

## Learning Transfer System Inventory

Elwood F. “Ed” Holton, III

### Biography

Elwood Holton holds an extensive record of accomplishment in human resource development and in adult and continuing education. He is the Jones S. Davis Distinguished Professor of Human Resource, Leadership and Organization Development in the School of Human Resource Education at Louisiana State University. Among other duties within the department he coordinates degree programs in Human Resource and Leadership Development. He has written extensively in adult education and human resource development including over 200 articles and numerous books. He is the founding editor of the Human Resource Development Review and past president of the Academy of Human Resource Development Review. He has numerous years of experience consulting with various private, public and non-profit organizations. He consults on various topics including organizational climate and culture, organizational change, team building and organizational design. He received all his degrees from Virginia Tech including his B.S. in Business, an M.B.A., and an Ed.D. in Human Resource Development (IACE, 2005).

## Learning Transfer System Inventory

In 1996 Holton laid down the foundational argument for the Learning Transfer System Inventory in his article The Flawed Four Level Evaluation Model (Holton, 1996). He adamantly argued that evaluation of interventions is critical to the field of human resource development

(HRD) (Holton, 1996). While acknowledging that the Kirkpatrick's model for training evaluation known as the four-level evaluation model is the standard in the field, Holton argues it doesn't go far enough and is best labeled taxonomy, which is simply a classification scheme (Holton 1996). Kirkpatrick's four levels are: reactions, learning, behavior and results (Kirkpatrick & Kirkpatrick, 2007, p. 1). Holton proposes moving from a taxonomic evaluation approach to a fully specified evaluation model that meets the criteria of good theory and model building (Holton, 1996).

Holton proposed an evaluation model that hypothesizes that HRD outcomes are a function of ability, motivation and environmental influences at three outcome levels: learning, individual performance and organizational performance (Holton, 1996; Holton 2007). The conceptual format is shown in figure 1 (Holton 1996). Holton also adds secondary influences to the final model including such influences as attitude and personality and especially those effecting motivation (Holton, 2007). The model is shown in figure 2 (Holton 1996).

Holton saw learning, transfer of learning, and improving transfer of learning as critical outcomes in HRD (Holton, Bates & Ruona, 2000). The first step to improvement of learning transfer is the accurate diagnosis of factors inhibiting it (Holton, Bates, Ruona, 2000). He found no tool in HRD to perform such a diagnosis (Holton, Bates & Ruona, 2000). His goal was the development of a valid and generalizable set of transfer scales for use by HRD professionals (Holton, Bates & Ruona, 2000).

The outcome of this initiative is the Learning Transfer System Inventory that has four constructs: ability, motivation, environment, and secondary influence for learning outcomes and organizational outcomes (Holton, Bates & Ruona, 2000). Learning Transfer System Inventory:

Conceptual Model of Instrument Constructs is shown in figure 3 (Holton, Bates & Ruona, 2000). The model addressed according to Holton a major risk in Kirkpatrick's four levels that any failure to achieve is blamed on the failure of the intervention without consideration that the failure may be due to moderating variables (Holton, 2005). An example cited by Holton is where no behavior is changed because of bad support climate not failed intervention (Holton 2005).

The final instrument which was developed from version 1 is divided into two sections representing finally two construct domains with 76 items in the first section measuring 11 constructs and the second section of 36 items measuring five general constructs (Holton, Bates & Ruona, 2000) The constructs for the first section are:

1. Learner readiness
2. Motivation to transfer
3. Positive personal outcomes
4. Negative personal outcomes
5. Personal capacity for transfer
6. Peer support
7. Supervisor support
8. Supervisor sanctions
9. Perceived content validity
10. Transfer design
11. Opportunity to use (Holton, 2007)

General constructs are:

12. Transfer effort performance expectations
13. Performance outcome expectations
14. Resistance or openness to change
15. Performance Self-Efficacy
16. Performance coaching (Holton, 2007)

Factors, definitions, and sample items are shown in figure 4 (Holton, Bates & Ruona, 2000).

Practitioners can use the LTSI in various ways:

- To assess potential transfer problems before conducting major learning interventions
- As part of follow-up evaluations of existing training programs
- As a diagnostic tool for investigating known transfer of training problems
- To target interventions designed to enhance transfer
- To incorporate evaluation transfer of learning systems as part of regular employee assessments
- To conduct needs assessment for training programs to provide skills to supervisors and trainers that will aid transfer (Holton, Bates, Ruona, 2000, p.357).

