Stage 1 Documents

Clarifying the HPT Value Proposition

An ISPI Presidential Initiative

January 14, 2004

Prepared for the
International Society for Performance Improvement

2003-2004 Board of Directors
Rick Battaglia, Executive Director
Clare Carey, Director
Jeanne Farrington, Director
Barbara Gough, Treasurer
James Pershing, Director
Don Tosti, President-Elect
Guy Wallace, President

Prepared by
Guy Wallace, President
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ISPI Presidential Initiative – Clarifying HPT
Clarifying the HPT Value Proposition

Guy W. Wallace, CPT
ISPI President 2003-2004
January 14, 2004

Document Introduction & Overview
This document captures the key outputs from the first of multiple stages for an ISPI Presidential Initiative initiated by Guy W. Wallace, CPT, ISPI President 2003-2004, to clarify the technologies of HPT so that the Society might better market itself as:

**THE place for all things HPT.**

This document is organized primarily around the 4 Phases of Stage 1.

Presidential Initiative Background
My personal goal behind my sponsorship of this effort has been and is:

- Better clarity regarding the
  **Value Proposition of ISPI as “the place for all things HPT”**

  ...and...

- Better clarity of the
  **Value Proposition of HPT and the various technologies within HPT**

In my view, this requires much greater clarity regarding the various technologies of HPT beyond the two major “sets” reflected in, for example, our Awards of Excellence program:

- Instruction
- Non-Instruction

I’ve also viewed this as a multi-year effort, spanning several ISPI Presidents and Boards.

Thanks to Jim Hill who shared the vision and encouraged me to begin during his term as president. And thanks also to Don Tosti who shares the goals and has agreed to take a hand-off of the baton and run with this. It is his and my hope that the succeeding presidents and boards will continue this updating of the views of the technologies and science of HPT.

The goals for this 4 Phase initiative are to: Clarify the non-instructional technologies of HPT, identify the underlying science of those technologies, and establish a mechanism to continue the work started and maintain it. The full history and reasons for conducting this
effort are documented in the articles contained herein and also are available on the ISPI web site.

We need to more clearly define what HPT is, and identify “the diverse technologies” of HPT. Then we can better ensure that the content of our many forums and publications reflects those technologies and truly helps our members become more aware, or more knowledgeable, or more skillful in one or many of those technologies. They can become specialists or generalists in HPT, as their situation requires or allows. No one will probably master all of HPT at the skill level.

We’ll also clarify the underlying Science/Ares of Research of HPT. We can then more clearly link each technology back to its scientific roots and rationale. We can help define the conditions under which an application (a set of technologies) works, and also when it does not work. We can clearly label “snake oil” and even link those claims back to the research.

We can then better enable society members to organize themselves into one or more of the many subset groups representing opportunity/problem areas, technology areas, and research areas. We can improve our members’ returns for their time and efforts for learning and networking.

But what I really like about this effort is that it should eventually allow us to better see our overlaps/commonalities with other improvement approaches. And that allows us to see our differences. And THAT will enable us to better clarify our value add, our value proposition to the overall improvement effort of the organization. And allow us to better collaborate with each other.

This multi-year reality meant that without some level of documentation of both original and evolved intent, AND outputs of the initiative, there would be less chance of ultimate success.

In my view, success of this ongoing effort, should be measured by the acceptance of the profession/field of the Domains as a logical segmentation of HPT, into its “intervention sets,” and the “areas of research/science” of HPT.

Just as the medical sciences and engineering sciences have sub-dived themselves into specialty areas, so too should HPT.

And, in my mind, it is also very right that ISPI undertake this effort as the incubator and practitioner/researcher network home of current-day HPT.

The 4 Phases of Stage 1
The 4 Phases of this Stage, will lead to additional downstream efforts that begin on Don Tosti’s watch next April. Then this Presidential Initiative will be his Presidential Initiative. He and I have been working together on this for a year now. And thanks to
past-president Jim Hill who helped me get it started a year before my term began. This, in a way, is his initiative too.

**Phase 1** - Geary Rummler agreed to give it the old college try, again, and allowed me to seek to re-published his 1983 PI article titled: “Technology Domains and NSPI: A Proposed Framework for Organizing the Professional Content of NSPI.” That was published in July 2002.

**Phase 2** - Roger Kaufman and myself co-edited the February 2003 issue of PI that was focused on: Clarifying HPT. The entire issue is on our site. We invited 25 ISPI members, including both old and new guard, and a few rising stars, all of whom were active and making an impact both inside and outside the Society, to write a 2-pager on HPT. 13 agreed and did so. Also, the issue called upon the entire Society to participate in the next phase.

**Phase 3** - In this phase all who cared to participate took the time to write their own 2-pagers on HPT and submit them to me. 13 did so. Those are also on the web site.

**Phase 4** - This is the planned culmination of this first Stage. Here a Think Tank of 28 invited members, including old and new guard and rising stars, well balanced by gender, consultant/academic/enterprise roles, and geography, came together to wrestle with the goals of identifying the technologies and the areas of research of HPT, and determining how to continue the effort and then maintain it.

Later Phases in Succeeding Stages - Will need to be planned to take on many efforts to align the society’s content with the technologies, science and SIG’s needs.

**3-Day Think Tank**
The Think Tank was held in Las Vegas and was intended to bring together a diverse group of active members and begin the process to identify the various non-instructional technologies of HPT and their underlying areas of research/science, and to also identify a system for continuing and evolving the work begun in Las Vegas, and keeping it evergreen over time.

All attendees paid for their own travel and living expenses. Klaus Wittkuhn came the furthest distance. The 28 members selected originally represented the diversity sought. The final team of 20 attendees lost some of the sought after diversity, but I think it will be OK. Several of those invited had last minute travel issues due to the weather and didn’t make the session.

Also, I wish to acknowledge that I truly appreciate that there were many other long-term, active ISPI members who could have been there, and maybe should have been there. But it would have been impossible to assemble and then work with that large a group. And I deliberately asked the Core Team members to choose a mix, versus all old guard. Those participating in the 3-day Think Tank session were:
The * denotes a Core Team member.

Additionally, support was provided during and after the session by Erika Gilmore and Mark Lauer.

**Think Tank Outputs**

The Think Tank produced initial, rough drafts of the following:
- A set of criteria for assessing HPT “technologies” and “projects”
- Three level framework of variables affecting performance
- A list of the Technology Domains of HPT
- A list of the Science Domains of HPT
- A Governance System for organizing the HPT Domains

A lot of excitement was generated around the establishment of criteria for an HPT “technology” and “project.” The rough draft statements for HPT respected practices and sound tuition, includes:

- It must focus on valued, measured results
- It must deal with the performance of people
- It must take a systemic view of the performance and its context
- It must be reliable (replicable, consistent)

For the HPT technology to be able to claim that it is research proven:
- It must be valid (construct and predictive validity)
It was an aggressive agenda, and we didn’t accomplish everything we might have, but all-in-all it was a great start.

**Post-Think Tank Sub-Group Activities**

There are a number of sub groups working on their assignments to prepare sections of the Report to the Board. These were due back to Ray Svenson in mid-December who then compiled them into the first draft of the Report for review first by the chair and sponsor, and then by the full Task Force team.

The Task Force team’s feedback will then be reflected in a Report to the ISPI Board which will be presented at the mid-January BoD meeting. Reactions will be discussed and feedback gathered and the final report will be updated and made available to the new Board and to the Society at the Tampa conference.

Of note: Char Wells rejoined the Task Force effort after the Think Tank; she had missed the Think Tank as her flight was cancelled due to weather.

**Transition: From the Wallace Board to the Tosti Board**

As planned by Don Tosti and me, he and his board will take the reigns and drive us forward using the updated criteria and the new definitions of HPT’s technologies, science and SIGs. ISPI Domain committees and other tasks forces will use those to further define and disseminate the technologies of HPT.

**Final Comments**

This is just the start of a multi-year effort. If succeeding boards support the direction to clarify the technologies of HPT that lead to “measured results that add value,” then we should soon see that reflected in a more balanced manner in the content of all of our conferences, institutes, and publications.

We are a technology-driven professional society, and one of our key goals is to disseminate these technologies and enable their competent practice. We will soon add clarity to the profession and clearly identify what works and what doesn’t, and under which conditions those claims are true.

Guy W. Wallace, CPT  
ISPI President 2003-2004  

# # #
Defining the HPT Value Proposition

ISPI Presidential Initiative - Task Force for 2003-4

Presentation to ISPI Advocates & Past Presidents
ISPI Conference – Boston   April 2003

Guy W. Wallace, CPT
Purpose of the Presentation

The purpose is to inform & update you to keep you abreast of this initiative

- This effort was sanctioned by the 2002/3 ISPI BoD, and was funded for this next year
  - Reauthorization addressed Wednesday, April 16th by the new board
Presentation Agenda

A- Quick Overview
B- Background & Phases
C- Where Does This Potentially Lead?
D- Questions/Comments/Concerns
Quick Overview
This is a “task force” effort to define HPT so that both its definition & Value Proposition can be better...

- Clarified
- Marketed
- Used to develop/refine

- Short-term Society Goals & Objectives (Strategic Plan)
- ISPI Long Range Plan
- Committee/Task Force Goals & Charters
- ISPI Product/Service Offerings
- Targeted Members
- Partnering Strategies with Other Affinity Groups
Marketing HPT to the executive levels will require that we better define what HPT is, and how it fits/overlaps with their other improvement initiatives/efforts.
How?

Using a 4 Phase Process (more on that next)

Republish a concept for addressing this, proposed in 1983, publish other views, create a society-wide “written dialogue” about HPT and then hand-off the results to a Task Force of approximately 25 ISPI

- Old Guard - New Guard - Rising Stars

...who will use Geary Rummler’s “Technology Domains” concept* to create a Big Tent view of HPT, to clarify what HPT is (components) so that its Value Proposition(s) can be clarified for marketing purposes

* Using his PI article “Technology Domains and NSPI: A Proposed Framework for Organizing the Professional Content of NSPI” from October 1983
When?

Phase 1- Republished Rummler ’83 Article
- Begun April 2002 and completed July 2002

Phase 2- Special PI Issue - February 2003
- Begun April 2002 and completed February 2003

Phase 3- Society-wide Written Dialogue
- Begun February 03 and to be completed June 03

Phase 4- Task Force Preparation & Conduct & Read-Out of a Think Tank Session
- To be begin this month and to be completed by January 2004
- To start with Rummler’s model from:
  - Technology Domains and NSPI: A Proposed Framework for Organizing the Professional Content of NSPI - October 1983)

Post-Phase 4- ???/TBD
Where?

Task Force Think Tank

- Is to be held in Chicago, September 15-17 to immediately precede the ISPI Fall Conference on “Performance-based ISD” with Extended Team
  - Pre-TTC Conference Call with Extended Team
  - Post-TTC Conference Call with Extended Team
## Who?

### Task Force Core Team
- Roger Addison
- Rick Battaglia
- Richard Clark
- Roger Kaufman
- Geary Rummler
- John Swinney - chair
- Ray Svenson - facilitator
- Don Tosti*
- Guy Wallace - Board Liaison

### Task Force Extended Team
- 17 or so members representing
  - Old Guard (7-11 members)
  - New Guard (4-6)
  - Rising Stars (2-4)

* Recently invited and added as the new incoming President-Elect

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**Note:**
Due to continued “financial austerity” directives from the Board:

- No expenses for Think Tank participation will be reimbursed for any TF Team member
B-Background & Initiative Phases
Background

At Dale Brethower’s 1st BoD meeting (1999) the board was shown the beginnings of some Rummler work at creating a “Balanced Scorecard” for ISPI

- It couldn’t be finished right away because a BSC is driven by Strategies (not ongoing operations)

Later, Guy Wallace published an article in 2-2000 News & Notes about: An HPT Marketplace View

- In an attempt to begin the definition and publication of a “view” that would enable a structured dialogue regarding ISPI’s Product/Service offerings and their “Value” to segments of our marketplace

Guy and John Swinney then began a 2-year Marketing Task Force effort to demonstrably gather Voice of the Member input on their needs and feedback on how well we are doing in meeting those needs

- That TF will continue under the new chair, Brian Desautels
Pulling the left from the right - Not pushing

ISPI Marketplace View
as viewed by Guy Wallace 2-2000

<table>
<thead>
<tr>
<th>Suppliers</th>
<th>Products/Services</th>
<th>Channels</th>
<th>Needs</th>
<th>Customers/Stakeholders</th>
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### Current Marketplace Segmentation Scheme -3x3

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<td>Consulting Manager</td>
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<tr>
<td>Enterprise Individual Contributor</td>
<td>Academia Student</td>
<td>Consulting Individual Contributor</td>
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“Enterprise” includes: for-profit, not-for-profit, government agency
Phase 1 - Republished
Rummler ’83 Article

- Begun April 2002 and completed July 2002
Phase 2- Special PI Issue - February 2003

- Begun April 2002 and completed February 2003

- Invited Guest Authors responded to one or more topics:
  1. What is HPT’s value proposition?
  2. What does HPT include and not include?
  3. What’s wrong with and right with HPT today?
  4. If one were to master HPT, what would one be “skillful” at, versus “knowledgeable” about, or simply “aware” of?
  5. How can HPT co-exist with other improvement methods, techniques, and tools such as those that come from: Industrial Engineering (IE), total quality management (Statistical Process Control (SPC) and six sigma), Organization Development (OD), finance, etc.?
  6. How do we position ourselves and HPT with those other disciplines for true collaborations?
  7. What else can/should ISPI do to better communicate or market HPT and the value of HPT?
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<thead>
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<td>Roger Kaufman</td>
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<td>Guest Editorial: What Is the Goal of This Issue?</td>
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<td>The HPT Value Proposition</td>
<td>Dale Brethower</td>
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<td>Performance Technology Landscape</td>
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<td>Visibility Into the Work: TQM Work Process Analysis With HPT and ISD</td>
<td>Charles A. Beagles and Steven L. Griffin</td>
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<td>Measurement and HPT: Sharpening My Old Saw</td>
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<td>Turning Research and Evaluation Into Results for ISPI</td>
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<td>The HPT Razor</td>
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<td>Certification: How It Can Add Value</td>
<td>Judith Hale</td>
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<td>HPT, ISD -- The Challenge of Clear Boundaries in an Evolving Discipline</td>
<td>Peter R. Hybert</td>
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<td>Value, Value, Where Is the Value</td>
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<td>Graffiti and HPT</td>
<td>Miki Lane</td>
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<td>HPT Value Proposition</td>
<td>Carol M. Panza</td>
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<td>ISPI’s Value Proposition: Two Examples</td>
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<td>Performance Technology: Foundation for All Organizational Consulting?</td>
<td>Donald Tosti and Stephanie Jackson</td>
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<td>The HPT Value Proposition in the Larger Improvement Arena</td>
<td>Guy W. Wallace</td>
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<tr>
<td>Resurrection</td>
<td>Frank T. Wydra</td>
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</table>
Phase 3- Society-wide Written Dialogue

- Begun February 03 and to be completed June 03

- 5 responses have been published so far to the same questions:
  
  1. What is HPT’s value proposition?
  2. What does HPT include and not include?
  3. What’s wrong with and right with HPT today?
  4. If one were to master HPT, what would one be “skillful” at, versus “knowledgeable” about, or simply “aware” of?
  5. How can HPT co-exist with other improvement methods, techniques, and tools such as those that come from: Industrial Engineering (IE), total quality management (Statistical Process Control (SPC) and six sigma), Organization Development (OD), finance, etc.?
  6. How do we position ourselves and HPT with those other disciplines for true collaborations?
  7. What else can/should ISPI do to better communicate or market HPT and the value of HPT?
Responses

Response to the HPT Value Proposition
by Richard F. Gerson, PhD, CPT

HPT from a European Point of View
by Andreas Kuehn

ISPI’s Value Proposition Must Make HPT Known to Every Manager on the Face of the Earth
by Kathleen S. Whiteside

It’s Time to Decide Who We Are and What We Do
by George W. Byars, CPT

Unleashing the Full Power of HPT
by Darlene Van Tiem, PhD, CPT, James L. Moseley, EdD, CPT, and Joan Dessinger, EdD, CPT
Phase 4- Task Force Think Tank

- Begun in October 2002 and to be completed January 2004
- Will gather (with help from Roger Addison) many additional available documents/artifacts from the society’s “vaults” that address the definition and/or Value Proposition, and will “map” them as a starting point for the Extended Team
  - HPT handbook(s)
  - HPT Concept Map (S. Villachica)
- Think Tank (TT) meeting September 15-17, in Chicago just prior to the Fall Conference
  - 4 hour Pre-TT Conference Call- September 6, 2003
  - Think Tank to start with Rummler’s model from:
    - Technology Domains and NSPI: A Proposed Framework for Organizing the Professional Content of NSPI – October 1983
  - 4 hour Post-TT Conference Call- October 27, 2003
- Reports to the Board and to the Society completed by January 2004; and a presentation will be available for the 2004 Tampa Conference
HPT Expert Content Map
From Steve Villachica - an ISPI sponsored Research effort

Results
Organization of Expert Knowledge

n = 24, M = .50, SD = .13
C-
Where Does This Potentially Lead?
For Don Tosti and his BoD...

