61	.06	N.S.
Teacher-Focused Cause	2.64	-.33	*
Teacher-Focused Solution	3.66	.09	N.S.

Appendix C


TYPICAL NON-USER CURVE
THIS STUDY
AWARENESS
INFORMATIONAL
PERSONAL
MANAGEMENT
CONSEQUENCE
COLLABORATION
REFOCUSING
RELATIVE INTENSITY
100
80
60
40
20
0
0
1
2
3
4
5
6
SoC STAGES

The Seven Stages of Concern are:

0	Awareness	Little concern or involvement with the project.
1	Informational	Need for general information.
2	Personal	Uncertainty about her/his role in the project.
3	Management	Attention to the processes and tasks of using the project.
4	Consequence	Focus on the impact of the project on the learner.,
5	Collaboration	Focus on coordination and cooperation with others regarding the project.
6	Refocusing	Exploration of alternative uses of the project or a replacement.

Appendix D

Right or Wrong Triangles

Ms. Wiggins teaches a high school trig class consisting of 15 seniors. The new quarter has just begun, and she is meeting her class for the third time. During the last class session, Ms. Wiggins lectured on the practical uses of trig, calculating sides of right triangles, and gave the class their first homework assignment.

9:00 When the first period bell rang, Ms. Wiggins greeted the class, then asked for volunteers to put last night's homework assignment on the board.

9:02 Bobo offers, "I couldn't understand what to do," rocking back in his desk. Bobo's desk pinches the foot of a dozing Pete.

Startled out of his slumber, Pete lets out a big yelp.

Bobo grins at Pete.

Teacher says, "All right, Pete, you put up problem one."

An anonymous contributor comments from the back of the room, "Wierd man, weird."

The whole class laughs.

9:07 Teacher says, "All right, we've had our little hee-haw. Martin you put up number two."

Martin says, "I didn't understand it either, Ms. Wiggins."

9:08 Lucy interrupted raising her hand saying, "Miss Wiggins, I left my coat in PE. Can I go get it?"

Teacher says, "All right, but hurry up."

Bobo comments, "Can I go with her? She gets lost easy."

Lucy says immediately, "Shut up you big jerk." Lucy slipped Pete a note as she walked by his desk.

Teacher says again, "Pete, put up number one."

Pete says, "I'm looking for my homework. I think somebody stole it." Pete flipped the pages of his book slowly. "I got it," he says holding up a tattered piece of paper.

9:11 Joan raised her hand. "Miss Wiggins, may I put up number three?"

Teacher says, "Yes, Joan, thank you."

Pete bends his head low over the desk and unfolds Lucy's note.

Martin walks over to the teacher with book and paper in hand. "Miss Wiggins, I really tried but I couldn't do it."

Teacher says, "Martin, quit interrupting. If you can't do the work, just sit down and shut up."

Martin walks slowly to his desk and sits down. "I tried."

9:15 Four students are writing their problems out on the board. Miss Wiggins watches as they write.

9:16 Roy and Dexter whisper about the latest drag strip results. Roy demonstrates, with his hands, how he passes a curve.

9:18 Teacher says, "Stop the whispering in the back."

9:20 Bill puts a transister radio plug in his ear and settles back in his seat.

9:25 Ralph raises his hand. Miss Wiggins calls on Ralph.

Ralph says, "My dad and I used the same formula in problem four to figure up the length of a ceiling joist."

9:26 Bobo says, "They're not "joists"; they're "rafters".

Teacher says, "Bobo, please listen first. Go on Ralph."

9:31 Ralph finishes his story.

9:32 Roy swaps racing car pictures with Dexter.

Bill turns the tuning knob on the radio inside his pocket.

Bobo rocks back in his chair. "I once heard how Napoleon's sergeant told him how wide a river was cause he knew triangles."

9:33 Lucy comes back through the door with coat in hand.

9:34 Teacher says, "Class....."

Lucy interrupts, "Can I speak to Pete? I got a message from his brother. It's important."

Teacher says, "It can wait till the end of the period. We need to talk about these problems. Bill, do you agree with Pete's answer?"

9:35 No answer from Bill. Teacher walks back to Bill's desk, confiscates the radio.