The model has been well tested with the production of strong evidence of construct validity (Holton 2005). Yet Holton updated the model in 2005 by modifying it to reflect “new theory, particularly in the area of motivation” (Holton, 2005, p. 50). Figure 5 is the Revised HRD Evaluation and Research Model (Holton, 2005)

Further complex and demanding validation studies are needed (Holton 2005).

## References

- Holton, E. F. III (1996). The flawed four level evaluation model. *Human Resource Development Quarterly*. 7(1), 5-21.
- Holton, E. F. III (2003). What's really wrong: Diagnosis for learning transfer system change? In E. F. Holton III & T. T. Baldwin (Eds.), *Improving Learning in Transfer Organizations* (pp. 59-75). San Francisco: Jossey-Bass A Wiley Imprint.
- Holton, E. F. (2005). Holton's evaluation model: New evidence and construct elaborations. *Advances in Developing Human Resources*. 7(1), 37-54.
- Holton, E. F., Bates R. A., & Ruona W. E. (2000). Development of a generalized learning transfer system inventory. *Human Resource Development Quarterly*, 11(4), 333-360. Retrieved September 22, 2009, from ABI/INFORM Global. (Document ID: 66090106).
- International Adult and Continuing Education (2005). Hall of Fame; Class 2005. <http://www.halloffame.outreach.ou.edu/2005/holton.html>
- Kirkpatrick, D. L. & Kirkpatrick, J. D. (2007). *Implementing the four levels: A practical guide for effective evaluation of training programs*. San Francisco: Berrett-Koehler Publishers, Inc.