Post Phase 4-

- HPT can be better clarified and “Branded”
- HPT and ISPI can be better uniformly marketed with the new “brand”
- Can be used to better review/realign/develop/refine/continuously improve
  - Short-term Society Goals & Objectives (Strategic Plan)
  - ISPI Long Range Plan (LRP)
  - Committee/Task Force Goals & Charters
  - ISPI Product/Service Offerings
  - Targeted Members for recruitment efforts/priorities
  - Partnering Strategies/Tactics with Other Affinity Groups
    - HR, OD, Quality, IE, T&D, etc. / etc.
Questions
Comments
Concerns
What are yours?
The articles are available on ISPI’s web site (under publications)

Available soon on Guy’s EPPIC Web site:

1. Link to: Wallace & Rummler Articles 10-2002
2. Link to: Rummler Republished Article 10-2002 from 1983
3. Link to: February 2003 Issue of PI
   - Invited Guest Authors take on 7 topic areas related to clarifying HPT and its Value Proposition
   - 5 Responses (to-date)
4. Presidential Initiative – Task Force Project Plan

"Gopher" more at eppic.biz

http://www.eppic.biz/workspace
Username- ISPI2003
Password- ISPI2003
TF Chair:
John Swinney
563-262-1333
johnswinney@bandag.com

TF Conference Call & Think Tank Facilitator:
Ray Svenson
269-469-8407
raysvenson@qtm.net
Phase 1 - Republishing Rummler's HPT Framework from 1983
What is ISPI’s Value Proposition:
Looking Back and Forward

by Guy W. Wallace and Geary A. Rummler

Twenty years ago Geary Rummler proposed in this journal that our Society’s driving force be “technologies.” His article, “Technology Domains and NSPI” (P&I Journal/ October 1983), resonated with me then as it still does today.

As a recent International Society for Performance Improvement (ISPI) Board member and President-elect, I am focusing my ISPI energies in two key areas, and one has to do with the marketing of ISPI’s Value Proposition.

After 22 years of membership, I can say that I have learned a tremendous amount at the Society’s table. But one thing that hasn’t been clear to me since the first day is what HPT really includes. What’s inside our box, and what’s outside? I understand the “I” from the older versions of our name is a subset of the “P” but what exactly are the other, non-instructional components of performance?

There are many professional societies and affiliations in the big-tent marketplace of “improvement.” There are many sources for information and development. There are many conferences. There are many newsletters and journals and magazines and websites. We at ISPI are in competition with them all.

Given that, how do we help ISPI prospects make an informed decision on where to spend their time, attention, and money? I believe it’s through marketing (informing and communicating) our value proposition. “Come to ISPI and learn X, Y, and Z!” our literature should proclaim!

But besides performance-based instruction (more than 85% of our members are in the instruction business), what else can we emphatically proclaim we have of value? What else affects human performance? And, as Danny Langdon has been promoting, should we limit ourselves to “human” performance?

Does the ISPI Value Proposition include becoming aware, knowledgeable and/or skilled at concepts, models, methods, tools, and techniques that improve “performance” from fields/disciplines such as—
- quality
- finance
- organizational development
- ergonomics
- marketing
- industrial psychology
- management sciences

If our Value Proposition included concepts, models, methods, tools, and techniques from these fields, then we could begin to assemble content products/services based on these and help our members become aware of, knowledgeable about, and/or skilled in their application. If not, we can focus on those concepts, models, methods, tools, and techniques that improve performance within our “box.”

We can expand or narrow our box as we as a Society see fit. But to entice others into our fold, given all the competition, we had better be pretty darn clear with members and prospects what we stand for and what we can help them learn and master. Otherwise, we can only proclaim, “Come to ISPI and learn about performance-based instruction and some other worthy non-instructional stuff!” Hardly compelling.

And compelling is what we need in these trying economic times to retain existing members and pull in new members. ISPI’s Value Proposition must be compelling for us to both survive and thrive!

Let’s begin a societywide dialogue about ISPI and human performance technology. What is human performance technology? And should it be marketed as human performance technology or as performance technology? (To paraphrase Danny Langdon, let’s “Get the ‘H’ out!”)

—Guy W. Wallace
As they say, “timing is everything.” Last night I returned from the 2002 ISPI Conference where I heard comments such as “ISPI has an identity crisis” and “we can’t do anything until we identify what HPT is.” This morning, I re-read my October 1983 article “Technology Domains and NSPI,” which follows. And I think I see a way out of (or around) the “definition” quagmire. I am curious to see if you agree with me. Let me suggest you give the article a quick read and then consider the following argument.

First, don’t confuse ISPI (a loose association of individuals concerned, in some form or other, with changing behavior) with a “field” or discipline such as HPT (whatever that is). ISPI has historically seemed to feel that it either was the “field” or represented the “field”. With that mind-set, it was always necessary to define that field. That has never been accomplished (nor will it ever be) because to do so would automatically define some ISPI luminaries as being in the field (and ISPI) and others out of the field. This article reminds me that we don’t even have to go there. There is a way around the definition issue.

The article suggests that ISPI need do only two relatively straightforward things to avoid “definition” and resolve any identity crisis:

1. Agree on an objective such as “improved performance/effectiveness of individuals.” (This is merely an example of an objective used in the 1983 paper—not necessarily the objective I would argue for today, particularly since it does not address either the Process or Organization Levels of performance. As you read this paper, please don’t quibble with the examples, but focus on the notion of a “technologies framework.”)
2. Identify those “technologies” that make a contribution to the objective. And then say that ISPI embraces all those technologies and technologists who contribute to our objective.

As you will see from the article, there are a lot of logistical benefits of this “technologies” approach, including how to organize conferences and publications. In addition, I think there are two other advantages to the ISPI organization and image:

1. The “value-add” of ISPI becomes that of an organization that promotes the integration of those technologies committed to “improved performance/effectiveness of individuals” (or whatever the objective becomes). This stance would make it very clear that ISPI stands for holistic analysis and comprehensive solutions/applications to improve performance. No other professional organization does such a thing.
2. The approach is “inclusive” versus “exclusive.” The thrust is to include any technology that has demonstrated it can help achieve our objective of “improved….” This will necessarily require establishing criteria for what is a “technology” and an “emerging technology”—something that clearly differentiates between “snake oil” and a change practice or methodology. But developing such criteria should be a piece of cake compared to defining HPT.

As I said earlier, read the article and see what you think.

—Geary A. Rummler
III. Changes in the work/performance environment (changes in the environment components of the human performance system such as clarification of expectations, consequences, feedback, stimulus clarification, and resources).

NSPI’s general domain would be these three major types of interventions.

There are a number of ways the change process can be depicted, but for sake of argument, I suggest we look at it as having the basic steps shown in Figure 2. This process holds, regardless of the particular intervention or combination of interventions one might make to effect performance.

If NSPI is concerned with three basic interventions (Figure 1) and if it acknowledges a universal change process (Figure 2), then it is possible to identify some technologies or technology domains relevant to the stated objective of improved performance/effectiveness of individuals. And further, it is possible to show the relevance of each technology domain, which is made up of sub-components such as job/task analysis, behavioral analysis, and so on. (I want to stress that I’m not proposing that...
Figure 3. Change Process, Related (Possible) Performance/Instruction Technology Domains, and Relevant Research Areas.
the four technology domains shown here—needs analysis, instructional design and development, performance engineering, and evaluation—are the technology domains for NSPI; only that such domains and their sub-components could be identified by NSPI.

Once the technology domains are identified, it would then be possible to identify subjects or research areas relevant (or potentially relevant) to the technology domains.

For example, “left brain-right brain” research is a potentially important input to learning theory and learner physiology, which in turn are important to various components of the instructional design and development technology domain, which is utilized to change the repertoire of the individual.

Figure 3 is the essence of my proposal—a framework for showing the relevance and relationships of possible tech-

Figure 4. Proposed Relationship Between Performance Objective and Performance Variables, Technology Domains, and Research Areas.

Figure 5. Technology—Research Area Matrix.
nologies, subject matter, and research topics. The remaining figures represent possible applications of the framework.

Figure 4 is a different configuration of the content of Figure 3, illustrating the relationship of research areas, technology domains, and performance variables to the proposed NSPI objective, the improved performance/effectiveness of individuals.

The matrix in Figure 5 represents a possible way to relate technologies to subject matter or research areas. For example, research in learning theory, behavior modification, and organization behavior (to name only a few) is relevant to organization performance analysis. And learning theory is relevant to organization performance analysis, instructional systems design, material design and development, and so on.

This matrix is a possible way to organize and describe the NSPI conference program. Topics are classified by track (again, these tracks are illustrative, although I was hard-pressed to come up with any more), and their relationship to each technology domain is made explicit. Such a matrix would be beneficial to program designers, presenters, and conference attendees—particularly newcomers.

I have reviewed these thoughts and diagrams with several people who concur that there are these potential applications of the proposed framework:

1. As the basis to define what NSPI is and is not and possibly to conclude that NSPI's driving force is to be technologies (as I proposed in my conference presentation).
2. If a technology focus is the decision of the NSPI leadership, then a framework such as this could help in defining the technology domains over which there might be chairpersons who serve several-year terms.
3. As a conceptual map of the field for:
   a. newcomers
   b. practitioners
   c. managers of training who have come to their responsibilities with no idea of the disciplines/technologies they are supposed to manage
4. As a basis for organizing the conference programs and journal content and communicating the relationship of said programs and content to the populations mentioned above.

Please email your comments to James Pershing, pershin@indiana.edu, for inclusion in the Readers' Forum in an upcoming issue of Performance Improvement.
Contributing Authors

See the ISPI Web site for PDF versions of these articles.

1. Gerson, CPT, PhD
2. Kuehn, CPT
3. Byars, CPT
4. Whiteside
5. Van Tiem, CPT, PhD, Mosseley, CPT, EdD, and Dessinger, CPT, EdD
6. Bills, PhD
7. Wittkuhn, CPT
8. Allaire
9. Brymer
10. Coleman, PhD, CPT and Murawski, PhD

Letters/Emails

- Van Tiem, CPT, PhD
RESPONSE TO THE HPT VALUE PROPOSITION

Richard F. Gerson, Ph.D., CPT

Here is where I think we are missing the boat. While all the components of HPT are necessary, I believe we, as a field, are too focused on the behavioral aspects of HPT. We are so wrapped up in Skinnerian thinking that we tend to leave out the cognitive and motivational aspects of performance improvement.

I have long supported that we focus on the psychological, emotional and motivational aspects of performance improvement. My three publications in Performance Improvement over the past several years directly addressed those points. We need to take into consideration the holistic viewpoint. Individuals and organizations do not perform in a vacuum. It is not just behavior and reinforcement; carrot and stick. They bring to their situations a variety of thoughts, emotions, moods and temperaments that affect their performance. Additionally, their current or situational physiology also affects their performance.

Yet, we tend to negate or neglect these systemic person aspects of performance in our quest to find the best instructional design or feedback method or reward/reinforcement system that will lead to worthy performance and measurable performance improvement. While it is true that only overt actions are measurable, why not include a focus on the thoughts, motivations, emotions and other precursors to those actions? In fact, recent research in the neurosciences and in cognitive psychology point out that these precursors can actually change both the brain and behavior.

Another Issue

Why do you think it is very difficult for HPT consultants and professionals to sell their services and concepts to C-level officers? It’s because most of our information, as great as it is, still has an academic ring to it! These C-level officers understand training, because that is what they have been exposed to, and they are willing to invest in it as a performance improvement intervention. Yet, they have difficulty understanding an HPT intervention.

Could this be because we are still too academic for them and the real world? Could it be that we are speaking our language and not the language of our customers?

Several of the articles in this issue called for more stringent research and measurable outcomes. Some even said that the writings in our magazines, newsletters and journals really do not have enough research methodology in them. That may be true, but here is something we’ve learned from “pure psychology research” and other research methods.

When an experimenter uncovers reproducible results through a series of converging experiments, that result is often published in a scientific journal. Even when that result has far-reaching effects and implications for the good of society (see Kaufman’s work), society itself still does not adopt that information for a good 20-30 years. Maybe that is our problem.
Our results are still too new and too good to be adopted in the workplace at this time.

More likely, the problem is that we are not making our approaches and results practical enough. In my own work with clients, they are really not that interested in all that I will do for them to systematically and systematically identify their performance problems. Some could care less about any scientific rigor I would apply to their needs or gap analysis. And even fewer are interested in the charts, tables and models I gladly will share with them describing how I will proceed and what I predict I will accomplish on their behalf.

What they want is results.

They want to see performance improvements and they usually do not care how I help them get there. Salespeople have a problem meeting quota? My job is to figure out what the obstacles are and propose/implement solutions. Customer service reps not servicing enough people at a high enough satisfaction level? I have to get them to the desired performance level. Productivity is on the decline in a given department or division? My clients want me to find out why and get the proper solution implemented to reverse the trend.

No one follows me around asking about my HPT approach or what technologies I will use.

Sure, I do “my thing” as any good HPT practitioner or CPT would do. But, my clients are interested in the practical aspects of what I do. They also want to know how what I do will affect each person individually and holistically, in addition to their organization. That is why I always talk to them (individual clients and organizations) about their psychological and emotional states, their mental and physical states, and their thought patterns related to performance.

Getting It Together

This is where we need to go. We need to get more practical with our clients. We need to consider the holistic perspective and focus as much on the psycho-emotional and motivational aspects of performance as on the behavioral aspects and outcomes of performance. This is exactly what the sport psychologists who work with our Olympic teams and professional athletes do, and this is why they achieve measurable performance improvements. They focus on the whole person.

