

Ward, Ted W. and Samuel F. Rowen. 2013. The *Rail-Fence Analogy* for the Education of Leaders. *Common Ground Journal* v11 n1 (Fall): 47-51. ISSN: 15479129. URL: [www.commongroundjournal.org](http://www.commongroundjournal.org).

## Abstract

The Rail Fence Analogy is an uncomplicated metaphor for an effective and consistent learning process typically applied to leadership education. It was written in 1969 with assistance of Sam Rowen; their work is combined here. The article has been widely used and borrowed. The original conception was published in a working document while at Michigan State University. Many variants of the Rail Fence Analogy have appeared in print, sometimes misrepresenting the fence as a railroad, but the idea stands. No matter the words, as long as the picture is clear!

## Preface by Samuel Rowen (1969)

As those engaged in theological education by extension began to give progress reports, a polarization arose as to which was the superior method of training, residence or extension. These discussions often proved unfruitful and a true assessment of theological training became more difficult. In *The Rail Fence Analogy* we can see theological education by extension in its proper perspective as part of a worldwide trend to fashion better procedures of leadership training. By definition, leadership education is specialized training for a high-level, client-oriented service. The development of a pastor through professional education must provide the knowledge base in an action-function form. The ministry specialization requires practical contexts in which to develop the leadership competencies needed in the service of people. The trend now in professional education is to include field-based experiences as an integral part of the curriculum design and to design opportunities to integrate newly acquired knowledge with these practical experiences in context.

It is within the framework of the three functions of curriculum design as explained in *The Rail Fence Analogy* that theological education by extension has developed. The students learn not in an abstract or remote environment but in the actual experiential context in which the knowledge must be applied. The opportunity for perceiving the value of new information is experientially available. Theological education by extension is not an attempt to make the best of a bad situation. It is a part of a worldwide trend based upon substantial research on how people learn.

A sober assessment of the accomplishments of our present institutions, in spite of many positive contributions, reveals that they have not produced the quality of leadership that the churches need. Simply changing to an extension program will not automatically solve the problem. Designing a sound professional (theological) education is broader than the institutional management decision of extension or residence. The prior questions include the following: What constitutes a valid theological education in Manila, or Tokyo, or rural Nigeria? What does the student need in order to know, to do, and to be? How can learning experiences be structured in order to achieve these goals?

Now for some history. Here is the way I remember our first experience with the Rail Fence Analogy. It wasn't our first collaborative workshop, but it proved to be one of our most effective. Always at his best in a discussion mode, many of Ted's most useful contributions emerged during group interactions. The *Rail Fence Analogy* is one such case. He introduced it with these words: "In a doctoral seminar at Michigan State University a few weeks ago, we were talking about learning context. The question we were exploring was

something like this: ‘What is essential for a good learning experience for adult educators?’ Ted shifted the discussion a bit and it came out like this: ‘What is needed for effective learning?’ With help from others in our group, we listed and sorted a variety of learning experiences and were busily dreaming up names for the various clusters. We logged everything onto large sheets of newsprint. Ted helped the group move the lists toward minimally overlapping sets of learning components. Soon the walls were covered with ideas and we were really rolling along. No two lists were alike but the similarities were getting clearer.

Someone with an artistic flair drew a sketch of a fence and began adding labels. As the others began to pick up on this nudge, the similarities increased and the varieties among the fences settled down. The first really convincing picture was simple but said a lot. It showed a simple two rail fence with a row of several fence posts! Ted was impressed and we all breathed sigh of relief. Our learning exercise had produced something very useful. There were some short discussions about how to name the parts of the fence, but the consensus quickly grew. Several fence-like drawings were emerging. The images were tentative, but some common elements were evident. People were trying out various labels. Suddenly it came together and several groups worked together to shape up and label the first rail fence! It was simple but clearly suggestive, and it showed relationships that made sense! From the cluttered piles of ideas and our imagination, we had created a graphic design that Ted talked with us about for the remainder of the hour.