Report prepared by Raymond L. Hasselman

2009 Theories Class

Figure 1

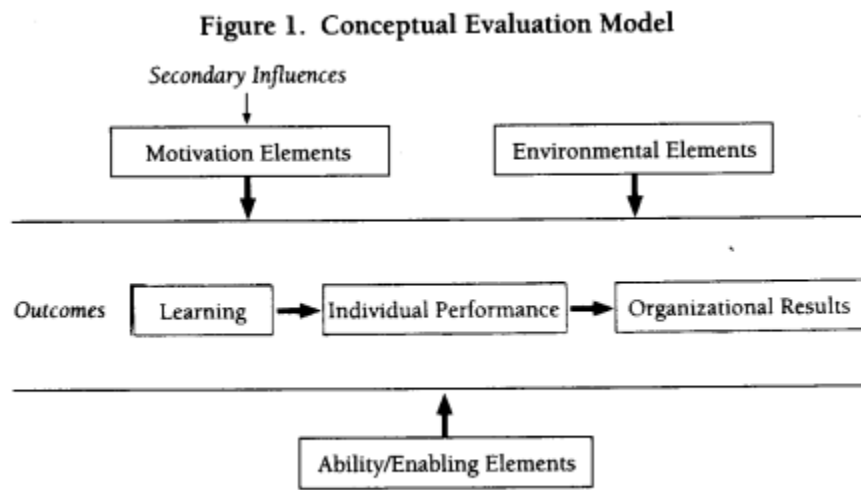


Figure 2

Figure 2. HRD Evaluation Research and Measurement Model

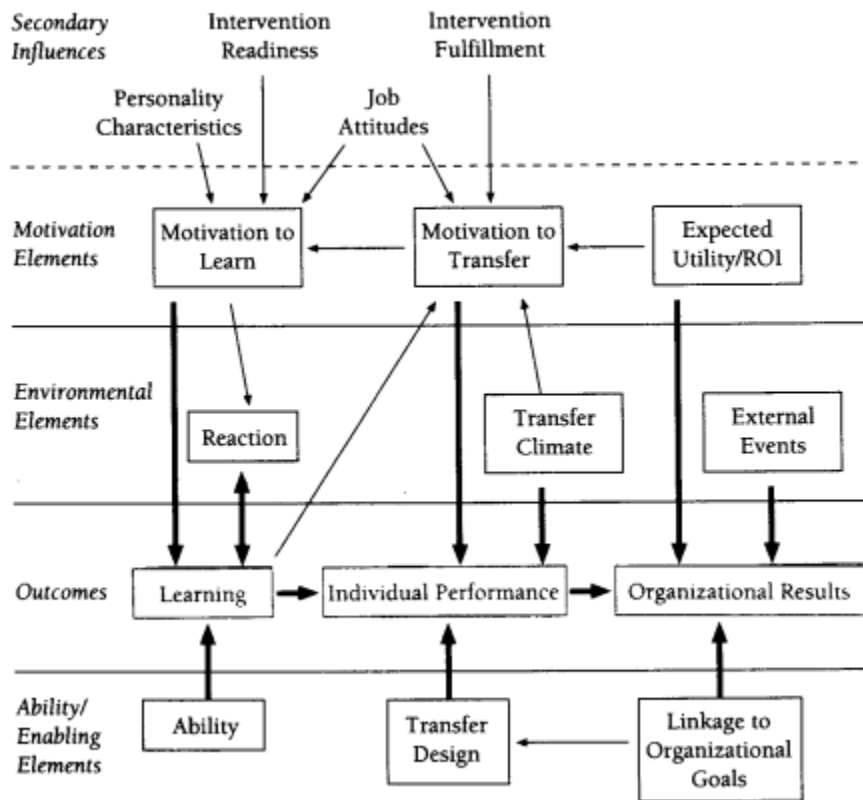


Figure 3

**Figure 1. Learning Transfer System Inventory: Conceptual Model of Instrument Constructs**

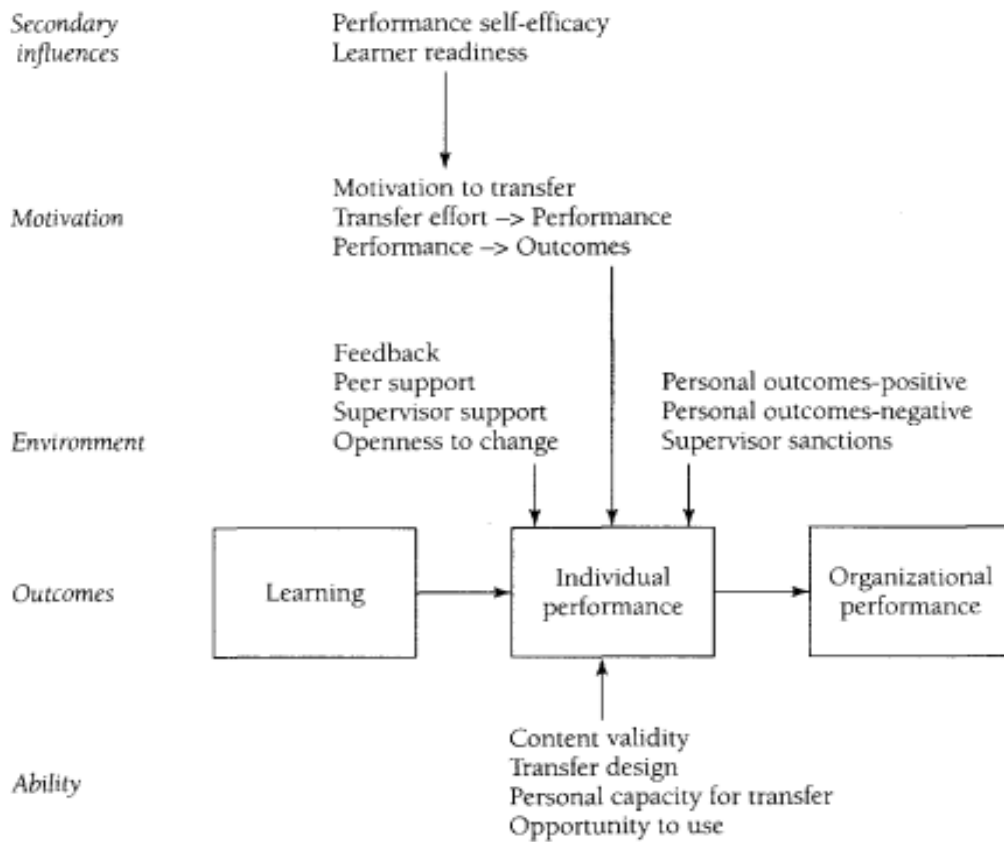




Figure 4

Table 2. LTSI Factor Definitions and Descriptive Data

| Factor                                   | Definition  | Sample Item  | Number Items | $\alpha$ | Average—Major Factor <sup>1</sup> | Average—Other Factors <sup>2</sup> |
|--|---|--|--------------|----------|-----------------------------------|------------------------------------|
| <i>General Scales</i>                    |   |  |              |          |                                   |                                    |
| Learner readiness                        | The extent to which individuals are prepared to enter and participate in training   | Before the training I had a good understanding of how it would fit my job-related development.           | 4            | .73      | .64                               | .04                                |
| Motivation to transfer                   | The direction, intensity, and persistence of effort toward utilizing in a work setting skills and knowledge learned   | I get excited when I think about trying to use my new learning on my job                                 | 4            | .83      | .65                               | .04                                |
| Positive personal outcomes               | The degree to which applying training on the job leads to outcomes that are positive for the individual   | Employees in this organization receive various "perks" when they utilize newly learned skills on the job | 3            | .69      | .56                               | .05                                |
| Negative personal outcomes               | The extent to which individuals believe that not applying skills and knowledge learned in training will lead to outcomes that are negative  | If I do not utilize my training I will be cautioned about it   | 4            | .76      | .65                               | .04                                |
| Personal capacity for transfer           | The extent to which individuals have the time, energy, and mental space in their work lives to make changes required to transfer learning to the job                                | My workload allows me time to try the new things I have learned  | 4            | .68      | .56                               | .04                                |
| Peer support                             | The extent to which peers reinforce and support use of learning on the job  | My colleagues encourage me to use the skills I have learned in training                                  | 4            | .83      | .66                               | .04                                |
| c CC                                     |   |  |              |          |                                   |                                    |
| Supervisor support                       | The extent to which supervisors-managers support and reinforce use of training on the job   | My supervisor sets goals for me that encourage me to apply my training on the job                        | 6            | .91      | .75                               | .04                                |
| Supervisor sanctions                     | The extent to which individuals perceive negative responses from supervisors-managers when applying skills learned in training  | My supervisor opposes the use of the techniques I learned in training                                    | 3            | .63      | .46                               | .06                                |