For example, in my work with golfers, I can help them mentally improve their swing. But, if I don’t help them work through the negative “swing thoughts”, it does not matter how mechanically sound their swing becomes. The same is true for basketball players. While I can help them mechanically and behaviorally improve their shooting, they will not experience significant improvements unless their “shooting thought patterns” improve also.

In a company, if salespeople are making enough sales calls but they are not closing a proper percentage of sales, I can teach them new closing techniques and create an incentive program for them. But, if I do not help them improve their motivation to close sales as well as their attitudes and beliefs about closing sales, the other activities will only be of minor value.
There is much more I can say, but enough for now. I will close with these questions:

1. Have we truly been true to our mission? More specifically, why do we say that HPT is focused on achieving measurable results and our mission statement as an organization is on making sure our members are recognized as valuable assets? If we help clients get the results they desire, wouldn’t we become valuable assets by extension? So why don’t we re-evaluate our mission statement as an organization to focus more on the end clients we serve, which will also elevate our members in the process?

2. Do we really provide value-added assistance to our clients in a practical sense? Is it really important to follow accepted HPT protocols if you do not get the results the client is looking for? Or, should we work to achieve a quick performance improvement breakthrough (a small win) so we can gain the confidence of our clients and work with them on a more detailed level?

3. Do our clients really care about the science and technology we employ, or do they just care about the end results? Personally, I think they care more about the results than how we get there.

What do you think?

Richard F. Gerson, Ph.D.

Biography

Richard Gerson is President of Gerson Goodson Performance Management, a consulting firm that specializes in helping companies measurably improve the performance of their employees by maximizing productivity through psychobehavioral techniques. The results of his training and consulting programs turn ordinary performers into extraordinary performers. The company has worked with clients ranging from individual entrepreneurs to Fortune 500 and Inc. 500 companies. Richard has also coached executives, sales professionals, athletes and teams to achieve performance improvement and peak performance.

Richard is an internationally renowned, and much sought-after, speaker and trainer. He combines humor, education and entertainment to get his message across to audiences. He has authored 18 books plus published over 350 articles in journals, magazines, newspapers and newsletters. His books and articles cover performance improvement, peak performance, human resources, marketing, sales, customer service, business development and management.

Richard has a Ph.D. in Sports Psychology from Florida State University, along with 7 professional consulting certifications.
HPT is no buzzword in Europe. I remember well the discussions we had on one of the first meetings of ISPI Europe in Brussels in Summer 2001 when we discovered, that performance translates in very different ways in different languages. It is no unique term which is understood immediately. There is no doubt however, that the principles ISPI quotes for defining HPT (systemic view, systematic approach in consecutive phases, different impact levels) are widely acknowledged and accepted. Many European consultants and trainers work according to these principles, but they don’t call it HPT. The training and performance improvement market is still more or less national in Europe. There are only few consultants or trainers who work predominantly in international projects, which is a pity. The European Community has identified this problem and tries to enhance international cooperation in the field of vocational training within Europe by funding international projects. As founding members of ISPI Europe we drew the conclusion that we will have to work in two directions: 1. We need exchange with, know-how-transfer and support from our American colleagues (which we got, thank you, Carol!). 2. We also need to foster the exchange between HPT professionals within Europe to learn from each other and to create a common ground (which we did on the ISPI conference in the Netherlands last year). Without thinking and working internationally Europe will never succeed. As HPT is an open concept and gathers professionals from various disciplines and various cultures, I am convinced that HPT can become a forum and a breeding ground for internationalization here in Europe and also on the other side of the Atlantic Ocean.

I love the “Focus on results” approach. It is transparent, objective and just. There are no a prioris to be taken into account. I think one of the reasons, why several European nations got stuck in the process of renovating their societies is that they have forgotten what it means to focus on results. We are so used to accepting excuses why results cannot be delivered – sometimes we seem to be surprised when we sometimes deliver results nevertheless.

In 1991 I worked for the Polish Association of Quality in Warsaw where I conducted a Train the Trainer Course for Quality Managers of the 15 biggest Polish companies at that time. There was one sequence, when we showed a film and the task of the trainers-to-be was to ask the attendees to give their personal impression of the film, collect the various impressions and write them down on a flipchart in order to sharing personal experiences and opinions. My participants tried over and over again and didn’t succeed. Always they started discussing and the flipchart remained blank. After some time I got angry, because I felt they didn’t follow my instructions and I didn’t understand why. Then the most courageous of my attendees raised his hand and said silently: “But Mr. Kuehn, at first we have to verify, and only then we can discuss. “ At that moment I understood. And I appreciated very much the freedom of thought and of speech which is often so natural for all those of us who had the luck to be born and raised in democratic societies that we are not aware of its impact on our behaviour.

I am impressed by the way we share ideas within ISPI. Be it the cracker barrel, a creative conference workshop or a splendid 99 seconds presentation: there is substance, there is exchange and there is fun. Focus on results again: it stimulates me and helps me to find solutions for my own working environment. So I’ll come again next year. HPT creates value because ISPI has independent spirits (no gurus!) that are ready to open their magic boxes and let me share their experience and professionalism. For me HPT is a pluralistic undogmatic concept, which can always provide me with more than one way to reach my goal.
It’s Time to Decide Who We Are and What We Do

The current efforts to better define the parameters of Human Performance Technology (HPT) are both necessary and overdue. The outcome of these efforts will determine, in large part, whether HPT is a credible profession and field of study or just another in a long list of fads in the history of HR-related professions. If we more tightly focus the definition of who we are and what we do, the result will be greater credibility with our clientele and quite likely a loss of membership by those who no longer fit in the redefined profession. This is inevitable and desirable. Following are responses to the 7 questions recently asked about the future of HPT.

1. **What is HPT’s value proposition?** The HPT practitioner uses proven methodologies to identify and manage implementation of cost-effective solutions to solve performance problems or improve performance at any level of the organization. The HPT practitioner will, if required, provide valid and reliable measures of improvements due to those HPT interventions.

2. **What does HPT include and not include?** HPT includes verifiable methods for analyzing performance at the job, process, and organizational level. That analysis leads to recommendations for interventions that relate directly to the performance issue. It does not include a bias or predisposition to a favored set of interventions. It is the quality of performance analysis that will bring respectability to HPT, not intervention specialists who tack on a needs analysis up front to justify their sales job.

3. **What's wrong with and right with HPT today?** What's right is that HPT is finally moving away from its training roots and at least thinking about other disciplines (see questions 5 and 6). What's wrong is that it seems most ISPI members still think it says “performance and instruction.” What's wrong is that we have too many practitioners selling a particular intervention. As both a CPT and a user of HPT services, I have seen, even recently, "big name" HPT practitioners try to sell me a solution before even trying to understand my problem. To me they are solution vendors and not HPT practitioners. If I want training, I'll go to the training store, and if I want process reengineering, I'll go to the industrial engineering store. Having the same person provide both the analysis and the intervention can easily result in a conflict of interest, if not outright deception. What's wrong is that we haven't achieved the discipline of engineering societies or the Project Management Institute. What's right is that we are at least starting to drift in that direction.

4. **What does a skilled HPT practitioner do?** If one tried to define that by looking at the commonalities of all those calling themselves HPT practitioners, one would be out of luck. A skilled HPT practitioner is not only proficient in the requirements of a CPT but also adopts those requirements as guiding principles in dealing with clients, customers, and fellow practitioners.

5. **How can HPT co-exist with other improvement methods, techniques, and tools?** The practitioners of training, industrial engineering, TQM, SPC, ERP, OD, ergonomics, EPSS and a host of other acronyms are solution providers, and are a critical part of the performance improvement package. HPT practitioners need to have a good working knowledge of the applications and limitations of a wide range of performance solutions in order to make useful and valid recommendations to customers and clients. HPT practitioners need to
know a lot more about these techniques and tools than they do now. In the Performance Improvement journal, we still see article after article for year after year on mutation after mutation of ISD. Where’s the information on IE or SPC? Our professional journal needs to invite relevant articles from professional societies representing these other solution providers.

6. How do we position ourselves and HPT with those other disciplines for true collaboration? I see HPT practitioners as diagnosticians and project managers while the other disciplines are intervention specialists. That is a mutually beneficial relationship both professionally and financially. If ISPI is the professional organization for HPT practitioners, then the organization needs to help its membership gain a much better understanding of what the solution providers do and when to use their products and services. The solution providers have their own professional societies and any ISPI members who are wrongly here should be encouraged to enlist in those other organizations, e.g. let ASTD worry about training.

7. Anything else? I think HPT practitioners and ISPI have finally matured enough to begin to define our profession in such a way that leads to more focused research on performance issues, inspires confidence in our customers, and creates a common language practitioners can use to, dare I say it, improve the performance of our profession. If we want the CPT designation to have meaning beyond the ISPI membership, then we must have this difficult conversation.

George W. Byars, CPT
Dhahran, Saudi Arabia
Reviewing the February issue of P&I, devoted to dialogue about HPT's (or is it ISPI's?) Value Proposition was exciting on many levels. I appreciate the technology that allows me to make various comments on the writings of some very fine minds, while sitting at my desk at the top of a mountain, overlooking a gorgeous lake. Reacting to each article in turn (in my private notes) made me view the questions in a rather disciplined way, and in turn provided an opportunity to see trends, similarities and differences. But the overall reaction was actually one of sadness, in that it is obvious that we are still divided, unclear about our mission and purpose, and clinging to slogans that data cannot support. This is a sad state of affairs, and frustrating after trying for so many years to make ISPI strong and intellectually vigorous. Then again, it's like family, and regardless of its strengths or weaknesses, you realize this is where you belong, and you keep on trying to make it work. If you leave, you eventually come back. We are a bunch of boomerang technologists--so why leave? Even Frank Wydra has come back, after a 20-year sabbatical.

Dysfunctional families all have a dead elephant in the living room, which no one talks about. So too do we. We are a society that was founded by behaviorists ready to tackle learning within organizations. This behavioral approach is what isolates us from the others--OD, HR, and even most management consultants. It is our dead elephant. Society considers behavioral approaches OK for training animals, particularly dogs and show animals; behavioral approaches are often quite OK (as long as they are added to medication) for treating prison inmates and children with severe behavior problems. Behavioral approaches are even considered OK in training our armed forces. But none of these three has much status in our very status-driven society. Programmed instruction works, as we all know. Unfortunately, it was invented long before the computer was, and a computer is really needed to present the appropriate sequences of material and feedback that is necessary for successful learning. Skinner focused his work on learning...others have taken the principles into the organization. We are not part of the mainstream because we have studied and learned a science which has not been universally adopted by the culture in which we function. We get results (whether they are really well measured or not) because we are building our analysis and interventions on a

So we are outsiders...but timing is everything, and the day may come when we are recognized not as an oddity, but rather as a reliable way of improving the performance of people, processes and organizations. Until that day, we must work hard at perfecting our craft (the goal of Conferences). But we must also become much more savvy about getting our message out into society. The value proposition of HPT is that (when done well) it produces results in organizations. But it is the value proposition of ISPI that is needed in order to create the acceptance of the field of study (HPT), and the results of our work, and the interventions we design and manufacture. There are a lot of clues in the articles about who we are, and what we do, and what the value proposition should be, but all the information needs to be analyzed and distilled until we have our "hedgehog"--the statement that make us win over the fox who tries every day to eat us. (See Jim Collins, From Good to Great on this subject.)

The latest (in a series of) ISPI marketing committees needs to answer these three questions:

- What are we passionate about?
- What do we do better than anyone else in the world?
- What drives our economic engine?

Distilling the message in all the articles in the February issue, I would venture to say that we (ISPI's membership) are passionate about "adding value" and "getting results." We cannot always prove that we have added value and/or achieved results, but we always drive in that direction. Clients who care will gravitate towards us; those that don't will go for glitter, or go for the biggest booth at ASTD ...we need to find a reliable way to find the clients who care about results.

What we seem to be able to do better than anyone is to analyze human performance problems; to describe the AS-IS and the TO BE in performance terms--leading to appropriate choices of interventions, rather than starting at the intervention and moving forward (or backward?!) from there. We also know more than anyone else how employees learn and
change inside organizations, a knowledge base we have rarely exploited. Marketers know more about buying habits of consumers, and personal trainers know more about the role of muscles, exercise, nutrition, health and weight than we do. But no one has been collecting data and testing hypotheses for 50 years on how adults learn; because learning is inherently a change from one state to another, we know more about how people adapt to change in organizations.

What drives our economic engine? Our economic engine may be driven by being the cost-effective alternative; it may be that we are relentless in pursuing ways of measuring our impact (although we have to admit to not having attained a fool-proof, replicatable way of doing so.) Unfortunately, our basic business model has usually been the same as that of the education community: a cost of doing business, something that needs to be done, but that few want to invest in. A new economic engine for HPT would be a real step forward for all our members, their careers, and for our clients.

If we could agree that the reason for joining forces on this (that is, the value proposition for ISPI) is to create a place in the minds of managers that there is a time for our kind of stuff (that performance stuff/ that HR stuff/ that "soft" stuff that is hard--I don't care what they call it, but I want them to come to us to get it) and to be willing to allow us to do it well (that is, conduct the appropriate analyses, and to accept our push-back when we tell them, as professionals, that the solution they want to buy is not going to achieve what they want) then the February issue, future task forces and the power of the association will finally serve us, its members. Internal and external consultants and academics can all be united; the research work can add to our accumulated knowledge, the development of new interventions within ISPI ranks will be greeted with open arms, and new models that speed analysis, improve understanding, improve work inside organizations will be greedily taken from the journal (or for speed, the web site) and utilized inside organizations around the world. Others--whether they are the other professionals Tosti appropriately argues should be lining up under our umbrella-- or managers or academics, will look to ISPI for information, models and reliable data.

Then we would have been of value to our clients.
Unleashing the Full Power of HPT

“It is not possible for any thinking person to live in such a society as our own without wanting to change it.”


Part of human existence is the desire for change to make things better. There is always something that could run smoother, be brighter, sound better, or be more comfortable. The problem is that everyone has a different idea of what could be better. Based on experience, values, education, perception, and many other factors, every person has their own ideas.

Human Performance Technology (HPT) is a unifying process to accomplish change and “make things better” or improve performance in the workplace. Many people refer to Thomas Gilbert as the “father of performance technology” which strongly suggests that HPT beginnings were rooted in engineering. In Human Competence: Engineering Worthy Performance (1978), Gilbert stated, “My method is a method of engineering…the engineer knows precisely where to go, and will use any available methodology to get there. …The engineer must use whatever knowledge is available”.

HPT can provide leadership in performance improvement because it is a comprehensive, “engineering” approach. Too often, performance improvement professionals focus on their own
area of specialty to solve performance problems; for example, they recommend interventions based on their personal experience and knowledge of training, organizational development, quality, or industrial engineering. They fail to use the full power of HPT to create linkages and use synergy to blend many improvement interventions into a single comprehensive solution plan.

