SELF-PACED OR LEADER-LED INSTRUCTION?

BY MARTIN E. SMITH

Which is better: self-paced or leader-led instruction? Training managers are still asking this question. It used to be that most courses were leader-led. Then the pendulum swung the other way with the programmed instruction movement. Now the debate seems to be heating up again. I'd like to give you my interpretation of the issues involved. I would also like to propose a way out of the quandary.

Ten years ago, there were very few self-paced courses. About that time, we started to "professionalize" course development. Development groups were created and separated from delivery groups. Instructional technologists were hired to design courses, or to teach our developers how to design training, or even to supervise our developers. In the Bell System, we went further. The course development process was institutionalized in the form of a document called the *AT&T Training Development Standards*. Administrative systems were created for quality control and distribution of courses.

Since the technology adopted by the developers came from the programmed-instruction movement, there was a tendency to develop self-paced training. For example, a recent survey in my company (the New England Telephone Company) showed that 31 percent of our high-volume courses were self-paced. Over the last seven years, my own training staff has developed 37 courses, of which 20 were self-paced. In my own mind, the term programmed instruction relates more to the course development process than it does to the instructional process. Nevertheless, we have advertised the advantages of individualized instruction: it accommodates differences among learners; it provides more opportunity for practice and testing, and so on.

Eventually, delivery managers started to object. They complained that self-paced courses took too long to develop. They said that trainees complained about boredom and monotony. Many instructors felt that self-paced instruction reduced them to glorified clerks. Self-paced courses were expensive because of the printing costs associated with non-reusable workbooks.

Start With Definitions . . .

There were other symptoms of discontent. I know of three self-paced courses that were converted to group-paced courses. One administrator of a self-paced course increased the average completion time from nine days to 11 days by inserting short lectures into the course. Needless to say, a little clarification of the issues might remove some of the emotion and promote selection of pacing by guidelines acceptable to both camps. The place to start is with some definitions.

Terms like "self-paced" (SP) and "leader-led" are used without precise definition. "Self-paced" instruction and "programmed" instruction (PI) are generally used interchangeably. "Group-paced" and "leader-led" are considered synonymous and opposite in meaning to SP and PI. I'd like to propose definitions of these four terms:

• *Self-paced instruction* is distinguished by the student's control over pace. The trainee decides how fast or slow to go through the instructional materials.

• *Programmed instruction* is characterized by (1) goals the learner is expected to achieve, (2) frequent responding to questions and exercises, (3) confirmation of correct answers and correction of wrong answers, and (4) a high rate of correct responding, as assured by developmental testing.

• In *group-paced instruction*, all trainees move at the same rate through the instructional materials.

• The key element of *leader-led instruction* is that the instructor controls how fast the trainee or trainees move through the instructional materials.

Most people would accept these definitions, but they would also add details that I reject. Here are some common misconceptions about these four terms.

1. "In self-paced instruction, the instructor has little to do beyond handing out materials and correcting tests." This statement is true for a lot of courses, but there are also many self-paced courses in which the instructor is very active as a tutor, role-player or observer-evaluator.

2. "Self-paced instruction is the same as programmed instruction." Most programmed courses are self-paced. But the terms are not synonymous. Reading a textbook is self-paced; it is not programmed. Pseudo-programmed courses imitate the superficial aspects, such as self-pacing, and fall down on the analysis and developmental testing required for specifying learner goals and high rate of correct responding.

3. "Group-paced instruction is the opposite of programmed instruction." I have witnessed a lecture-type course that was programmed. The course had well defined objectives derived from a task analysis. The course was refined through several developmental tests. There was frequent responding: every two or three minutes the instructor had the students answer questions in a work-book. Confirmation was provided by brief discussion of the answers.

4. "Leader-led is the same as group-paced instruction." In general, this is true. One exception is a tutorial session in which the instructor controls the progress of a single student.

In summary, the only terms which are opposite in meaning are self versus group-paced instruction. "Programmed" and "leader-led" can overlap with both self and group-paced.