| Perceived content validity               | The extent to which trainees judge training content to reflect job requirements accurately  | What is taught in training closely matches my job requirements   | 5            | .84      | .58                               | .05                                |
| Transfer design                          | The degree to which (1) training has been designed and delivered to give trainees the ability to transfer learning to the job, and (2) training instructions match job requirements | The activities and exercises the trainers used helped me know how to apply my learning on the job        | 4            | .85      | .70                               | .03                                |
| Opportunity to use                       | The extent to which trainees are provided with or obtain resources and tasks on the job enabling them to use training on the job  | The resources I need to use what I learned will be available to me after training                        | 4            | .70      | .54                               | .06                                |
| Transfer effort—performance expectations | The expectation that effort devoted to transferring learning will lead to changes in job performance  | My job performance improves when I use new things that I have learned                                    | 4            | .81      | .65                               | .05                                |
| Performance-outcomes expectations        | The expectation that changes in job performance will lead to valued outcomes  | When I do things to improve my performance, good things happen to me                                     | 5            | .83      | .65                               | .06                                |

(Continued)

**Table 2. LTSI Factor Definitions and Descriptive Data (Continued)**

| <i>Factor</i>                        | <i>Definition</i>  | <i>Sample Item</i>   | <i>Number<br/>Items</i> | <i>α</i> | <i>Average—<br/>Major<br/>Factor<sup>1</sup></i> | <i>Average—<br/>Other<br/>Factors<sup>2</sup></i> |
|--------------------------------------|--|--|-------------------------|----------|--|---|
| <i>General Scales</i>                |  |  |                         |          |  |   |
| Resistance-<br>openness<br>to change | The extent to which prevailing group norms are perceived by individuals to resist or discourage the use of skills and knowledge acquired in training | People in my group are open to changing the way they do things                         | 6                       | .85      | .70  | .04   |
| Performance<br>self-efficacy         | An individual's general belief that he is able to change his performance when he wants to  | I am confident in my ability to use newly learned skills on the job                    | 4                       | .76      | .58  | .08   |
| Performance<br>coaching              | Formal and informal indicators from an organization about an individual's job performance  | After training, I get feedback from people about how well I am applying what I learned | 4                       | .70      | .56  | .08   |

<sup>1</sup>Average of the factor loadings for items loading on this factor (for example, the major factor)

<sup>2</sup>Average of the factor loadings for these items on factors other than the major factor (that is, the average cross-loading)

*Note:* The full version of the instrument is not provided because research on the instrument is continuing. Researchers who wish to use the instrument may obtain the full instrument from the first author.