PT practitioners do not need to lead or be an expert in all of the intervention possibilities in order to unleash the full power of HPT. However, PT practitioners do need to recognize a whole realm of intervention possibilities and have a personal network of colleagues plus knowledge of when to bring in the right expert. Interventions are improvement activities designed to correct or minimize problems in the workplace. Interventions are the solutions that HPT uses to reduce problems and improve situations related to humans in the workplace. “HP technologists design and develop interventions that have four fundamental characteristics: They should be results-oriented (measurable), cost-effective (designed to save more than they cost), comprehensive (solve the whole problem, not just part of it), and systemic (well integrated into the entire organization).” (Gilley and Maycunich, 2000, p.194 as cited in Irlbeck, 2002, p. 86).

“Interventions are planned measures designed and developed to alleviate or solve problems in the workplace, thus affecting job performance. They cause change, small or large, due to improved performance. Interventions influence individuals, groups, or organizations. The number of possible interventions is almost infinite, because any number of organizational, environmental, and people factors affect performance.” (Van Tiem, Moseley, and Dessinger, 2001, p.3).
Here are two examples:

- Strategic planning can provide focus and accountability to organizations leading to changed behavior and performance by helping people make decisions aligned to their organization’s goals. PT practitioners may lead the executive strategic planning effort if strategic planning is their personal area of expertise. However, PT practitioners who do not have direct experience with strategic planning could also use their analytical skills to lead an organizational scan or external scan.

- When a department is not sufficiently responsive to the customer, the solution may be to change the pharmacy from a cost center to a profit center. Profit centers usually pay attention to revenue and return-on-investment, which can change the behavior of the pharmacy employees. Cost centers, on the other hand, may pay more attention to the pharmaceutical activity of filling prescriptions than to meeting customer expectations. It is not necessary for the PT practitioner to be an expert in finance or cost vs. profit centers, but to recognize the need for a financial intervention and call in the right resources and stakeholders to secure buy-in and help the pharmacy make the required changes.

At this point, PT professionals do not agree about the role of interventions in the practice of performance technology. Some believe that performance technology should consider a range of interventions that are closely linked to training, instructional design, and a few HR functions. For example, some in this field advocate that PT professionals should focus their practice to training, job aids, documentation, motivation, rewards, and a few other interventions.
We advocate that appropriate interventions are any activity that improves the situation and eliminates the problem. Our book, *Performance Improvement Interventions: Enhancing People, Process, and Organizations through Performance Technology*, includes 76 interventions that we believe are most important. However, this list is not inclusive. We could have added process mapping, balanced scorecard, appreciative inquiry, or many others. The 76 are examples of the breadth of PT practice.

We also believe that successful HPT is inclusive, practical, and pragmatic, capitalizing on the varied backgrounds and capabilities of the people in the field. Graduate students are entering the field with backgrounds in MBA, CPA, engineering, sales, nursing, psychology, medical researcher, information technology, sales and marketing, organizational development, hospitality management, military, radiology, teaching, and many more fields. In order to provide comprehensive services, internal and external HPT consulting organizations need to hire and assign people with various backgrounds to project teams.

In conclusion, we hope ISPI and HPT remain open to the breadth of intervention possibilities. This will attract a wide variety of people to our field, who appreciate our systematic and systemic approach and our focus on results and value-added.

**References**


**Authors:**

Darlene Van Tiem, Ph.D., CPT

James L. Moseley, Ed.D., CPT

Joan Dessinger, Ed.D., CPT
Expanding our Vision of ISD in Performance Improvement

Organizational Perspective of Instructional Systems

by Conrad G. Bills, PhD

I feel that there is a greater contribution of Instructional System Development (ISD) in Human Performance Technology than purported by Peter Hybert in HPT, ISD—The Challenge of Clear Boundaries in an Evolving Discipline. Guy Wallace (2002) noted the importance of focus at an enterprise or organizational level. A few years ago I found ISPI in my attempt to locate an organization that sees there is more to ISD than courseware development. My awakening to the need for something more came during my career as an officer in US Air Force. At the time I was assigned as a technical advisor to the B-52/KC-135 Combat Crew Training School (CCTS), IDS Division. I inherited responsibility for operational test and evaluation of a new crew simulation capability called the Weapon System Trainer (WST). The B-52 WST had three stations linked by the local area network so pilots, navigators, and defensive operators could fly their mission as a crew in simulation before flying it in the aircraft.

My first assessment concluded that the advance training capability of the WST was being “shoehorned” into the pilot course while it had a “good fit” in the navigator course. When the crew came together, the new copilot felt like he was “drinking from a fire hose,” overwhelmed by his team training experience. On the other hand, the new navigator was well prepared, held up waiting for the copilot to catch up. I found out that the navigator course had a complete start-to-finish rework, including a needs assessment that identified the acquisition of a separate navigator part-task trainer. In comparison, the pilot’s course remained the same except for the addition of WST to a curriculum that was already event intensive.

We stepped back to take a human performance view from the “big picture,” what was the end qualification. Then we considered what inflight aircraft training could be accomplished to criterion in the WST before performing it in the aircraft. We designed training scenarios from most complex to simple, even adding part-task training in the WST for co-pilots. We tested several training sequences for integrating WST and aircraft training. In the end the number of aircraft rides to achieve criterion proficiency was reduced by about a third. The following year the 93rd Bomb Wing produced twice the number of co-pilots to fill both the B-52 personnel requirements as well as the newly delivered B-1 without an increase in unit flying hours. This is a significant value position.

Instructional System Functions

About this same timeframe Ken Williams (1987) and his research team defined key functions found in successful instructional systems. I worked with Von Buterbrodt (1992) to further define these functions and incorporate them into the Air Force ISD Model (Golas, Shriver, Bills, & Bowden, 1992). These functions look from an organizational level of human performance and have been applied in a number of different contexts, such as large new aircrew training systems such as the C-17 or new distance learning systems such as the Navy Learning Network (2000),
even a public school district or college degree program. This approach also applies to rework of existing instructional systems. A sample functional diagram for a distance-learning network is shown in Figure 1.

___________________________________
Insert Figure 1 about here
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**Functional ISD Model**

The widely accepted functions of ISD are Analysis, Design, Development and Implementation, usually accomplished in phases. The fifth function of Evaluation is regarded as applied within each phase.

The organizational perspective of ISD adds the functions of Management, Administration, Delivery, and Support. Quality Assurance/Quality Improvement then encircles all other functions.

A functional ISD model is shown in Figure 2.

___________________________________
Insert Figure 2 about here
___________________________________

Each function is defined as follows:

- **Analysis** – assessment to determine instructional need.
- **Design** – formulating instructional strategy to meet the need.
- **Development** – creating or revising instructional materials and delivery media to meet instructional requirements.
- **Implementation** – fielding instruction to support the operational system.
- **Management** – directing or controlling development and operations
- **Support** – maintaining all parts of the system
- **Administration** – day-to-day processing and record keeping
- **Delivery** – bringing instruction to students
- **Evaluation** – gathering feedback to assess system and student performance
- **Quality Assurance** – organized review against the established quality standard.
- **Quality Improvement** – continuous, organized creation of beneficial change to foster improvements to both process and product.

This organizational approach makes ISD a proactive model. In context, “Pilots” will then be ready to perform along with the “navigators.” New capabilities will have a “good fit,” not be “shoehorned” in for tight fit. This approach is also responsive to Roger Kaufman’s (2003) plea, flowing “to organizational performance and occasionally to external clients and society.” We can expand our vision of ISD in performance improvement.
References


Conrad Bills is Training Manager for F-16 Training Programs at Lockheed Martin, Akron, Ohio. He serves multiple training system activities in Instructional System Development (ISD) for Lockheed Martin Naval Electronics & Surveillance Systems, Akron, Ohio, covering all phases of the ISD process. He is responsible for the pilot training system concept in the F-16 MTC and reflected his understanding in the Training Systems Integrated Product Team during the concept phase of the Joint Strike Fighter (JSF) Program. He joined Lockheed Martin in 1993 upon his retirement from the U.S. Air Force. Before his retirement, he directed the project that updated the Air Force ISD process. He was a training systems analyst for all of the Air Force Aircrew Training Systems (ATS’s). He holds a doctorate from Kent State University. Dr. Bills has over 25 years of experience in scientific management, applied psychology, and instructional system development.
Figure 1. Example of Functional Analysis for Distance Learning Network
Figure 2. Functional ISD Model
Klaus D. Wittkuhn, CPT

Some remarks on the discussion of the (H)PT value proposition

I was a little irritated when I read the special issue of Performance Improvement on the HPT value proposition. I had hoped for an atmosphere of departure and for new ideas leading to a comprehensive, integrated approach. What I read, in much of the issue was a patchwork of established information.

Four areas concern me in particular:

1. The claim that HPT is systemic
2. The limits of HPT models
3. The “H” in HPT
4. The ISPI value proposition

1. Some remarks on the claim that (H)PT is systemic

Saying it bluntly: I think it is not true. The (H)PT community (or its most profound pathfinders) realize that (H)PT should be systemic. But so far, being systemic in most cases is only declarative. In reality, the community systematically ignores theory and research on systems theory in Europe (e.g. Luhman and Vester, although they are known in the States) as well as in the United States. There is a lot of literature and research on systems and on complexity (e.g. Massachusetts Institute of Technology, Sterman, Senge – System Dynamics, Axelrodt, Santa Fe Institute–just to mention a few prominent names). But I find neither those ideas, nor their authors, cited in (H)PT publications. Wherever I look, proof and scientific foundation is missing.

What I find instead is a list of variables influencing performance, e.g. resources, tools, policies, etc. But a system is more than a list of variables; the very essence of a system is the relations among those variables. How do they influence each other? Within what time frame? Are those influences weak or strong? Which variables influence others strongly, and are therefore targets for interventions, and which are influenced through others? Where are positive and negative feedback loops? How do they balance each other? Answering these kinds of questions slowly builds an understanding of a system. Working through a “parts-list” does not. Moreover, in any given system the answers to the questions will vary even if the system elements are the same. Only their relative weight and their influence on the system will be different. This is one reason why (H)PT models can only be generic (see below for further consequences).

One of the few models I personally know which comes with some kind of systemic approach is Rummler’s “Three Levels of Performance” and his related methodology. But this model does not help people understand systemic thinking. And it is of such complexity that 95% (my personal estimate) of the PT community does not use it, either because they do not understand it or because they think that it is too comprehensive to be useful in the situations they work in.

I find much more literature and research on systems theory, system dynamics and complexity than I find on (H)PT, but no one cares. The HPT community seems to be insular and to feel good about it. (It is beside the point that I hear continuing complaints that (H)PT does not get the recognition it deserves). Why not start with recognizing the state of the art in systems thinking?

2. Some remarks on the limitations of (H)PT models

HPT practitioners frequently use models that they “adapt” for specific clients. What I often find is not adapted models but different ones. In many cases those differences “make things worse” because the models show less differentiation than the originals. In addition, many models consist of “boxes” such as a box labelled “consequences”. What people often do is fit the specific consequences of a particular organization into the generic box “consequences”, which is okay. But what they do not do is add or delete
the boxes themselves. This means they do not adapt their models on the generic level. So the most important adaptation is not made at all. All the questions I raised in 1. **Some remarks on the claim that HPT is systemic**, above are not usually answered. So, I would say that in most cases you cannot speak of adaptation.

HPT does not reflect that its models are models and therefore do not show reality. Not to speak of specific and individual situations. The models only can be generic (see above) which automatically means that in a consulting process, they have to be adapted to the actual situation. Who describes the necessity to do so? Where are the tools to do that? (One easily can find them if one carefully works through systemic literature, which leads back to the ignoring of e.g. system dynamics).

**3. Some remarks on the “H” in HPT**

As Tosti says, the “H” in HPT is important for differentiation from other consulting approaches. But as practitioners, we must help our clients understand that the “H” is not there because HPT is solely focused on the performance of people. HPT considers process and organizational performance as well, but never loses sight of the fact that people design processes and organizations. In many cases the design of a process is much more important for its performance than the performance of the people working in the process. People tend to overlook that, and all of a sudden the meaning of HPT comes down to a very limited understanding of what it can achieve.

**4. Some remarks on ISPI’s value proposition**

As Tosti and Jackson said, most ISPI members are in the training discipline. This could be seen as ISPI’s secondary market, with the primary market being line managers and decision makers. They are responsible for generating value in their organizations. But if you look at ISPI’s offerings for this target group you will not find much to attract decision makers.

For example, the ISPI conference tries to meet the needs of its existing members rather than stretching the content to attract other potential audiences. ISPI’s value proposition (at least a big part of it) should target decision makers and line managers. That requires a different conference and would mean a shift in membership. Probably it would mean the loss of some members as well. But it would open the primary market and further differentiate ISPI from other organizations. In the long run, this could be important for ISPI’s viability. I agree with Wydras’s analysis of a market rejecting, then punishing a brand and its makers. If ISPI cannot deliver on its value proposition, its members will leave.

Although he has something else in mind, Clark poses the right questions: “Are we avoiding necessary change because we realize that we’d have to go outside our comfort zone? Are we hesitant to take advice because we can not imagine what would result from the change we are being asked to make?”

**The future of PT**

Lest I be misunderstood, I believe that PT has the potential to provide the most powerful framework for understanding, analyzing, managing and improving the performance of organizations and of their people. But at this moment, PT is far away from delivering what it promises. The pathfinders showed the direction and developed the first models and methodological approaches. But what the community needs now are not followers using an incomplete framework over and over again because they do not dare to change. What the community needs now is people who follow an advanced vision, start working in it, and fill this demanding framework with what is still missing:

ISPI’s research program for the coming years should be to:

1. Develop a real systemic methodology
2. Deepen the understanding of PT models, especially their generic nature, and develop systematic and systemic approaches to adapt those models to real life situations.

3. Get rid of the limited understanding of the “H” in “HPT” to reveal the hidden power and the potential.

Right now a little of it can already be seen on the horizon.

The pathfinders should trigger the next generation of (H)PT, inviting new people with new ideas to collaborate with them, thus bringing proven methodological achievements and new development together and integrating them into the most powerful framework we can imagine.
HPT’s value proposition

The ideas and supporting skills that are the core of what I think of as HPT are:

- Systems thinking: the systems approach to identifying problems and opportunities leads us to look beyond the obvious to identify needs. It enables us to look beyond the obvious intended consequences of changes within a system and consider unintended consequences when recommending solutions and/or innovations. Questions within the field about how micro or macro a systems view should be taken don’t diminish the power of this approach.

- Measurement: this term is used in the broadest sense here to include an array of analysis and evaluation tools. It helps answer those simple questions like “Where are we? Where are we going? Are we there yet?

There are many other notable ideas and skills within the field that contribute to the effective practice of HPT such as communication, management, project management, and training. HPT is about addressing the needs, problems and opportunities of humans within a system to enable worthy accomplishments. The systems approach and measurement in its many forms are two key features of the field that I believe are a source of great value for customers toward this end.

What does HPT include?

HPT transcends any field in practice because it is not about a specific ‘field’ – it is about every field in which humans strive. HPT is not accounting but it is about the performance of accountants. It is not customer service, but it about the performance of customer service representatives. Do they have the tools, processes, knowledge, feedback, incentives, clarity of purpose, etc. in a system that supports their ability to achieve agreed upon goals?

HPT does not include “everything” but HPT solutions may draw on expertise from any field-in much the same way that medicine draws on many fields. Medical practitioners draw on biology, chemistry, engineering etc. to do the work of medicine. Medicine doesn’t supercede those fields - it just uses their knowledge and products in a way that makes sense for medical practice. HPT has a similar relationship with training, ergonomics, organizational development, and so forth.