We concluded that our drawing suggested three components: our answer to the question of the hour was that we needed three parts: (1) the top rail, that we named *cognitive input*, (2) a lower rail that we named *practical experiences*, and (3) a series of fence posts we labelled as seminars 1, 2, 3, etc. Ted seemed pleased, although he really hadn’t done much. He simply started in on one of his endless stories. I remember how it started: “The learning process is like a rail fence. The top rail keeps in the horses, the bottom rail stops the pigs, and the fence posts hold the whole thing together, keeping the rails properly related to the earth where they are rooted. My grandfather was an Illinois hog farmer, so for me it is a vivid picture. It’s a great set of symbols and it says it all so well! What it shows is a perfect metaphor for the combination of these three components, and it even suggests how they work together to fulfil their collective purpose. The top rail suggests *cognitive input*, the bottom rail suggests *field experiences*, and the fence posts suggest *seminars*, periodic times of reflection on what the other two components are saying to the learners! The resulting analogy is purposeful, firmly rooted in reality, experiential and closely relating the *thinking* and *doing* components. It truly represents my favorite trilogy from graduate school days: ‘Knowing, Being, Doing—the know-be-do formula.’” Ted summed up our session with this suggestion: “The first two parts should be designed for clear application of each part to the other. The third part should not be continuous, but spaced across time as periodic group encounters, commonly focused on these questions: What are we learning? What do these inputs and experiences mean to us?”

It is important to remember the way Ted used the word *curriculum* in *The Rail Fence Analogy*, and elsewhere in his writing. *Curriculum* does not refer to a list of courses. Curriculum refers to the entire educational process and its net outcomes. Therefore, improving the curriculum does not refer simply to the adding or subtracting of courses. It speaks to the necessity of rethinking and remodeling the entire educational process.

Theological education by extension offered an alternate strategy for solving some of the perplexing bottle-neck problems in theological education. The *Rail Fence Analogy* was first published in a larger paper written by Ted at Michigan State University in relation to contemporary trends in professional education in general—for doctors, lawyers, dentists, architects, engineers and so on. However, his reflection on professional education in these fields offers insights into the particular problems we face in theological education. Following are some samples from that larger paper.

### The Rail Fence Analogy by Ted Ward

Good educational programming requires a balance and blend among a variety of experiences. Although there is essential agreement among professional educators about what sorts of educational experiences are valuable, it is no longer popular to search for the “best way” to educate. The real issue in curriculum design is not what experiences are best but rather *how much* of *what kinds* of experiences should be used to achieve the intended objectives. Many curricular designs are now used in professional education. Rarely do any two institutions use identical curricula to achieve given professional goals. Even the U.S. Office of Education, in its current efforts to seek out and encourage development of “model curricula” for the preparation of teachers, does not attempt to alter this trend. Instead, participating institutions are encouraged to design programs that reflect the particular resources, needs and capacities of local situations.

However, current curricular developments tend to reflect three common characteristics: a) increasing use of field experiences, b) more variety in methods of providing cognitive learning, and c) greater articulation between field experience and cognitive learning through seminars, symposia, and other forms of “sharing” experiences. These three characteristics are illustrated through the metaphor of a two-rail fence. The fence has three parts: an upper rail, a lower rail, and fence posts. The upper rail represents the cognitive input, the lower rail represents field experiences, and the fence posts represent the seminars. The seminars are periodic linkages between cognitive experience and field experience.

The design for constructing a two-rail fence may be compared to the design of a curriculum. Of what material is the top rail to be constructed? How substantial should it be? How far above the ground? Of what materials will the lower rail be constructed? How substantial? How will it compare with the upper rail, in terms of separation and parallelism? What will be the nature of the supporting posts? What is the optimum spacing for tying the structure together in a supported, articulated and coordinated whole? In a fence there are two sets of variables that determine the desirable characteristics: the use or function of the fence, and the balance of the components. With reference to the former, a fence is good if it performs a designated function over a stipulated period of time. A decorative fence does not need to be strong enough to contain cattle, but a cattle fence may or may not also need to be decorative. The fence’s function and expected durability in relationship to its cost are important considerations. With reference to the second set of variables, *balance*, the proposition is that a fence’s components, like the links of a chain, need to be selected or designed for balanced strength. The “weakest link” principle pertains: a fence is not made better by increasing the size of the upper rail (unless, of course, that had been the weakest link); conversely, to decrease the strength of the posts weakens the entire system.

More illustrations can be seen in the way the two sets of variables, function and balance, relate to each other. For a start, consider the matter of spacing between the posts: for a decorative function, the spacing can be longer than for a fence that must restrain livestock. Spacing of the rails is also dependent on function—rails must be closer to each other and closer to the ground for sheep than for horses.