9:40 Teacher says, "We only have ten minutes left in this period. This class will either learn to get their work done faster or....."

Would You Know One If You Saw One?

FIRST EXERCISE - INDIVIDUAL WORK

Read "Right or Wrong Triangles" and answer the questions in the space provided.

1. Describe the problem(s), as you see it, with Ms. Wiggins class.

2. What are some possible reasons for the trouble?

3. How would you go about correcting the situation?

After you complete this assignment, pick up the handout entitled "SECOND EXERCISE - GROUP DECISION-MAKING" and follow the directions.

SECOND EXERCISE - GROUP DECISION-MAKING
Form groups of three to four people.

Introduction

The material you are about to receive is organized in an "Instruction - Feedback" pattern. The "Instruction" section presents an issue or problem that your group is to consider. The "Feedback" section provides a summary of the issues or response by other persons to the same problem. The purpose of the Feedback is to give everyone the opportunity to compare their conclusions with those of other people. Do not feel that you have to accept their views or change any of your decisions.

Appoint a secretary to record the decisions of the group. When you finish the task posed by the Instruction, pick up a copy of the Feedback and next Instruction. If you run into any problems, call the teacher.

Instruction A - The Problem Is...What's the Problem?

Each member of your consultant team has individually reviewed the information received on Ms. Wiggins' classroom situation.

Your task as a team is to identify the problems. Discuss what the problems are. Have the secretary record the group's responses.

Feedback A

How do teachers react to this task? In different ways as you will see. Here are two examples that are fairly representative of those received from teachers and graduate students.

(a) Describe the problems, as you see it, with Ms. Wiggins' class.

Sherry C.'s comments

Ms. Wiggins just has no control over her class. It looks like the class is controlling her rather than the other way around. She needs to put her foot down and say to the class, "These are my rules." Students should know that if they don't follow the rules some form of disciplinary action will follow.

Gil J.'s comments

Students are completely uninterested in what's going on. They seem unmotivated, bored and ready to avoid as much work as they can. There is almost no discipline. Students take advantage of their freedom by asking to leave the class or just making irrelevant comments. Ms. Wiggins doesn't treat students the same way. She put Martin down when he couldn't do the work but lets Pete linger around his desk.

Instruction B - Will the Real Problem(s) Please Stand Up?

Phil J. listened intently to comments made by Sherry and Gil. "I'm somewhat confused by your comments. You're calling everything a problem. Problems are suppose to identify gaps between what is and what should be. I think that the major problem should be defined in terms of learner behavior."

The others agreed and re-examined their problem statements. They decided to describe first the situation and second the behavior of the students within that situation.

Using the same format for describing a problem, identify the major problems in Ms. Wiggins' classroom.

Feedback B

Here is the following list of problem statements generated by teachers and graduate students.

Problem Indicators in Ms. Wiggins' Classroom

1. When Ms. Wiggins asks for volunteers to put the homework assignment on the board, (a) Bobo says he didn't understand what to do, (b) Pete is dozing, (c) an anonymous contributor calls out, (d) Martin says he didn't understand what to do, (e) Lucy asks permission to leave the class, (f) Pete reads a note.

2. While four students are writing their problems out on the board, (a) Roy and Dexter whipser about the latest drag strip results, (b) Bill listens to a transistor radio, (c) Roy and Dexter swap racing car pictures.

3. When Ms. Wiggins begins to address the class, Lucy interrupts with a request to speak to Pete.

4. As Lucy leaves the room, Bobo and Lucy exchange insults.

5. When Ms. Wiggins asks Bill a specific question, Bill does not respond and continues to listen to his radio.

Notice that each of the five problem indicators begins with a situation and the identifies instances of individual student behavior.

Instruction C - Describe the Possible Causes...What Done It?

Now that the problems have been clearly identified, what do you think is the origin of the problems within the boundary of the classroom?

Discuss what the possible causes are. Again, have the secretary record the group's responses.

Feedback C

How do Sherry and Gil describe the possible causes?

(b) What are possible reasons for the trouble?

Sherry C.'s comments

Her failure to start of the year by giving her rules to students let her students think they can get away with anything.

Some of the students, like Bobo, are just too dumb to get anything out of the class.