What’s right with HPT?

HPT is a growing field recognized by an international group of professionals willing to invest in ISPI membership, the organization that most closely represents the field. It is gaining wider recognition from other professional organizations, such as the American Society for Training and Development. ASTD offers an expanding number of performance improvement products. HPT is still inventing and reinventing itself. That growth is a sign of strength.
If one were to master HPT, what would one be “skillful” at, versus “knowledgeable” about or simply “aware” of?

ISPI leaders address this question periodically in special issues of Performance Improvement Quarterly (Volume 8/ Numbers 2 and 4, 1995) and in both editions of the HPT Handbook. Consider this analogy to engineering: “If one were to master engineering, what would one be “skillful” at, versus “knowledgeable” about or simply “aware” of?” Image the overlap in diverse areas of engineering such as chemical engineering and mechanical engineering. I would expect them to be knowledgeable about the underlying principles of engineering, skillful at applying those principles in their area of expertise and aware of related knowledge and skills that they may not fully possess but that may contribute to desired outcomes.

Given the range of expertise possible in HPT, I suggest something similar. HPTists should be skillful at the services they offer, knowledgeable of the underlying principles of HPT that apply to the execution of those services and aware of related knowledge and skills such as Industrial Engineering (IE), total quality management, Organizational Development (OD), finance, etc. that may contribute to desired outcomes.

What else can/should ISPI do to better communicate or market HPT and the value of HPT?

This question and the preceding questions seem to imply a “gap.” Are these questions part of the application of an HPT model? If so, it is a little uncomfortable to jump to solutions, but here are three ideas to hold out as elements of potential solutions:

• Stop expecting HPT to be simple.
• Recognize that results from studies of innovation may be contrary to HPT practice.
• Move HPT into the college of business.

Stop expecting HPT to be simple. Tosti and Jackson quote Charlie Slack: “Our technology needs to be as transparent as electricity…” Respectfully, this sounds great for solutions, but not for HPT practice. It isn’t simple and the scientific roots from which it draws its strength are not simple. No one expects industrial engineering, finance or total quality management to be simple. Why should HPT be different?

The Public Broadcasting System had a series on Jazz. In that series Wynston Marsalis talked about Jazz as Art. He elaborated by explaining that ‘Art does not come to you, you have to go to Art [to truly appreciate it]. It is not simple. Human Performance Technology is like Art. It will not “come to” us or to our customers. We have to come to it and we have to help our customers come to it. If we want customers to realize HPT’s value we have to responsibility for making it worth their while to do so.

A couple of ways to help them realize the HPT value proposition focus on business decision makers at different points in their career.
Today’s business leaders and managers are our customers in today’s organizations. Studies of innovation in organizations seem to show a pattern contrary to the HPT requirement, described by Carol Panza, and summarized by Guy Wallace “…to not begin with an intervention in mind…” In The Diffusion of Innovation, Everett M. Rogers (1995) states that “A performance gap can trigger the innovation process.” He goes on to say:

“Most organizations engage in an opportunistic surveillance by scanning the environment for new ideas that might be beneficial to the organization. As March (1981) noted, innovation in organizations “often seems to be driven less by problems than by solutions. Answers often precede questions.” Most organizations face many problems, but possess knowledge of only a few innovations that offer solutions. So the chance of identifying an innovation to cope with a particular problem is relatively small. But if one begins with a solution, there is a good chance that the innovation will match some problem faced by the organization. Consequently, most organizations continuously scan for innovations, and match a promising innovation with one of their relevant problems.”

Is this the cart before the horse? Maybe. This may not be the greatest news for HPTist ears but it could be an important part of the “as is” definition.

Changing that “as is” definition to create fertile ground for HPT could begin in the college of business. Tomorrow’s business customers are in the college of business today. How about approaching our alma maters and campaigning for an HPT course to be a standard elective in every college of business degree program? Just as someone graduating with a degree in business management knows ‘enough’ about accounting, human resources, and other business management responsibilities so too should they know ‘enough’ about HPT to recognize when and how a Human Performance Technologist can add value to their business.

Bobbie Allaire
Beaverton, Oregon USA
Profits are driven primarily by two components of a business: the product or service that one sells, and how one goes about selling that product or service. HPT sells organizational results, and arguably in the most holistic and pertinent framework that can be found in business today. HPT practitioners can assess, plan, implement, deliver, and measure change. This is our competency, the value that we bring to organizations, and nobody does this better than we do.

So, as Geary Rummler puts it, “If we’re so good, why aren’t we rich?” Indeed, there are others that have pondered this question and have come up with some answers. Diane Gayeski has suggested that HPT professionals are “service oriented”, not competitive. A natural outreach to this is a tendency towards risk-aversion, the tendency not to take chances even though there is potential upside. Secondly, Frank Wydra, among others, has noted that we continue to engage training and HR departments with our services rather than those that have control of consequences and resources, namely higher management and operations. Additionally, Roger Kaufman suggests that many HPT consulting professionals take on work that may not be in the best interest of the client or society in order to maintain a steady income. Projects that do not produce desirable or noticeable results put both the consultant and our field in an unfavorable position.

What would be our wish list for HPT as a profession? Certainly, a widely known and recognized core of new, applicable learning and change research is central to this field. Having a large and diverse demand for HPT by the general business community would also go a long way for the prosperity of us as practitioners and the impact we make to the greater good. Measurable value that we add to the people, organizations, and society that we serve is the ultimate goal…value that we wish to demonstrate as both long-term and significant.

What we sell is results. With today’s focus on the service (human) industry, the increased pace of change, the importance of competent users of new technology, and the overwhelming proportionate cost of labor, HPT is incredibly well positioned to play an enormous role in the shaping of the 21st century economy. Unfortunately, what we sell and how we profit are very indirectly aligned.

Two profit models dominate the HPT landscape. Hourly and per project billing seem fitting to the “personality profile” of our professionals. In both instances, we will be paid, although it might have nothing to do with what we promise. We promise to deliver results. What does the time spent on a project have to do with results? And if a project is completed, how does one know if it produces value for the organization? If we, as HPT consultants, promise results, shouldn’t we put our money where our mouth is?

**Partnering with a Business Model**

If we want to engage businesses at the executive level, we have to begin to show results in business terms, namely financial terms. Formulas for ROI have been popular lately in our field for this reason. How effectively can HPT professionals demonstrate...
long term value in financial terms to a client? In one man’s opinion, not well at all. There seems to be three major challenges to getting CFO buy-in to HPT:

1. **“Soft” results.** So what if customers are now more satisfied with the client’s product? How does this impact the client’s profitability? Changing human behavior or human opinion can be difficult to translate accurately into financial statements.

2. **“Yeah, right” ROIs.** Financial and economic theory hold that 20% annual returns are terrific, 50% are for high-stakes venture capital money. In some case studies of HPT interventions, 200-4000% returns are discussed glibly. A major league scout would have just as hard a time believing a .700 batting average for a good prospect as a CFO would have believing a 500% ROI for an HPT intervention. Sounds great, but it just seems too high to be legitimate.

3. **Objective evaluation.** Who does the evaluation of an HPT intervention? Performing the evaluation on the intervention that we implemented is a potential conflict of interest.

Sharing the risk and the reward of our projects is a way in which to further our field. Donald Tosti and Peter Hybert have both engaged clients with this type model, though they seem to be the exception. Our leverage comes with our efficacy, our measurement of results, and our competency with transforming knowledge into accomplishment.

With this shared risk/reward model, HPT professionals would partner with client organizations. By delivering useful results, we will impact the bottom line for our clients. The degree to which we do this would be the basis from which we are rewarded. A reasonable percentage of this profit is 25%-- if I can make you an additional four dollars, I will keep one. Paramount to this arrangement is a credible evaluation, best performed by a third party that is mutually agreed upon before the project is begun. An analogy to financial accounting seems appropriate, as accountants are ultimately the ones who measure business performance for stockholders.

Risk-averse HPT professionals might have a difficult time swallowing this model. What if the project’s labor costs outweigh the revenue from the evaluation? How might we financially manage a labor force when we know that some projects may not create the value that we anticipate? The management of this risk is critically important, and can be done with careful selection of projects with adequate upside. Venture capitalists use this business model as well, distributing risk among several projects and anticipating big payoffs from exceptional investments (they are usually profitable if one in eight investments produces anticipated potential). HPT professionals should also insist that they be involved with the long-term success of a project under this model, as often results of interventions continue far beyond the first year.

Widespread success of our discipline hinges on the delivery and demonstration of results within the general business framework. Partnering with client organizations to deliver this value, to share this risk, to credibly verify impact, and to mutually benefit in profit will allow the HPT field to increase its exposure and ultimately add more long-term value to organizations.
Learning From Past Mistakes: Response to the “Clarifying HPT” Issue of Performance Improvement
by Dr. Susan Coleman, CPT and Dr. Marci Murawski

HPT has been defined as the “…tools and techniques for achieving organizationally desirable results through the management of people and processes” (Panza, 2003, p. 41). To the novice, this tends to suggest a rather simplistic concept that can easily be learned and applied if one only has the prescribed set of tools and techniques. Our position is that HPT, like ISD, represents a group of disciplines that the HPT practitioner must appreciate, study, and expertly apply. Unfortunately, the HPT and ISD communities’ eagerness to be understood, practiced, and embraced by a larger audience has compromised the original purpose of these fields of study and practice by reducing the principles to rather simplistic proceduralized models (e.g., the ADDIE model for ISD). We believe these models are deceptive suggesting practicing both HPT and ISD requires only following the right steps and using the right tools and techniques. What is missing is an insistence on a discipline-based approach and the associated professional judgment that is critical to successfully practice HPT and ISD.

The simple ISD model, based on the scientific method, is a very effective concept for performance and instructional problem solving. It is important to remember that a significant motivator behind the development of the ISD model was to ensure that instructional interventions directly addressed performance of the learner. In order to ensure that performance is addressed, the analysis phase requires consideration of all potential causes of performance gaps. One of the outcomes of this phase is the determination of the type of intervention. If training or education is determined appropriate, then the remainder of the ISD model is applied. So, to those of us practicing ISD for many years, we have been HPT practitioners with a specialty in designing, developing, implementing, and evaluating instructional solutions.

However, over time, the ISD model has been modified to depict the specific decisions that may be required for completing the ISD process with a singular focus on instructional solutions. Flow charts and decision trees have been designed to lead users through a series of yes/no decisions and finally to an ISD solution. While these formats are useful to ensure all aspects of the problem are considered, we do not believe the ISD model was ever meant to be followed in a prescriptive fashion as is suggested by these tools. Rather, the model was designed to communicate the approach. We have known colleagues—and clients—who believe ISD means following these prescriptive approaches. Unfortunately, they also believe this approach will result in optimum instruction and learning experiences.

Effectively applying the ISD process requires an understanding of several subject matter/research areas to include learning theory, motivation, psychology, organizational behavior, and others, as well as the relationships among them. Accompanying this is the professional judgment so critical to successfully practicing ISD. The decisions that are made during the ISD process are made with knowledge of these underpinnings and their interactions—far more than simple yes/no answers. By presenting simplistic models, we believe our community encourages a novice approach where theories and models are separate and discrete concepts applied independently. The expert recognizes that these theories are often applied in combination to present the best solutions for each unique learning and performance situation.
Only with this perspective can the problem be approached from a qualitative and systemic perspective. Each question posed in these models potentially represents multiple facets that must be asked, understood and answered.

In the ISD field, the appearance of flow charts and decision trees have led to several attempts at automating the ISD process. The assumption is that subject-matter experts, project managers, or a non-ID can simply use ISD software to create their own successful training solutions. These packages may result in “safe” instruction, but not exceptional instruction where the learner is the focus. While the software companies might disagree, we have not found an ISD application that has been widely accepted by the ISD community. We believe the reason for this is the underlying assumption that the information and decision processes related to the ISD process require nothing more than explicit knowledge that is totally articulable and can be laid out into neat, clean processes and procedures. Our experience has been that the appropriate application of disciplines is instead tacit knowledge borne out of expertise and professional judgment that is difficult to document and the richest most complex type of knowledge.

HPT, like ISD, is a technology for solving problems, based on the scientific method. Also, like ISD, it is represented by a simple process with multiple variables impacting the solution. Systemic thinking is central to the process to prevent focusing on a solution at the expense of the critical aspects of the problem, including, most importantly, problem definition. Like ISD, the HPT process is much more than following a flow chart or decision tree that progresses the analyst through yes/no decisions to come up with the optimal performance solution. Parkman (2003) elaborates on the Performance Analysis Flow Chart, which successfully points out the complexity of HPT. Unfortunately, the corresponding chart does not reflect that complexity and instead reduces the concepts to yes/no decision points. While experienced practitioners recognize that the answers to the questions posed, and the selection of the appropriate solution, are, more often than not, more complex than yes/no decisions the less schooled and practiced do not. In short, our concern is that novices (or lay persons) see flow charts like this, take them out of the context of the narrative and underlying theory and assume the HPT process is much simpler than it really is.

The parallels between the ISD and HPT practices are compelling. Let’s not suggest that the HPT process is so simple as to suggest that it can be automated for anyone to plug and chug performance solutions. Good HPT application requires so much more and our community deserves more. Our professional society needs to focus on the relationships impacting performance problem solving; sharing experiences with exceptional projects to stimulate thought about our own projects; and conducting and reporting research on the things that impact performance problem solving. With this background we can include these concepts and ideas into our own thought processes when we are analyzing problems in our own organizations or for our own customers. Rather than oversimplifying a very complex process, we need to challenge each other, and any outsiders interested in our profession, to appreciate the benefits of learning the underpinnings of the process and take pride in our willingness to embrace the professional dimensions of HPT. While we recognize that in order to communicate with each other through professional literature we must condense our experiences, we have to be careful not to reduce our discipline to a state that suggests that anyone without proper training and education can apply it successfully. We believe this is how ISD’s reputation was tarnished and the debate began about
its utility—it was over simplified, became excessive in its application, and did not produce the performance results promised. In short, its purpose and focus was lost.

It is our hope that as the discussion of “What is HPT” continues the profession will not lose focus on the larger picture of HPT. Our fear is that HPT is headed down the same road as ISD. Let’s not define HPT as the “tools and technologies” for affecting human performance. Let’s be sure to include the concepts, models, and methods Wallace and Rummler (2002) mention. Also, Hybert (2003, p. 34) suggests the following definition for HPT, the “Science and practice of analyzing the performance of organizations, processes, and individual to identify opportunities for improvement.” We believe this line of thinking must take precedence in the discussions of “What is HPT.”

References


Dear Guy:

Thanks for beginning a dialogue regarding HPT and what it means. HPT or PT is a relatively young field and “conventional wisdom” is evolving. The field of HPT has outstanding scholars and practitioners, which provides a sound basis for thinking about models and processes.

Jim Moseley, Joan Dessinger, and I spent a good deal of time thinking about HPT prior to writing our books that are published by ISPI: Fundamentals of Performance Technology and Performance Improvement Interventions. We believe that HPT should provide the leadership to create a comprehensive approach to performance improvement. Too often, professionals focus on training, organizational development, quality, industrial engineering, and other specialties, based on their own experience and knowledge. We believe that PT practitioners should create linkages and envision the synergy of many interventions blended into a single comprehensive solution plan.