### The Upper Rail: Cognitive Input

Although the ability to recall information (facts and figures) is not the central purpose of education, its importance must not be discounted. “Cognitive input” refers to the learning of the informational knowledge. Cognitive input is basic to competence and excellence. Cognitive data (knowable as information) ranges from simple concrete facts up through abstract concepts and problem-solving strategies. Cognitive input, in a sense, concerns the focal things to be learned; but it would be more useful to think of cognitive input as *the information that can be learned by reading, hearing, or looking*. Cognitive input is provided through a wide variety of instructional modes: through textbooks, assigned readings,

lectures, recordings, films and programmed instruction of several sorts. New media of instruction are sometimes employed so that the cognitive input can be more effective or learned more efficiently.

Unfortunately it is often the cognitive input component that is likely to suffer from a learner's low motivation and from rapid obsolescence of the content. A curriculum that over-emphasizes cognitive input is likely to be characterized by high drop-out rates (premature withdrawal) and by frequent complaints about irrelevancy.

### ***The Lower Rail: Field Experiences***

Recognition of field experiences as applied learning for the professions is clearly a trend. For years in the past, internships, apprenticeships, and similar field experiences were suspect as being inferior substitutes for truly scholarly learning. Some said that learning that could not be committed to the form of print should not be recognized as educationally valid. Today many of the problems in the professions are so new that textbook answers are not available. Books alone cannot provide all that is needed for a timely and substantial curriculum. Getting experience "where the action is" seems to be one useful answer for the demand that education be more relevant.

Early in this century, clinical experience was recognized as a necessary part of medical education. The Carnegie Foundation's support of Abraham Flexner's study of medical education in the United States played an important part in this development. First, clinical experience was recognized as an essential part of modern medical education. It then followed that field experiences in general have been acknowledged increasingly as a valid aspect of the curriculum in virtually every professional field.

Field experiences are not all the same. For example, the degree and kind of supervision varies from one program to another. But the essential ingredient remains the same: exposure to the environment and life problems of the practitioner *during* the period of formal educational experience.

Recognition of the validity of field experiences has also had a remarkable impact on the concept of in-service education, sometimes called continuing education to denote its life-long characteristic. The older, and simpler, practice of transplanting the campus-oriented courses to some remote point, syllabus, text, and professor, is disappearing. The modern extension and continuing education operations capitalize on the fact that in-service professionals are engaged in day-by-day experiences that constitute a rich source of material for valuable learning. Experiences of the practitioner's world thus become the sources of further knowledge, the motivation to learn, and the basis for evaluation, reconsideration, and planning. When extension education makes effective use of the field experiences that confront the in-service practitioner, it is a worthy competitor to the more formal and classical forms of education. A problem-centered approach to extension teaching is certainly a great improvement over the "transplanted course" approach.

### ***The Fence Posts: Seminar***

If students are to make a solid connection between the cognitive input and their field experiences, they need someone to talk to—preferably someone who is learning along with them. Often something exciting happens when learners get together *to put into their own words* how new information relates to their doing an effective job. If left to chance or individual initiative, new information may never result in appropriate changes in the professional practice. Even worse, it can result in incorrect applications to practice. Misunderstandings in the cognitive realm can result in disasters in the realm of practice. The seminar, as an opportunity for reflecting, evaluating and hypothesizing, can reduce the gaps and the misapplications, resulting in more potent and responsible transfers from theory to practice, and back again to better theory.

“Seminar” is a word carelessly used to mean whatever its user wants it to mean which obscures its importance as an instructional approach. But until we find a better word “seminar” will have to suffice to indicate the less structured experiences that lead to integration of cognitive input and field experiences through sharing and discussion. The hallmarks of a good seminar are the occasions and stimulations to reflect upon and evaluate learning from both the cognitive input and from the field experiences with a premium on relating the two. The objectives of a seminar can usually be expressed in terms of applying principles and concepts to problem-solving tasks.

Educators in the past have idealized Mark Hopkins on one end of a log and a student on the other as a model of the pedagogical relationship. This model seems deficient in the light of research on the value of peer interactions during a learning experience. A more useful model, at least for the education of leaders, may be the two-rail fence—two lines of parallel linear flow supported and integrated by spaced interactive seminars—a model of the relationships among the three major aspects of a curriculum for educating leaders.