Gill J.'s comments

Ms. Wiggins has presented the information in a dull way for these students. The lecture, homework, tell-me-back routine just won't do for many high school students.

Students need more self-dicipline. They think they can do anything they want to do.

Ms. Wiggins is to abrupt with the students. She could do with a few polite mannerisms herself.

Instruction D - A Cause by Another Name Is...Teacher!

Phil J. is again not satisfied by the comments of Sherry and Gil. "You both describe several instances of teacher actions. Yes. These are the possible causes of the problem. But I believe you stray when you, Sherry, say that students are dumb. That's a cop out. If the students are "dumb" then the teacher can also be called "dumb" for not changing her instruction to the students' levels."

After some discussion, the group agreed to restrict their search for causes of student performance problems to the activities of the teacher.

Using teacher behavior as a primary source of the problems, describe the possible causes of the students' problems.

Feedback D

"When fishing for causes, is better to use a net than single line."
Anon.

These words of wisdom suggest that the matter of identifying potential causes of a problem is complex. Hence, consider several alternatives.

Of course, there are several deficient behaviors on Ms. Wiggins' part. Whe asked students to respond when they couldn't; she provided minimal help; she was inconsistent in her treatment of students; and so forth.

If you really want to fish with a good net, consider the following questions that one could ask about Ms. Wiggins' behavior:

1. Did the teacher clearly communicate his/her instructional objectives to the students?

2. Did the teacher find out what the students already knew about the instructional objectives?

3. Did the teacher ingage in specific activities designed to help students learn the instructional objectives?

4. Did the teacher provide students with feedback about their performance on an instructional objective?

5. Did the teacher provide students with any incentives to perform well or to work cooperatively?

6. Did the teacher involve students in determining rules for conduct and work?

7. Did the teacher remove any environmental constraints from the classroom?

Instruction E - And What Does Joe Say?

Joe Harless, you recall, suggests that performance problems are caused by three kinds of deficiences: S/K (Skill/Knowledge); I/M (Incentive/Motivation); or ENV (Environmental). Thus, student performance deficiences could be due to S/K (they don't know how to respond); I/M (they aren't motivated enough to respond); or ENV (something inhibits or prevents their responding).

What causal factors, according to Harless, do each of the above questions address?

Hint: Question 1 deals with S/K.

Discuss your answers.

Feedback E

Table 1 represents the seven questions classified into two categories "Instructional Activities" and "Management Activities". The correspondence with Harless's terms is also given.

Table 1

Possible Causes of Performance Deficiences

in Student Behavior

Possible Causes of Any Performance Deficiences		Specific Indicators of Possible Causes
		Instructional Activities
Skill/Knowledge (S/K)		1. Did the teacher clearly communicate his/her instructional objectives to the students?
		2. Did the teacher find out what the students already knew about the instructional objectives?
		3. Did the teacher engage in specific activities designed to help students learn the instructional objectives?
		4. Did the teacher provide students with feedback about their performance on the instructional objectives?
		Management Activities
Incentive/Motivation (I/M)		5. Did the teacher provide students with new incentives to perform well or to work cooperatively?
		6. Did the teacher involve students in determining rules for conduct and work?
Environment (E)		7. Did the teacher remove any environmental constraints from the classroom?

Instruction F - Solution City Here We Come!

Now that you have suggested several causes of the problems, what kinds of solutions would you deem appropriate?

Discuss what kinds of solutions are needed to eliminate the deficient teaching behavior of Ms. Wiggins. Again, have the secretary record the group's responses.

Feedback F

How did Sherry and Gil describe the possible solutions?

(c) How would you go about correcting the situation?

Sherry C.'s comments

As I mentioned above, the teacher needs to set rules so that students will know what to expect from her. She is too inconsistent in the way she treats them and this is part of the problem.
I also think that if you appeal to the students' sense of maturity and responsibility as high school seniors, they should see that they have no right to bother other people. If they accept this responsibility, the teacher whould treat them as adults. If not, they should be treated like they act, as children.

Gil J.'s comments

She needs to find a better way of interesting kids in trig. First, she could be more interesting herself - tell stories about her experiences related to math and trig. Visual aides such as posters, movies, concrete models would also help.
She needs to treat students the same. If people break a rule, they all should get the same consequence.
Finally, Ms. Wiggins needs to have more discipline in her class. She should decide on what things are important, tell students, and let them know what will happen if they don't abide by her standards.