Critical Success Factors

Self versus group-pacing is but one of many questions in designing a training course. And, to my way of thinking, it is one of the less important issues. I can think of six factors that are more important to the success of training: (1) the relevance of course content to job requirements, (2) the motivation of trainees to learn, (3) opportunity to practice the skills or tasks taught, (4) supervisory support back on the job, (5) the skill of the instructor, and (6) developmentally testing the course and revising instruction until trainees can achieve the course objectives. Choosing the pacing is a legitimate concern, but only after you have cared for these seven factors.

Self-paced and group-paced instruction both have their place. Neither is inherently superior to the other. There are situations where either can be used and there are situations where one is preferable to the other. The choice depends on such factors as: (1) characteristics of the trainees, (2) skills to be learned, (3) other instructional design considerations, (4) administrative considerations, and (5) development constraints.

I have devised a questionnaire (page 16) for considering these factors, and I'd like to share it with you. The questionnaire consists of 23 multiple-choice items. Each response is labeled "SP" for self-paced, "GP" for group-paced or
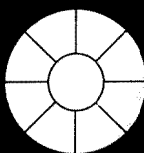
QUESTIONNAIRE FOR CHOOSING BETWEEN SELF-PACED AND GROUP-PACED INSTRUCTION

TRAINEE POPULATION

1. For what type of job will training be developed?

   ☐ a. Clerical — SP
   ☐ b. Craft (entry-level training) — SP
   ☐ c. Craft (continuation training) — Either
   ☐ d. Supervisory — GP

2. What is the size of the target population?

   ☐ a. Large (75+ per year) — SP
   ☐ b. Intermediate — GP
   ☐ c. Small (5 or less per year) — SP

3. What is the work history of the trainees?

   ☐ a. Similar backgrounds — GP
   ☐ b. Varied; unrelated to course — SP

COURSE OBJECTIVES

4. Are the procedures, tasks, skills, etc., well defined?

   ☐ a. Yes — SP
   ☐ b. No — GP

5. Will interpersonal skills be taught?

   ☐ a. Yes — GP
   ☐ b. No — Either

6. Do the tasks involve working in pairs or crews?

   ☐ a. Yes — GP
   ☐ b. No — Either

7. Can you identify all (or almost all) the circumstances or factors that affect how the task(s) should be performed?

   ☐ a. Probably yes — SP
   ☐ b. Probably no — GP

8. Is it important to persuade trainees to use or accept a new tool, plan, system, etc.?

   ☐ a. Yes — GP
   ☐ b. No — Either

9. What will happen if a trainee does not learn all the skills or tasks (s)he is expected to learn?

   ☐ a. The trainee will receive remedial training. — SP
   ☐ b. The field supervisor must provide coaching before the trainee can become self-sufficient. — SP
   ☐ c. The trainee will be set back to his (her) previous job title. — SP
   ☐ d. There will be no immediate, obvious or costly consequence. — GP

INSTRUCTIONAL DESIGN

10. Will extensive practice be required?

    ☐ a. Yes — SP
    ☐ b. No — GP

11. Can the "feedback" associated with practice be provided by the printed material?

    ☐ a. Yes — SP
    ☐ b. No — GP

12. Can the feedback be provided by another student?

    ☐ a. Yes — GP
    ☐ b. No — Either

13. If the instructor must provide the feedback, will the feedback be extensive?

    ☐ a. Yes — SP
    ☐ b. No — GP

14. If the course were self-paced, would the course be monotonous (e.g., extended reading with no breaks or variety)?

    ☐ a. Yes — GP
    ☐ b. No — SP

ADMINISTRATIVE PROCEDURES

15. Does the school have facilities (e.g., carrels) for self-paced instruction?

    ☐ a. Yes — SP
    ☐ b. No — GP

16. Can training facilities and instructors be arranged to accept trainees immediately (rather than waiting until there are enough trainees to justify running a class)?