As you can see in our second book, Performance Improvement Interventions, we believe that the PT practitioner does not need to lead or be an expert in all of the intervention possibilities. The PT practitioner needs a personal network and knowledge of when to bring in the right expert. Our book identifies PT’s role in each of the 67 interventions that we cover.

For example, strategic planning can provide focus and accountability to organizations, which can change behavior and performance by helping people make decisions aligned to their organization’s goals. That does not mean that the PT practitioner should necessarily lead an executive strategic planning effort. However, the PT practitioner can identify when strategic planning would benefit the organization and lead the effort if that is their area of expertise. In addition, the PT practitioner can lead an organizational scan or external scan due to their analytical skills.

Another example is financial interventions, such as cost vs. profit center. When a department is not sufficiently responsive to the customer, such as a hospital pharmacy, it is possible to change the pharmacy from a cost center to a profit center. Profit centers usually pay attention to revenue and return-on-investment, which can change the behavior of the pharmacy employees. It is not
necessary for the PT practitioner to be an expert in finance or cost vs. profit centers, but to call in the right resources to secure buy-in and help the pharmacy make the needed changes.

Too often, each specialty (such as instructional design, quality, or industrial engineering) looks to use their own expertise to solve problems, like the surgeon who often recommends surgery. HPT can be the profession with a systematic, comprehensive approach. We can have diagnostic tools, such as the Intervention Selection tool in the back of *Performance Improvement Interventions*, to help PT practitioners lead their teams to determine appropriate solutions.

On the other hand, HPT should not make assumptions about the background of people in our field. I am responsible for a master’s degree program, Performance Improvement and Instructional Design, at University of Michigan – Dearborn. Jim and Joan teach Instructional and Performance Technology graduate courses at Wayne State University. Graduate students, either currently in the program or graduates, have varied backgrounds, such as MBA, CPA, engineering, sales, nursing, psychology, medical researcher, information technology, sales and marketing, organizational development, hospitality management, military, radiology, teaching, and many more fields. We make a mistake by narrowing our customary interventions to those related to the background of “typical” PT practitioners. Hutchinson and Stein have ideas similar to ours about the breadth of HPT interventions.

In response to item #5, there is not need to “co-exist” with other improvement methods, techniques, and tools, such as those that come from: industrial engineering, total quality management, organizational development, finance, etc. We are a holistic field and industrial engineering, total quality management, organizational development, and finance are part of our field! We should not differentiate and be exclusive! Many people refer to Thomas Gilbert as the “father of performance technology”; in that case, our beginnings were in engineering. “My method is a method of engineering…the engineer knows precisely where to go, and will use any available methodology to get there. …The engineer must use whatever knowledge is available”. (Gilbert, T.F. (1978). *Human Competence: Engineering Worthy Performance*. New York, NY: McGraw-Hill, pp. 3-4). HPT need to use a comprehensive, inclusive approach. We should not define what is in and what is out. We need to use whatever is available that is right for a given situation.

In conclusion, I hope ISPI and HPT remain open to the breadth of intervention possibilities. This will attract a wide variety of people to our field, who appreciate our systematic and systemic approach and our focus on results and value-added.

Sincerely,

Darlene Van Tiem, Ph.D, C.P.T.
Associate Professor and Coordinator
Performance Improvement and Instructional Design
Invitation to Join
ISPI Presidential Task Force: Defining Performance Technology

As a recognized contributor to the field of Human Performance technology, you are invited to join a newly formed ISPI Presidential task force. This task force has been given the task by the ISPI Board of Directors of more clearly defining Human Performance Technology.

Guy Wallace, ISPI president, started this initiative in 2002 as president elect with a Performance Improvement article pointing out that we lack a clear definition of our core technology and its many parts. We also lack a clear understanding about how HPT relates to other disciplines such as Organizational Development and Six Sigma. Given this lack of clarity, Guy has pointed out that ISPI cannot clearly articulate its value proposition.

As a member of the task force you will be expected to:

- Review a set of reference documents (approximately 4 hours)
- Participate in a 4 hour conference call on Monday, October 27th 2003 - 10 am -2 pm (Central time) to react to our proposed “Think Tank” outputs and process
- Participate in a 3 day “Think Tank” in Las Vegas, Nevada, November 17-19
- Participate in a second 4 hour conference call, January 5th, 2004 - 10 am -2 pm (Central time) to respond to a draft of the report

Given the economy and its impact on ISPI finances, ISPI was unable to establish a Travel & Living Expenses budget for this initiative, so we will all have to cover our own expenses as a contribution to both Human Performance Technology and ISPI.

This should be an especially rewarding professional experience for all of us. The total Task Force will number approximately 25-30. You, and the other invitees, were selected by a “Core Team.” Those Core Team members are:

- Roger Addison
- Rick Battaglia
- Richard Clark
- Roger Kaufman
- Geary Rummler
- Ray Svenson, TF Facilitator
- John Swinney, TF Chair
- Don Tosti, President-Elect
- Guy Wallace, Board Representative/President

You can get more information on Guy Wallace’s web site, www.eppic.biz, then go to “work space” and then log in using “ISPI2003” as your username and then use “ISPI2003” as the password. (Ignore the quotation marks!)
The site has the mandate and project plan as well as a number of other reference documents on Human Performance Technology that we can use as input to this effort. You may wish to add documents you think appropriate (send them to Guy).

If you have questions that aren’t answered by the website material, email or call any one of us.

We realize that you are being asked to make a significant commitment in both time and money. However, given the importance of this work, we hope that you will be able to participate.

Please respond whether or not you are able to commit to this initiative directly to Ray Svenson.

Thank you!

John Swinney, Task Force Chair
jswinney@bandag.com

Ray Svenson, Task Force Facilitator
raysvenson@qtm.net

Guy Wallace, Task Force Board Representative
guy.wallace@eppic.biz
ISPI Presidential Initiative Task Force
Participant Orientation and Instructions
September 29, 2003

Dear Task Force Members:

This cover letter and attachments are intended to provide the materials necessary for your participation in this undertaking. Thanks for agreeing to participate in this important effort and for agreeing to cover your own travel and living expenses.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date, Time, Location</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Think Tank Conference Call</td>
<td>October 27, 10am-2pm Central Time</td>
<td>• Agree on the framework to classify HPT content</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Obtain feedback and discuss the proposed Think Tank process</td>
</tr>
<tr>
<td>Think Tank</td>
<td>November 17, 9am-5pm November 18, 9am-5pm November 19, 8am-3pm Flamingo Las Vegas Hotel and Casino</td>
<td>• Populate the HPT framework</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Identify next steps for ISPI</td>
</tr>
<tr>
<td>Post-Think Tank Conference Call</td>
<td>January 5, 10am-2pm Central Time</td>
<td>• Provide feedback on draft report prior to ISPI Board review</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Identify sources and deadlines for minority opinions to be included</td>
</tr>
</tbody>
</table>

Prior to the Pre-Think Tank conference call, you will need to thoroughly review the package of information we have attached to this letter including:

- Task Force roster
- July 2002 PI Article
- Blank Technology Domain Map
- Presidential Task Force Process and Work Products.

We have proposed previously to use the Technology Domain Map “framework” proposed by Rummler in the PI article (originally published in October, 1983) as a starting point. By this we mean to use the three level framework but not necessarily the contents in the three levels. We have attached a blank framework where we have labeled the three levels.

This three level framework is what we seek agreement on in the conference call. If you prefer the use of an alternative framework (not content) for organizing the content of HPT, please share it with everyone by October 20, and be prepared to discuss it in the
conference call. At the end of the conference call we will have selected the framework we intend to use. The mechanism we will use to make decisions in the conference call will be roll call voting in alphabetical order.

The end product of our work will become the intellectual property of ISPI, so please do not share frameworks or models that you claim as proprietary to yourself or another organization.

The results of this work may be used by ISPI to:

- Define ISPI content areas for
  - Conference tracks
  - Publications
  - Institutes
  - Awards of Excellence
- Redefine the Society’s structure
- Target collaborative relationships with other professional societies
- Define ISPI’s value proposition and marketing strategy.

Please review the attached material to prepare for the conference call. Send your preferred “framework,” if any, to all the participants by October 20th.

We suggest that you confirm your reservations at the Las Vegas Flamingo Hotel and Casino at 1-888-308-8899.

Conference call instructions will be sent by October 20th. If you have any questions, please call or email one of us.

John Swinney, Task Force Chair
563-262-1333, jswinney@bandag.com

Ray Svenson, Task Force Facilitator
269-469-8407, raysvenson@qtm.net
<table>
<thead>
<tr>
<th>Name</th>
<th>First Initial</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addison</td>
<td>Roger</td>
<td>(415) 332-2560</td>
<td><a href="mailto:roger@ispi.org">roger@ispi.org</a></td>
</tr>
<tr>
<td>Amarant</td>
<td>John</td>
<td>(415) 455-1444</td>
<td><a href="mailto:jamarant@aol.com">jamarant@aol.com</a></td>
</tr>
<tr>
<td>Battaglia</td>
<td>Rick</td>
<td>(301) 587-8570</td>
<td><a href="mailto:rick@ispi.org">rick@ispi.org</a></td>
</tr>
<tr>
<td>Binder</td>
<td>Carl</td>
<td>(707) 578-7850</td>
<td><a href="mailto:carlbinder@aol.com">carlbinder@aol.com</a></td>
</tr>
<tr>
<td>Brethower</td>
<td>Dale</td>
<td>(520) 403-3433</td>
<td><a href="mailto:dalebrethower@earthlink.net">dalebrethower@earthlink.net</a></td>
</tr>
<tr>
<td>Carey</td>
<td>Clare</td>
<td>(808) 477-2702</td>
<td><a href="mailto:schmidtw001@hawaii.rr.com">schmidtw001@hawaii.rr.com</a></td>
</tr>
<tr>
<td>Cassidy</td>
<td>Michael</td>
<td>(703) 450-9408</td>
<td><a href="mailto:mcassidy@marymount.edu">mcassidy@marymount.edu</a></td>
</tr>
<tr>
<td>Clark</td>
<td>Dick</td>
<td>(310) 377-7220</td>
<td><a href="mailto:clark@usc.edu">clark@usc.edu</a></td>
</tr>
<tr>
<td>Doyle</td>
<td>Gary</td>
<td>61-397588759</td>
<td><a href="mailto:garryd@bigpond.net.au">garryd@bigpond.net.au</a></td>
</tr>
<tr>
<td>Esque</td>
<td>Timm</td>
<td>(480) 456-5240</td>
<td><a href="mailto:tjesque@yahoo.com">tjesque@yahoo.com</a></td>
</tr>
<tr>
<td>Farrington</td>
<td>Jeanne</td>
<td>(408) 448-6704</td>
<td><a href="mailto:jeanne@redwoodmtn.com">jeanne@redwoodmtn.com</a></td>
</tr>
<tr>
<td>Gough</td>
<td>Barbara</td>
<td>(248) 733-4297</td>
<td><a href="mailto:goughb@oakwood.org">goughb@oakwood.org</a></td>
</tr>
<tr>
<td>Guerra</td>
<td>Ingrid</td>
<td>(313) 583-6415</td>
<td><a href="mailto:iguerra@umd.umich.edu">iguerra@umd.umich.edu</a></td>
</tr>
<tr>
<td>Hale</td>
<td>Judy</td>
<td>(630) 427-1304</td>
<td><a href="mailto:haleassoci@aol.com">haleassoci@aol.com</a></td>
</tr>
<tr>
<td>Kaufman</td>
<td>Roger</td>
<td>(850) 386-6621</td>
<td><a href="mailto:rkaufman@onap.fsu.edu">rkaufman@onap.fsu.edu</a></td>
</tr>
<tr>
<td>Leigh</td>
<td>Doug</td>
<td>(310) 568-2389</td>
<td><a href="mailto:dleigh@pepperdine.edu">dleigh@pepperdine.edu</a></td>
</tr>
<tr>
<td>Medsker</td>
<td>Karen</td>
<td>(703) 284-5959</td>
<td><a href="mailto:kmedsker@marymount.edu">kmedsker@marymount.edu</a></td>
</tr>
<tr>
<td>Munley</td>
<td>Mark</td>
<td>(415) 350-4395</td>
<td><a href="mailto:mmunley@performancepagedesignlab.com">mmunley@performancepagedesignlab.com</a></td>
</tr>
<tr>
<td>Pershing</td>
<td>Jim</td>
<td>(812) 856-8455</td>
<td><a href="mailto:pershin@indiana.edu">pershin@indiana.edu</a></td>
</tr>
<tr>
<td>Ramias</td>
<td>Alan</td>
<td>(505) 828-0558</td>
<td><a href="mailto:alanramias@mindspring.com">alanramias@mindspring.com</a></td>
</tr>
<tr>
<td>Rummiller</td>
<td>Geary</td>
<td>(520) 529-1151</td>
<td><a href="mailto:grummiler@performancepagedesignlab.com">grummiler@performancepagedesignlab.com</a></td>
</tr>
<tr>
<td>Spatz</td>
<td>Marilyn</td>
<td>(913) 541-0784</td>
<td><a href="mailto:mspatz@everestkc.net">mspatz@everestkc.net</a></td>
</tr>
<tr>
<td>Svenson</td>
<td>Ray</td>
<td>(269) 468-8407</td>
<td><a href="mailto:raysvenson@qtm.net">raysvenson@qtm.net</a></td>
</tr>
<tr>
<td>Swinney</td>
<td>John</td>
<td>(563) 262-1333</td>
<td><a href="mailto:jswinney@bandag.com">jswinney@bandag.com</a></td>
</tr>
<tr>
<td>Tosti</td>
<td>Don</td>
<td>(415) 455-1444</td>
<td><a href="mailto:Change111@aol.com">Change111@aol.com</a></td>
</tr>
<tr>
<td>Wallace</td>
<td>Guy</td>
<td>(630) 898-9752</td>
<td><a href="mailto:guy.wallace@eppic.biz">guy.wallace@eppic.biz</a></td>
</tr>
<tr>
<td>Wells</td>
<td>Char</td>
<td>(505) 845-8990</td>
<td><a href="mailto:wellsca@thuntek.net">wellsca@thuntek.net</a></td>
</tr>
</tbody>
</table>
ISPI Presidential Task Force

- Think Tank Outputs and Process
- Conference Call Agendas
- Final Report Contents

Prepared by:
John Swinney, Task Force Chair
Guy Wallace, Task Force Board Sponsor
Ray Svenson, Task Force Facilitator

September 29, 2003
Think Tank Outputs and Process

- Welcome and Introductions (45 min.)
# Think Tank Outputs and Process

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Process*</th>
<th>Support Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Objective(s) of HPT (ENDS)</td>
<td>1. Agree on what we mean by a technology</td>
<td>□ Definition of technology</td>
</tr>
<tr>
<td>□ Round 1 (60 min.)</td>
<td>2. Review examples</td>
<td>□ Representative example objectives</td>
</tr>
<tr>
<td>□ Round 2 (20 min.)</td>
<td>3. State criteria</td>
<td>• HPT</td>
</tr>
<tr>
<td>2. Ground rules to be used in defining the technology</td>
<td>4. Vote on the examples</td>
<td>• Other technologies</td>
</tr>
<tr>
<td>□ Round 1 (20 min.)</td>
<td>5. Simple changes to first choice; capture suggestions for editing in Round 2</td>
<td>□ Criteria</td>
</tr>
<tr>
<td></td>
<td>6. Round 2 edit (if needed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Suggested ground rules for each component of the framework</td>
</tr>
<tr>
<td></td>
<td>1. Review ground rules</td>
<td>• Meta domains</td>
</tr>
<tr>
<td></td>
<td>2. Entertain changes (+, -, and changes)</td>
<td>• General change process</td>
</tr>
<tr>
<td></td>
<td>3. Post on the wall for use in next segments</td>
<td>• Technology domains</td>
</tr>
<tr>
<td></td>
<td>(No Round 2)</td>
<td>• Relevant subject matter research areas</td>
</tr>
</tbody>
</table>

*NOTE: There will be two complete rounds*
### Think Tank Outputs and Process (cont.)