Instruction G

Phil J. is pleased by the comments of Sherry and Gil. "You are both on target by making specific suggestions for changes in Ms. Wiggins' behavior."

The group agrees that these changes are tentative plans, not a sure thing. They also agree that more explanation is needed in order for these solutions to be used.

On the next page, you will find statements made by Sherry and Gil that purpose to identify the "problems", the causes", and possible "solutions." For each of these statements, indicate individually if you think a particular statement refers in reality to a problem, cause, solution. You are not asked to judge the adequacy of these statements, only whether the statements actually do refer, as Sherry and Gil state, to problems, causes or solutions.

After completing this task individually, discuss the answers as a group. Be sure to record your answers and the group's answers seperately. Use a modal response for the group

	Problem	Cause	Solution
A. Problem Statements			
Sherry			
1. Ms. Wiggins just has no control over her class.	___	___	___
2. She needs to put her foot down and say to the class, "These are my rules."	___	___	___
Gil			
3. Students are completely uninterested in what's going on. They seem unmotivated, bored, and ready to avoid as much work as they can.	___	___	___
4. Ms. Wiggins doesn't treat students the same way.	___	___	___
B. Causal Statements			
Sherry			
5. Her failure to start off the year by giving her rules to students let student's think they can get away with anything.	___	___	___
6. Some students, like Bobo, are just too dumb to get anything out of the class.	___	___	___
Gil			
7. Ms. Wiggins has presented the information in a dull way for these students.	___	___	___
8. Students need more self-discipline.	___	___	___
9. Ms. Wiggins is too abrupt with the students.	___	___	___
C. Solution Statements			
Sherry			
10. The teacher needs to set rules so that her students will know what to expect from her.	___	___	___

	Problem	Cause	Solution

C. Solution Statements (continued)

11. I also think that if you appeal to the students' sense of maturity and responsibility as high school seniors, they should see that they have no right to bother other people. ___ ___ ___

G11

12. She needs to find a better way of interesting kids in trig. First, she could be more interesting herself - tell stories about her experiences related to math and trig. Visual aides such as posters, movies, concrete models would also help. ___ ___ ___

13. She needs to treat students the same. If people break a rule, they all should get the same consequences. ___ ___ ___

14. Ms. Wiggins needs to have more discipline in her class. She should decide on what things are important, tell students, and let them know what will happen if they don't abide by her standards. ___ ___ ___

Feedback G

1. Cause. The fact that Ms. Wiggins had no control led to the problems.

2. Solution. This is telling what should be done to eliminate the problems.

3. Problem. A hit! Gil called it a problem and I agree. We get an idea of the nature of various problems by looking at what the students are doing.

4. Cause. This statement is true, but leads to problems.

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5. Cause. A hit! The lack of action by Ms. Wiggins may have prompted some students to try anything.

6. Problem. You might like to argue about this one. "Dumb" is an unfortunate choice of words. In reality, Bobo did not complete his homework and made some disruptive comments in class. These are indications of problems in a classroom setting. The notion that some students do not respond <u>because</u> they are "dumb" is an overworked causal hypothesis, especially by teachers.

7. Cause. A hit! Gil goes on to list specific instructional techniques that are not appropriate.

8. Solution. We don't know what Gil means by "self-discipline" but whatever it is, it is intended to solve the problems.

9. Cause. A hit! This is certainly a plausible hypothesis. Some questions are not answered, and others only briefly.

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10. 11. 12. 13. 14. All hits! All of these statements deal with solutions. All except 11 refer explicitly to a needed course of teacher action. In item 11, one may infer that the teacher is the agent doing the "appealing," whatever that may be.

Now to go back and appraise your own responses to this task to see if you distinguished between these terms accurately. You may like to compare your scores and the scores of your group with the combined scores of Sherry and Gil.

	Problem	Cause	Solution
Sherry and Gil	1 out of 4	3 out of 5	5 out of 5
Yours	_____	_____	_____
Group	_____	_____	_____

What conclusions would you now make about the use of the terms "problem," "cause," "solution" as applied to instructional settings?