    ☐ a. Yes — SP
    ☐ b. No — GP

17. Will the course be taught by the field supervisor?

    ☐ a. Yes — SP
    ☐ b. No — Either

18. Will it be critical to control administrative costs?

    ☐ a. Yes — SP
    ☐ b. No — Either

DEVELOPMENTAL CONSIDERATIONS

19. Are work methods (and their documentation) stable?

    ☐ a. Frequent change — GP
    ☐ b. Occasional change — SP

20. What is the "life expectancy" of the course?

    ☐ a. Short (less than year) — GP
    ☐ b. Long — Either

21. What is the "lead" time?

    ☐ a. Short; tight deadline — GP
    ☐ b. Long; time not major consideration — Either

22. Will it be critical to control developmental costs?

    ☐ a. Yes — GP
    ☐ b. No — Either

23. Is the developer experienced?

    ☐ a. Yes — Either
    ☐ b. No — GP

SUMMARY

Considerations	Group	Self	Either
Trainees (3)			
Objectives (6)			
Design (5)			
Administrative (4)			
Development (5)			
Total			

"either," meaning that the response does not favor one mode or the other. There is a table at the end of the questionnaire for summarizing your responses.

As you read the questions, you may wonder why a particular answer is coded one way and not another. The codings represent my understanding of prevailing opinion among my colleagues. In some cases, there is a very weak rationale to support the association of one type of pace to a particular factor. The basis is more "common practice" than cause-and-effect. Herewith is my reasoning for each item.

1. *"For what type of job will training be developed?"* I have indicated self-pacing for clerical and entry-level craft courses. These two types of courses tend to have large populations with wide ranges of entering skills and experience. These differences are especially reflected in variable amounts of practice required by trainees. Self-pacing can more easily accommodate widely differing needs for practice. On the other hand, experienced craft and supervisory personnel are often more homogeneous in their experience. Therefore, practice requirements should vary less.

Secondly, supervisors usually have an uncontrollable desire to "talk shop." There are, of course, good reasons for class discussion, especially when the course deals with tasks for which there is no one right way of performing or problems for which there is no one right answer.

2. *"What is the size of the target populations?"* A large population may require the continuous running of the course. Self-pacing is suited to scheduling large numbers of trainees on short notice. At the other end of the spectrum, a small population may not justify organizing a class. By the time you get enough people to fill the minimum number of seats, training may be too late for some people. Therefore, a self-paced course would seem to meet the needs of small populations as well.

3. *"What is the history of the trainees?"* Varied backgrounds usually mean variable need for practice, which is better satisfied with self-pacing.

4. *"Are the tasks, skills, etc., well defined?"* Well defined procedures, where there is clearly a right way of doing things, are taught most efficiently with a standardized presentation. Although group presentations can be standardized, self-paced courses usually achieve a greater degree of uniformity.

On the other hand, group interaction is important when there are various ways of accomplishing the same task or when a variety of factors may affect how the task will be done. It is difficult, but not impossible, to cover all possibilities in a self-paced course.

5. *"Will interpersonal skills be taught?"* The reasons for favoring group training are obvious. I would point out, however, that I have seen several attempts to teach simple skills, like treating customers courteously, by means of self-paced training.

6. *"Do the tasks involve working in pairs or crews?"* Here, again, the rationale for group-paced training is obvious.

7. *"Can you identify all (or almost all) the circumstances or factors that affect how the tasks should be performed?"* The range of possible circumstances is often best brought out through discussion.

One of the points I'd like to make about this questionnaire is that the answer to one question may be correlated with answers to other questions. Take question 7, for example. The more predictable the circumstances, the more likely there are well-defined procedures (No. 4). The more predictable jobs tend to be entry-level jobs (No. 1) with large populations (No. 2). The less predictable jobs tend to be specialist or supervisory (No. 1).

8. *"Is it important to persuade trainees to use or accept a new tool, plan, system, etc.?"* Persuading people to do something differently is more easily accomplished through group interaction than through standardized self-paced

courses. People are more likely to accept new ideas if there is someone to answer their questions and allay their anxiety. It's more economical to provide this personal contact in a group setting than in one-to-one conversation.