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Process</th>
<th>Support Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Meta technology domains (that share technology domains with HPT)</td>
<td>1. Define meta technology domains and technology domains</td>
<td>Starter list of MTDs, e.g., OD, quality, management science</td>
</tr>
<tr>
<td>- Round 1 (40 min.)</td>
<td>2. Validate the starter list</td>
<td></td>
</tr>
<tr>
<td>- Round 2 (60 min.)</td>
<td>- Vote</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Lobby</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Revote</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Add additional ones</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Round 2 – estimate overlap with HPT; draw circles for each other meta technology (see diagram on the next page)</td>
<td></td>
</tr>
<tr>
<td>4. General change process</td>
<td>1. Explain the utility of general change process</td>
<td>Several examples</td>
</tr>
<tr>
<td>- Round 1 (30 min.)</td>
<td>2. Show the examples</td>
<td></td>
</tr>
<tr>
<td>- Round 2 (20 min.)</td>
<td>3. Get agreement to use the simple 5 box model (after Rummler)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Round 2 – validate the utility</td>
<td></td>
</tr>
</tbody>
</table>
Meta Technology Domain Overlaps

HPT

Other Meta Technology Domain

HPT

Other Meta Technology Domain
## Think Tank Outputs and Process (cont.)

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Process</th>
<th>Support Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Technology domains</td>
<td>1. Show Rummler example</td>
<td>❑ Rummler, page 11 example</td>
</tr>
<tr>
<td>❑ Round 1 (90 min.)</td>
<td>2. Show rev. 1 with 4 levels</td>
<td></td>
</tr>
<tr>
<td>❑ Round 2 (45 min.)</td>
<td>3. Modify Level 1 (if necessary)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Level 2 – post-it notes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Subgroup clean-up</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Subgroup presentation and large group critique</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Round 2 – new groups validate and add new teams</td>
<td></td>
</tr>
<tr>
<td>6. Relevant subject matter research areas (science</td>
<td>1. Define what we mean by this layer</td>
<td>❑ Rummler example</td>
</tr>
<tr>
<td>layer and fundamental technologies)</td>
<td>2. Divide into subgroups based on Level 1 technology domains</td>
<td>❑ Steve Villachica stuff</td>
</tr>
<tr>
<td>❑ Round 1 (90 min.)</td>
<td>❑ Put components on post-its</td>
<td></td>
</tr>
<tr>
<td>❑ Round 2 (24 min.)</td>
<td>❑ Build affinity structure (limit to about 3 levels)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Subgroup presentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Identify cross-group overlaps and linkages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Round 2 – New subgroups validate/add</td>
<td></td>
</tr>
</tbody>
</table>
**Think Tank Outputs and Process (cont.)**

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Process</th>
<th>Support Materials</th>
</tr>
</thead>
</table>
| 7. Definition of HPT  
   - Ends  
   - Means  
   - Scope  | 1. Review and revise the criteria  
   2. Review the examples  
   3. Brainstorm ends, means, and scope  
   4. Facilitator create synthesis statement(s)  
   5. Subgroups create edited versions (5 version)  
   6. Round 2 – reshuffle subgroups to re-edit  
   7. Round 2 – vote for best |  
   - Examples from other fields (if available)  
   - Example definitions of HPT  
   - Suggested criteria |
|  
   - Round 1 (75 min.)  
   - Round 2 (60 min.) | | |
| 8. Stewardship system  
   - Round 1 (60 min.)  
   - Round 2 (60 min.) | 1. Review the concept  
   2. Brainstorm purpose/mission  
   3. Brainstorm elements  
   4. Brainstorm suggestions for ISPI Board  
   5. Round 2 – discuss/recommend structure |  
   - Starter list of elements  
     - Technology council and subcouncils  
     - Change control process |
| 9. Validate the name of technology (recommendation to the Board)  
   - Round 1 (60 min.) | 1. Time for people to voice opinions  
   2. Vote  
   *(No Round 2)* | |
Conference Call Agendas
Conference Call Agenda #1

October 27, 2003 — 10:00 a.m. - 2:00 p.m. Central Standard Time

1. Send “welcome” to Task Force members (attach PDFs)
   - Cover letter
     - Welcome message
     - Instructions on readings
     - Instructions on reviewing Think Tank plan
   - Readings
   - Draft Think Tank plan

2. Request questions, comments, and concerns in advance and whether participating
   - Assemble and send to everyone
   - Prepare responses (Guy, John, and Ray)

3. Conference call
   - Roll call
   - Welcome by Chair
   - Agenda and protocols (Ray)
   - Present prepared responses (Guy, John, and Ray)
   - Content roll call (limit of 2 minutes)
   - Give recognition and thanks for the input and promise to share our responses (Guy, John, and Ray)
   - 30 seconds roll call gut reaction to what we are doing

4. Post call
   - Summarize the call
   - Prepare our responses
   - Revise our Think Tank process (if necessary)
Conference Call Agenda #2

January 5, 2004 — 10:00 a.m. - 2:00 p.m. Central Standard Time

1. Send draft report
   - Cover letter
     - Instructions for providing adds, deletes, and suggestions
     - Instructions for preparing minority reports on specific outputs
   - Draft report

2. Request questions, comments, concerns, and minority reports in advance and whether participating
   - Assemble and send to everyone
   - Prepare responses (Guy, John, and Ray)

3. Conference call
   - Roll call
   - Welcome by Chair
   - Agenda and protocols (Ray)
   - Present prepared responses (Guy, John, and Ray)
   - Content roll call (limit of 2 minutes)
   - Give recognition and thanks for the input and promise to share our responses (Guy, John, and Ray)
   - 30 seconds roll call gut reaction to what we are doing

4. Post call
   - Summarize the call
   - Revise report
   - Provide revised version to the Board with a PowerPoint presentation
Final Report Contents

- Introduction
  - Problem/opportunity statement
  - The Board direction and establishment of the Task Force
  - The Task Force participants
  - Process overview

- Outputs (Task Force view and minority opinions—blank in Version 1)
  - Objective(s) of HPT (ENDS)
  - Ground rules to be used in defining the technology
  - Meta technology domains (that share technology domains with HPT)
  - General change process
  - Technology domains
  - Relevant subject matter research areas (science layer and fundamental technologies)
  - Definition of HPT
  - Stewardship system
  - Validate the name of technology (recommendation to the Board)

- Observations and recommendations to the Board

- Appendices
  - July 2002 article
  - List of other reference and access information
The above is the Rummler framework without the content. This framework (not the labels) is our proposed starting point.

Technology Domains could also be called Application Areas or Domains.

Research/Subject Matter Areas could also be called Knowledge or Science Domains.
ISPI Presidential Task Force
Think Tank Agenda for Las Vegas

Note: this is a revised agenda based on comments from the October 27 conference call. The times indicated by each item are for estimates and guidance only, not meant to be a tight constraint

Day 1
1. Welcome, Introductions and Agenda review (30 minutes)
2. Establish a working definition of “Technology” (45 minutes)
3. Establish ground rules for defining contents for each of the layers in our HPT Framework (60 minutes)
4. Review HPT Landscape for the Performance Systems Engineering for the top layer in the model and modify as needed (45 minutes)
5. Brainstorm the Meta “Application Domains/Technologies” for the second layer of the model (60 minutes)
6. Define the elements of each Meta Applications Domain (subgroups, 120 minutes)
7. Brainstorm the Meta Science domains, third layer in the model (60 minutes)

Day 2
8. Define the elements of the Meta Science domains (subgroups, 120 minutes)
9. Recycle through 5, 6, 7, and 8 to add refinements (310 minutes)

Day 3
10. Create a new draft definition of Human Performance Technology (120 minutes)
11. Validate the “label” of HPT vs. PT vs. other options (60 minutes)
12. Discuss and define elements of ISPI’s “Technology Stewardship System” (120 minutes)
ISPI Presidential Initiative Task Force

Final Report

1/9/04

Prepared by:
- Roger Addison
- John Amarant
- Rick Battaglia
- Carl Binder
- Dale Brethower
- Michael Cassidy
- Richard Clark
- Timm Esque
- Jeanne Farrington
- Ingrid Guerra
- Doug Leigh
- Karen Medsker
- Jim Pershing
- Geary Rummler
- Marilyn Spatz
- Ray Svenson (Facilitator)
- John Swinney (Chair)
- Don Tosti
- Guy Wallace (Board Sponsor)
- Charlene Wells
- Klaus Wittkuhn

Prepared for:
- ISPI Board of Directors
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Introduction

This is the Final Report of the ISPI Presidential Task Force chartered by the ISPI Board of Directors in 2003 to refine our definition and framework for Human Performance Technology (HPT).

Task Force Purpose

The purpose of the Presidential Initiative Task Force is to take the model proposed by Geary A. Rummler in his article published in October 1983 in the P&I Journal titled:

“Technology Domains and NSPI: A Proposed Framework for Organizing the Professional Content of NSPI”

and use that proposed framework as the “starting point” to establish a framework to help clarify what HPT is and is not.

This Presidential Initiative Task Force is intended to complete Phase 4 of a four-phase effort currently underway to define HPT with enough clarity so that the society can better market both HPT, and ISPI as the source for all-things HPT.

ISPI Board Direction and Establishment of the Task Force

The Board authorized the formation of the Task Force as part of a four-phase Presidential Initiative led by Guy Wallace, the ISPI President.

- **Phase 1** – Publish Geary Rummler’s October 1983 article on a Human Performance Technology Framework.
- **Phase 2** – Publish a special issue of P&I with 25 invited papers responding to questions designed to clarify HPT.
- **Phase 3** – Society-wide dialog conducted on the society’s web site.
- **Phase 4** – Assemble a Task Force to take all the inputs from the first three phases and prepare a new definition and framework for HPT.

All outputs and articles from this effort are available on the Society’s web site.

The Task Force was formed by first assembling a Core Team at the 2003 Conference in April. The main task of the Core Team was to nominate and recruit the remaining members of the Task Force. The selection was intended to provide a suitable mix of *old guard*, *new guard*, and *rising stars*; *in-house, academics*, and *consultants*; and to get representation from the international community. The Core Team included:

- Roger Addison
- Rick Battaglia
Task Force members were asked to commit to background reading, participation in two four-hour conference calls, and a three-day “Think Tank” meeting. Task Force members were asked to contribute their own time and expenses without reimbursement.

All participating Task Force members are listed on the front cover of this report.

**Process Overview**

The Task Force process included the following steps:

1. Proposed process sent to Task Force members along with background material and reading references by John Swinney, Guy Wallace, and Ray Svenson.

2. Task Force members reviewed proposed process and background material.

3. The Task Force participated in a conference call on October 27, 2003 to refine the process and agree on the general categories to be included in the HPT framework.

4. The Task Force met in Las Vegas on November 17-19 for a three-day “Think Tank” and developed the primary outputs for this report.

5. Five subgroups refined the work from the Las Vegas meeting between November 20 and December 17, 2003.

   - HPT Definition and Criteria
     - Carl Binder
     - Michael Cassidy
     - Richard Clark (Leader)
     - Jim Pershing
     - Klaus Wittkuhn
6. Ray Svenson compiled the Final Report draft, reviewed it with John Swinney and Guy Wallace, and sent it to the Task Force members for review on December 22, 2003.


8. The report was revised and sent to the ISPI Board on January 9, 2004.
Task Force Outputs

The Task Force outputs created in Las Vegas and refined by the subgroups include

- HPT Definition and Criteria
- A new HPT Framework
  - Performance Systems Engineering Process
  - Performance Analysis Framework
  - Technology Domains
- Recommended Governance Structure

HPT Definition and Criteria

Draft provided by Richard Clark, Carl Binder, Michael Cassidy, Jim Pershing, and Klaus Wittkuhn.

Our working definition of performance is: “those valued results produced by people working within a system.”

Human Performance Technology (The Task Force agreed to keep the same HPT label, with the following tagline:)

- An integrated systems approach to performance improvement

The Task Force recommends the following criteria:

Criteria to Judge the Technology in HPT – Our Promise –

ISPI Performance Technology:

1. Is focused on valuable, measured results;
2. Considers the larger system context of people’s performance;
3. Provides measurement tools that can be used repeatedly and will consistently show the same outcome;
4. Programs and interventions are described clearly enough to be duplicated by others, and are either supported by (or are not discouraged by) generalizable research evidence for use under the conditions where they are recommended.*

*When stated this way, novel innovations, respected practice and intuitively generated performance support are permitted and encouraged without scientific evidence provided that there is no research evidence that it may not work under the conditions where it is being recommended.
The HPT Framework

There are three dimensions in the proposed HPT Framework:

![HPT Framework Diagram]

- **Performance Systems Engineering Process (Dimension 1)**
  - Establish the Organizational Context
  - Review Opportunity with Client
  - Assess Performance Against Expected Results
  - Identify Requirements for Success
  - Recommend Solutions
  - Design/Implement Approved Solutions
  - Monitor Performance Against Expected Results

- **Performance Analysis/Design Systems Matrix (Dimension 2)**
<table>
<thead>
<tr>
<th>Conditions</th>
<th>Input</th>
<th>Process</th>
<th>Outcomes</th>
<th>Feedback</th>
<th>Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational System</td>
<td></td>
<td></td>
<td>Analysis Variables and Key Analysis Questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performer System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Technology Domains* (Dimension 3)**
  - Performance Affecting
    - Learning
    - Motivation
    - Environment
    - Performance Systems
  - Methodology
    - Analysis
    - Evaluation/Measurement
  - Science
    - Research

The next three sections of this report provide more detail on each of these three dimensions.