Figure 5

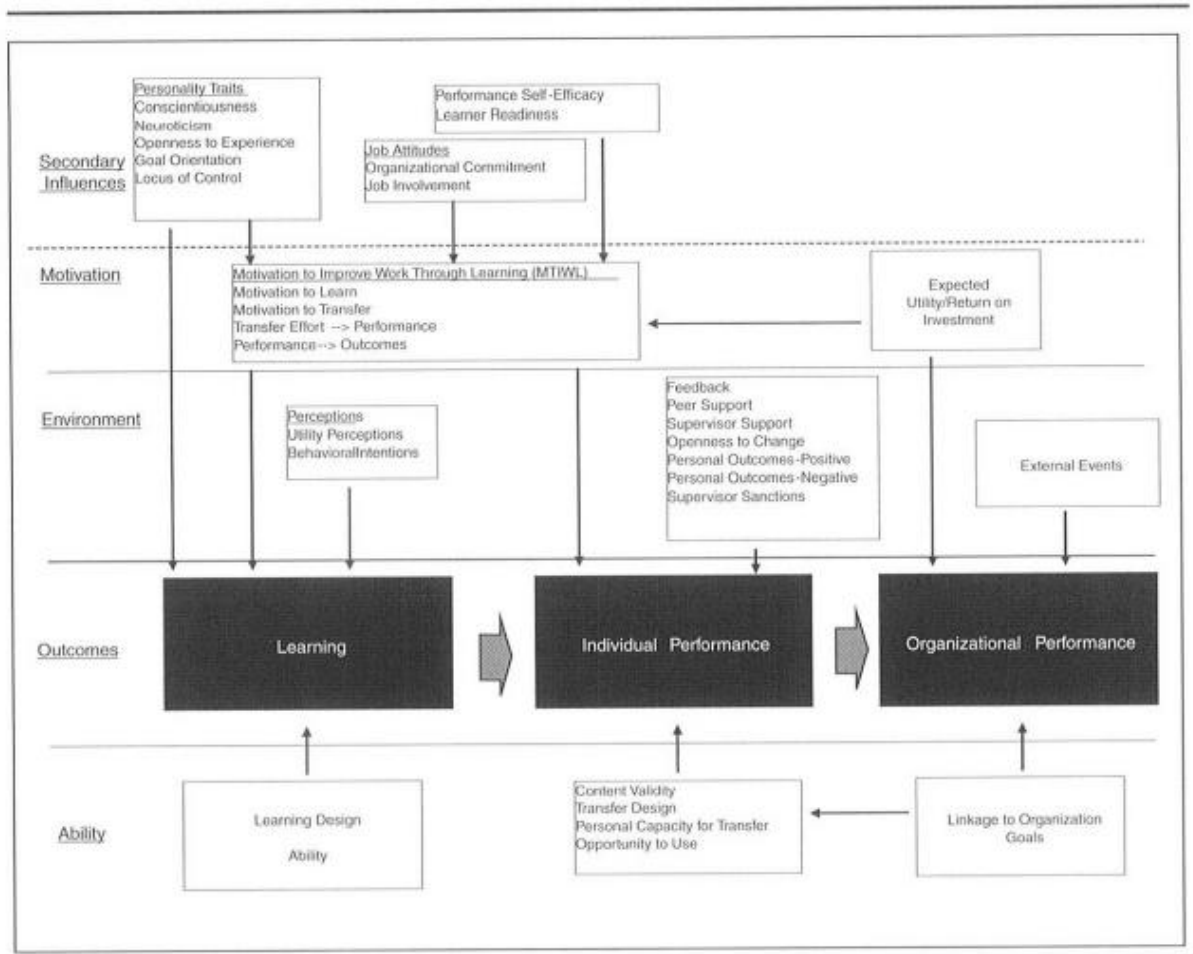


FIGURE 3: Revised HRD Evaluation and Research Model