A few months ago, I presented this article at a convention. The audience discussed question 8 at length. Many felt that self-paced instruction could be quite effective in persuading people to adopt new ways. On the other hand, peer pressure was mentioned as a group-paced tactic in bringing about attitude change. Someone said that he would accept my point if adoption of new behavior patterns depended on giving up old, and presumably comfortable, behaviors.

9. *"What will happen if a trainee does not learn all the skills or tasks that he or she is expected to learn?"* When there are serious consequences for failing to learn all the skills taught, then it is important to provide comprehensive testing and ample opportunity for practicing the new skills. It is easier to provide these features in a self-paced format.

10. *"Will extensive practice be required?"* The more extensive the practice, the greater the difference between the fastest and slowest learners. Self-pacing accommodates different learning rates more readily than group-pacing.

11. *"Can the 'feedback' associated with practice be provided by printed material?"* Feedback includes confirmation of the correct answer and correction of the wrong answer. If feedback can be given in printed form, such as in a workbook, then self-scoring is possible, which enhances the feasibility of self-pacing. If the feedback is varied, then an instructor will be needed to provide the feedback. (Note: Computer-assisted instruction has been omitted from this discussion. However, as the list of possible feedback comments increases, the bulk or size of the printed materials increases. This problem lends itself to computer-assisted instruction.)

12. *"Can the feedback be provided by another student?"* If trainees can provide feedback to one another during practice sessions,

then it will be easier to handle a group, or more precisely, a larger group.

13. *"If the instructor must provide the feedback, will the feedback be extensive?"* Extensive feedback is often easier to provide in a self-paced mode. While one trainee is receiving feedback, other students are not held up. Lengthy feedback does not preclude group instruction, but it may severely limit class size.

14. *"If the course were self-paced, would the course be monotonous?"* Would there be extended reading with no breaks or variety? Trainees are easily bored when they are isolated in a cubicle for days, working with the same set of materials. It's reasonable to assume that boredom is not conducive to learning. (By the way, group-paced training can be every bit as boring as a poorly designed self-paced course. Conversely, there are ways to increase the entertainment value of self-paced materials. It should also be pointed out that self- and group-pacing can be combined in the same course.)

15. *"Does the school have facilities for self-paced instruction?"* Study carrels that reduce distractions and provide space and comfort make self-paced courses a lot easier on the trainees.

16. *"Can training facilities and instructors be scheduled to accept students immediately, on demand, rather than waiting until there are enough trainees to justify scheduling a class?"* The ideal situation is to provide training as soon as the student needs training. It's easier to schedule training on demand with self-paced training than with group-paced training.

17. *"Will the course be taught by the field supervisor?"* If the course is to be administered on the job, the supervisor's task will be easier if he or she works with one trainee at a time rather than with a group.

18. *"Will it be critical to control administrative costs?"* Administrative costs include such items as trainees' salaries, their vouchered expenses, the instructor's salary, training center overhead, and trainee materials consumed in the course. Most of these items are

correlated with the length of training, especially trainee salaries and expenses. In general, the average training time tends to be less for self-paced than for group-paced training. Sometimes the trainee workbooks consumed in a self-paced course can be quite expensive. However, these costs can be controlled by having the trainees write their answers on blank paper rather than in the workbook.

19. *"Are work methods, and their documentation, stable?"* Instability causes frequent update of training materials. In general, it is easier to change one set of the instructor's materials than all the materials handed out in a self-paced course.

20. *"What is the life expectancy of the course?"* Self-paced courses tend to be more expensive to develop. The greater expense is less justified for courses that become obsolete quickly.

21. *"What is the lead time?"* Self-paced courses take longer to develop. Given a tight deadline, choosing group over self-pacing will save development time.

22. *"Will it be critical to control developmental costs?"* Self-paced courses cost more to develop.

23. *"Is the developer experienced?"* Self-paced courses tend to be more difficult to design. If I had to put a brand new course developer on a project, I would more than likely choose a group-paced design. In group courses, the instructor can often add to the course outline, filling in details omitted by the developer.

When you finish the questionnaire, add up the indicators of group-paced, self-paced and either format. If the totals are roughly equal, then either mode would probably be suitable. One alternative is indicated only if there is a large majority of tallies in one column.

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