

INSPIRE: a model for tutoring success

From *The Wisdom of Practice: Lessons Learned from the Study of Highly Effective Tutors* by Mark R. Lepper and Maria Woolverton; Ch. 7 in *Improving Academic Achievement*, edited by Joshua Aronson (Academic Press).

This model for tutoring success is due to Lepper, Drake, O'Donnell-Johnson, (1997):
INSPIRE = **I**ntelligent, **N**urturant, **S**ocratic, **P**rogressive, **I**ndirect, **R**eflective, **E**ncouraging.

Context: research involved studying tutors helping elementary school kids learn math. The goal was to differentiate excellent from mediocre tutors' practices. Most of the expert/effective tutoring followed a recurrent sequence of phases as students worked through a series of problems:

1. Introduction (tutor and student become acquainted)
2. Problem selection (tutor)
3. Problem presentation (tutor)
4. Problem solution (mainly tutee)
5. Reflection (tutor - encourage thought about solutions, implications, etc.)
6. Instruction (when necessary - direct for problems)

Tutors steer the tutee's learning by using two diagnostic models, usually simultaneously:

- Cognitive models
- Motivational models

Tutors' decisions are easy when both models point in the same direction, but are more difficult when cognitive and motivational indicators point in different directions. In response to such situations, expert tutors demonstrate strategies that may be counter intuitive, and demonstrate sophisticated degrees of perception about the student.

Highly effective tutors exhibit characteristics listed under each of seven components of the INSPIRE model. Examples of behaviors that typify these characteristics are given in the right column.

INSPIRE Characteristic	Examples of behaviours
1. Intelligent	
Strong subject-matter knowledge	<ul style="list-style-type: none"> • Provide relevant historical information (instructive or motivational). • Use concrete manipulatives and visual models for illustrating difficult concepts. • Produce a wide variety of real-world analogies.
Strong subject- specific pedagogical knowledge	<ul style="list-style-type: none"> • Know which problems will be difficult. • Know what types of errors are most likely. • Know which problems appear to be more (or less) difficult to students than they really are.
General pedagogical knowledge	<ul style="list-style-type: none"> • <u>Use</u> and <u>articulate</u> instructional and motivational techniques identified in the rest of this table.
2. Nurturant	
Highly supportive of students.	<ul style="list-style-type: none"> • Establish personal rapport early. • Empathize with students' difficulties. • Show confidence in students' ability to succeed.
3. Socratic, not didactic.	
Questions, not directions	<ul style="list-style-type: none"> • More than 90% of remarks are in the form of questions. • Questions are often leading or informative. • Draw as much as possible from the student and to impose as little as necessary.
Hints, not answers	<ul style="list-style-type: none"> • Offer hints or suggestions and <u>avoid</u> directly giving answers. • Act to help students take the next step on their own.

INSPIRE Characteristic	Examples of behaviours
	<ul style="list-style-type: none"> Persist with many sequential hints, starting with general ones, and becoming more specific as necessary.
Productive versus nonproductive errors	<ul style="list-style-type: none"> Sophisticated understanding of different types of errors, and how to respond effectively to them. Ignore small errors when they don't prevent arrival at a correct answer (although these may lead to subsequent problems to target difficulties). Able to identify "productive errors" which can be used to guide students towards discovery of misconceptions. Some are deliberately allowed to occur so that they can be systematically "debugged". Able to detect and act upon "nonproductive errors", which may lead students astray, and which need more explicit intervention.
4. Progressive	
Problem progression	<ul style="list-style-type: none"> Systematic progression, starting with problems that diagnose students' initial levels of knowledge and misunderstanding. Subsequent problems selected for the correction of misunderstandings before moving on to further challenges.
Systematic debugging of student errors	<ul style="list-style-type: none"> Goal is to prompt students to discover for themselves the reasons for their errors. Routinely begin with general hints and questions, progressing to more specific questioning types of help only as needed.
Progressive routines	<ul style="list-style-type: none"> Effectively structure tutoring sessions using recurring routines, helping focus students' attention on appropriate issues at different phases of the tutorial.
5. Indirect	
Negative feedback	<ul style="list-style-type: none"> Avoid overt criticism by posing questions that indirectly imply the existence of an error and, sometimes, the location of that error. Goal is to prompt students into retracing their own steps and "catching" their own errors.
Positive feedback	<ul style="list-style-type: none"> Less likely to provide explicit praise to students, especially praise directed at the person rather than the process of problem solving.
6. Reflective	
Articulation	<ul style="list-style-type: none"> Have students reflect aloud immediately after a successful problem solution. This (i) helps gain information from students about possible misunderstandings, and (ii) helps students to understand at a <u>conceptual</u> level. (Eg: have student keep a written list in their own words of general "lessons" they had learned.)
Explanation	<ul style="list-style-type: none"> Periodically ask students to explain answers and procedures. If incomplete, elaborate on the student's response, thus modelling a more complete explanation.
Generalization	<ul style="list-style-type: none"> Periodically ask students to relate work to other types of problems or to real-world situation that they are familiar with and interested in.
7. Encouraging	
Confidence	<ul style="list-style-type: none"> Concerned with bolstering students' feelings of competence and mastery. Eg: emphasize the difficulty of the problems, (i) implicitly giving students an excuse if they do have difficulty and (ii) increasing the value of success.
Challenge	<ul style="list-style-type: none"> Likely to challenge students - goad them into a desire to "show" the tutor just how much they can accomplish. Able to present problems that will be challenging, though not impossible.
Curiosity	<ul style="list-style-type: none"> Try to pique students' curiosity, so they want to find answers on their own. Ask students to predict similarities or differences between current and previous problems. Deliberately highlight inconsistencies to provoke students into seeking some resolution.
Control	<ul style="list-style-type: none"> Offer students choices. Comply with their requests. Emphasize a student's sense of agency directly. Avoid direct didactic methods that could undermine a learner's sense of control.
Contextualization	<ul style="list-style-type: none"> Place abstract problems into meaningful and interesting contexts. Personalize problems so relevance can be seen in familiar real-world contexts that students care about. Use of enjoyable and provocative stories improves motivation.

(Changing to landscape and adding columns to the right might allow this table to be used as a tool for monitoring or assessing teaching assistants, instructors or others who interact with students.)