*NOTE: See the Appendix for three views on the Technology Domains.
# Performance Systems Engineering Process

*Draft provided by Timm Esque, Roger Addison, John Amarant, and Jeanne Farrington.*

## Performance Systems Engineering or How We Help Increase Stakeholder Value

<table>
<thead>
<tr>
<th>Step</th>
<th>Description of Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. Establish the Organizational Context</td>
<td>Ongoing networking with clients and participating in the business as a partner</td>
</tr>
<tr>
<td>1. Review Opportunity with Client</td>
<td>Review clients perspective on a potential issue/opportunity and identify how addressing the issue/opportunity would increase stakeholder value&lt;br&gt;Agree on evidence the client will accept that the goal has been met</td>
</tr>
<tr>
<td>2. Assess Performance Against Expected Results</td>
<td>Assess performance against expected results (through existing or new measures and/or ongoing monitors)</td>
</tr>
<tr>
<td>3. Identify Requirements for Success</td>
<td>Identify relevant factors of successful performance at appropriate system levels (barriers/requirements)</td>
</tr>
<tr>
<td>4. Recommend Solutions</td>
<td>Narrow down to most relevant factors of successful performance&lt;br&gt;Identify alternative solutions applying human performance technology criteria&lt;br&gt;Evaluate alternative solutions/approaches to address the most relevant factors (Assumptions, cost, benefits, risks)&lt;br&gt;Communicate recommendations in terms of client perspective (from step 1)</td>
</tr>
<tr>
<td>5. Design/Implement Approved Solutions</td>
<td>Develop implementation plan in conjunction with the client&lt;br&gt;Design/develop solutions (tools/guidance/etc.) to support approved approach and plan by applying valid human performance technology&lt;br&gt;Support implementation per plan</td>
</tr>
<tr>
<td>6. Monitor Performance Against Expected Results</td>
<td>Assess performance against expected results (Is there an issue now? What are the lessons learned?)&lt;br&gt;Recommend next steps</td>
</tr>
</tbody>
</table>

*NOTE: The Performance Systems Engineering Process is not linear even though it appears so in this depiction.*
Performance Analysis/Design Systems Matrix

Draft provided by Don Tosti, Ingrid Guerra, Marilyn Spatz, and John Swinney.

NOTE: This document should be viewed as a work in process. It is no way comprehensive enough to be taken as a final statement regarding the variables that impact performance (as we have defined it) nor the variety of ways HPT professionals can design ways to improve performance.

Our working definition of performance is: “those valued results produced by people working within a system.”

The purpose of the framework then, is to provide a means of considering all the thousands of variables that can affect such performance.

Some ground rules regarding the framework should be:

1. Inclusive – It should apply to all kinds of organizations regardless of their type or size.
2. Universal – It should be equally applicable to all organizations.
3. Comprehensive – It should provide a means of classifying every possible variable.
4. Systemic – It should reflect a systems view and be capable of aiding in a systemic analysis of interdependencies.
5. Parsimonious – It should list a set of variables only once. This should be done in the area for which that set of variables has the greatest impact. For example, raw materials most impact the process at the operational level. It should therefore be listed there even though some factors of the “raw materials” may also impact the individual.

Systems Component Definitions

<table>
<thead>
<tr>
<th>Component</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>The surroundings or environment within which performance occurs, including tools, equipment, information/guidance, and support – it includes the physical, business, and social environment.</td>
</tr>
<tr>
<td>Input</td>
<td>What initiates or directs an action or process including such things as customer requests, stakeholder demands, information, etc.</td>
</tr>
<tr>
<td>Process</td>
<td>The sequence of actions that convert an input into an output or accomplishment.</td>
</tr>
<tr>
<td>Outcome</td>
<td>The accomplishment – what is produced or created by a process, including products and services as well as positive or negative changes in the environment or situation.</td>
</tr>
<tr>
<td>Component</td>
<td>Definition</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Feedback</td>
<td>Information about the quantity or quality of outputs that is “fed back” to a performer, operational unit, or organization and that can be used by the appropriate system to make adjustments that will improve the output or results.</td>
</tr>
<tr>
<td>Receiving System/Receiver</td>
<td>The system stakeholder that receives or is directly affected by the output.</td>
</tr>
</tbody>
</table>

Listed below are some notes regarding these above components and definitions.

- **Conditions** – Systems theory people say one could consider all conditions as inputs. But the distinctions they often make are:
  - The supporting “background” or
  - Those inputs that are impossible or too expensive to change or manipulate.

  Using the first definition, we might think of performance conditions as roughly similar to a theatrical set and the props. They remain passive until the play starts. This is similar to the work environment, the tools, and could even include the raw materials. Like the stage setting they all could be classified as conditions. What we are seeking is a convenient way to classify all the variables that effect performance and this is one possible way to label these “given” support elements as conditions.

- **Input** – A good definition of input is that which was advocated by Geary Rummler. That is: “Inputs are those things which initiate or direct the subsequent action.” This would include such things as the strategic plan, customer requests, work schedules, assignments, etc.

- **Process** – The organizational level focuses on those processes concerned with the governance of the organization.

  The operational level includes all the process in the value chain as well as those involved in maintaining that process. The variables here take in to account the specific activities and tasks, their sequence and flow, etc. We also often look for broken connections and misalignments, e.g., bottlenecks, disconnects, and so on.

  Task elements and their characteristics are part of the process definition.

  The performer level is focused on the actions of the individual. It therefore seems best to put the performer in the process box. The variables to be considered are those internal to the performer and that are relevant to his/her execution of the task. These include:
  - Skill/knowledge
  - Motivation
  - Other variables, e.g., confidence, preferences, styles, etc.
Our goal is to define the variable classes in a way that best suits the requirements of HPT and performance consultants.

Our definitions are not inconsistent with those of general systems theory. But that is not a constraint. We are free to provide our own unique definitions for them.

We most recognize that any approach we use is, to a certain extent, arbitrary. Our goal is to provide a definition that is both useful and one that will feel comfortable to most practitioners.

*The General Performance Analysis/Design Systems Matrix*

*NOTE: The matrix presented here is a simplified one. There are literally thousands of variables that can be included in this classification matrix. These are examples. Criteria are needed for inclusion in a cell.*

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Input</th>
<th>Process</th>
<th>Outcomes</th>
<th>Feedback</th>
<th>Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organizational System</strong></td>
<td>Organization environment/structure</td>
<td>Strategic plan</td>
<td>Admin. Systems characteristics</td>
<td>Financial performance</td>
<td>Financial indicators</td>
</tr>
<tr>
<td></td>
<td>Stakeholder requirements</td>
<td>Mission/ vision</td>
<td>Inform. Systems characteristics</td>
<td>Marketplace performance</td>
<td>Sales indicators</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Values</td>
<td></td>
<td></td>
<td>Shareholders, owners</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Demands/ schedules</td>
<td>Process characteristics</td>
<td>Products/ services</td>
<td>Employees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workload Priorities</td>
<td>Methods/</td>
<td>Quality standards met</td>
<td>Operational measures</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>flow</td>
<td></td>
<td>Operational reviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Task characteristics</td>
<td>Products/ services</td>
<td>Incentives/ consequences</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Actions</td>
<td>Quality standards met</td>
<td>Performance appraisals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Decisions</td>
<td></td>
<td>Formal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Informal</td>
</tr>
<tr>
<td><strong>Operational System</strong></td>
<td>Physical environment</td>
<td>Demands/ schedules</td>
<td>Process characteristics</td>
<td>Products/ services</td>
<td>Incentives/ consequences</td>
</tr>
<tr>
<td></td>
<td>Equipment/ tools</td>
<td>Workload</td>
<td>Methods/</td>
<td>Quality standards met</td>
<td>Performance appraisals</td>
</tr>
<tr>
<td></td>
<td>Availability of Materials</td>
<td>Priorities</td>
<td>flow</td>
<td></td>
<td>Formal</td>
</tr>
<tr>
<td></td>
<td>Resources</td>
<td></td>
<td>Task characteristics</td>
<td>Products/ services</td>
<td>Informal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Actions</td>
<td>Quality standards met</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Decisions</td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Performers System</strong></td>
<td>Cultural environment/practices</td>
<td>Directions</td>
<td>Performer characteristics</td>
<td>Work products</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Policies, regulations, business values</td>
<td>Expectations</td>
<td>Skills</td>
<td>Tangibles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership and management practices</td>
<td>Assignments</td>
<td>Motivation</td>
<td>Intangibles</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roles and responsibilities</td>
<td>Capability</td>
<td>Work</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Preference</td>
<td>standards</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>met</td>
<td></td>
</tr>
</tbody>
</table>

- Shareholders, owners
  - Financial return
  - Growth
- Employees
  - Job satisfaction
  - Benefits
  - Pay
- Customers
  - Functionality
  - Fair price
  - Satisfaction
- Others
  - Suppliers
  - Government agencies
  - Unions
  - Society
  - Media
  - Communities
  - Banks
  - Financial institutions
Sample Probes for a Performance Systems Analysis

**NOTE:** These questions must be reviewed for consistency with the HPT criteria listed on page 4.

## Conditions

<table>
<thead>
<tr>
<th>Performance Systems Factor</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ORGANIZATIONAL</strong></td>
<td>Assures the organization is structured in a way that contributes to effective and efficient performance of the work.</td>
</tr>
<tr>
<td>Structure</td>
<td>❑ Are organizational functions set up to produce clear outcomes that are useful to other units or the organization as a whole?</td>
</tr>
<tr>
<td></td>
<td>❑ Do people typically know what other functional groups do and how it is related to their own work or that of the organization?</td>
</tr>
<tr>
<td></td>
<td>❑ Is decisions authority allocated at the “right” level and the “right” function?</td>
</tr>
<tr>
<td>Reporting Relationships</td>
<td>❑ Do people who do similar or closely related work typically report to the same manager or management group?</td>
</tr>
<tr>
<td></td>
<td>❑ Do managers in the organization have a reasonable span of control?</td>
</tr>
<tr>
<td><strong>OPERATIONAL</strong></td>
<td>Assures the work environment set up to make it as easy as possible to work efficiently and effectively.</td>
</tr>
<tr>
<td>Resource availability</td>
<td>❑ Are equipment, tools and information readily accessible when and where they are needed?</td>
</tr>
<tr>
<td></td>
<td>❑ Are support services easily accessed when needed?</td>
</tr>
<tr>
<td></td>
<td>❑ Are supplies and raw materials readily accessible when needed?</td>
</tr>
<tr>
<td>Physical Environment</td>
<td>❑ Are space, light, and temperature adequate to work effectively?</td>
</tr>
<tr>
<td></td>
<td>❑ Is the environment free of physical obstacles that get in the way of doing the work?</td>
</tr>
<tr>
<td><strong>PERFORMER</strong></td>
<td>Assures people throughout the organization typically behave in a way that supports effective performance.</td>
</tr>
<tr>
<td>Leadership Practices</td>
<td>❑ Do organizational leaders typically...</td>
</tr>
<tr>
<td></td>
<td>• Provide people with clear direction about goals?</td>
</tr>
<tr>
<td></td>
<td>• Create a compelling vision about purposes and what the future could be like?</td>
</tr>
<tr>
<td>Cultural Practices Relationship</td>
<td>❑ Do people accept and even encourage information, opinions, and ideas from people who are below them in the organizational hierarchy?</td>
</tr>
<tr>
<td></td>
<td>❑ Do people readily provide relevant information, ideas and opinions of people who are about and below them in the organizational hierarchy?</td>
</tr>
<tr>
<td></td>
<td>❑ Do organizational peers or colleagues typically...</td>
</tr>
<tr>
<td></td>
<td>• Share relevant information with each other as well as encourage/accept suggestions and feedback from each other?</td>
</tr>
<tr>
<td></td>
<td>• Treat each other with respect?</td>
</tr>
<tr>
<td>Business Values</td>
<td>❑ Has the organization defined and communicated its business values to people within the organization – and to suppliers and customers well?</td>
</tr>
<tr>
<td></td>
<td>❑ Are the values compatible with the organization’s strategy and goals?</td>
</tr>
</tbody>
</table>
## Input

<table>
<thead>
<tr>
<th>Performance Systems Factor</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ORGANIZATIONAL</strong></td>
<td>Is the organization’s strategy clear and appropriately responsive to the demands of the business, the competitive environment, and stakeholder needs?</td>
</tr>
</tbody>
</table>
| Mission, vision, strategic direction | ❑ Does the organization have…  
  - A clear mission statement of what the organization is in business to accomplish?  
  - A vision of the desired future and why it matters? |
| External demands | ❑ Does the organization have a clear picture of its competition? Who they are and how they are positioned in the marketplace?  
  ❑ Are the organization’s mission/vision and strategy responsive to the competition?  
  ❑ Does the organization have a clear vision of its responsibilities to society and is it responsive to those requirements? |
| **OPERATIONAL**            | Are the demands placed on the process clearly defined and managed so that work can proceed efficiently and effectively? |
| Requirements (time, quality, cost) | ❑ Are the requirements for successful completion of the work clearly understood?  
  ❑ Do requirements match the organization’s strategy and customer needs? |
| Workload Predictability | ❑ Is the workload sufficiently predictable so that people can respond to it successfully – or are plans in place for dealing with the unpredictable changes in the workload? |
| **PERFORMER**              | Do managers provide clear direction that support the organization’s mission/vision and strategy and desired business results? |
| Priorities | ❑ Do priorities match the mission/vision and strategy?  
  ❑ Are they clearly communicated – and followed? |
| Purposes | ❑ Are purposes communicated?  
  ❑ Do people understand how their work contributes to larger organizational goals and purposes? |
| Objectives | ❑ Are unit objectives derived from the organization’s strategy?  
  ❑ Are objectives clearly communicated to those who are expected to accomplish them? |
| Assignment | ❑ Are work assignments clearly communicated?  
  ❑ Do people know what they are expected to do and deliver? |
## PROCESS

<table>
<thead>
<tr>
<th>Performance Systems Factor</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ORGANIZATIONAL</strong></td>
<td>Do administrative systems and policies support performing the work of the organization effectively and efficiently?</td>
</tr>
<tr>
<td>Administrative systems: flexibility, links, centralization</td>
<td>Are administrative systems flexible enough so that people can effectively respond to the variety of work situations they encounter? &lt;br&gt; Are systems linked so that controls and guidelines in one area of the organization are compatible with those in other areas? &lt;br&gt; Are systems decentralized enough to allow for local solutions?</td>
</tr>
<tr>
<td>Information systems: timely, accurate, relevant</td>
<td>Do information systems provide people with the information they need when they need it? &lt;br&gt; Is the information accurate and reliable?</td>
</tr>
<tr>
<td><strong>OPERATIONAL</strong></td>
<td>Do work methods support effective performance? Are the requirements appropriate and are the met?</td>
</tr>
<tr>
<td>Process Design</td>
<td>Are process goals clear? &lt;br&gt; Is the process understood and executed properly? &lt;br&gt; Are relevant functions in place? Are they free of redundancies and unnecessary work? &lt;br&gt; Is there clear and appropriate flow of inputs and outputs through out the process?</td>
</tr>
<tr>
<td>Roles and Responsibilities</td>
<td>Are roles and responsibilities clear? &lt;br&gt; Are responsibilities compatible? Free of conflicts? &lt;br&gt; Are process interfaces managed?</td>
</tr>
<tr>
<td>Task Definition</td>
<td>Are tasks defined and documented as needed? &lt;br&gt; Is documentation clear, useful, and up-to-date?</td>
</tr>
<tr>
<td><strong>PERFORMER</strong></td>
<td>Do people have the capability to efficiently and effectively perform their work?</td>
</tr>
<tr>
<td>Skills/knowledge</td>
<td>Do they know how to perform successfully? &lt;br&gt; Do they have the skills to perform successfully?</td>
</tr>
<tr>
<td>Initiative</td>
<td>Are people encouraged to take initiative to improve their performance – or to adapt it to changing situations and demands whenever feasible? &lt;br&gt; Do people clearly know when it is appropriate to take initiative and when it is not?</td>
</tr>
<tr>
<td>Selection</td>
<td>Do selection/hiring criteria match job requirements? &lt;br&gt; Are people selected for positions based on both their capability to perform and their interest in the kind of work being performed?</td>
</tr>
</tbody>
</table>
### Output

<table>
<thead>
<tr>
<th>Performance Systems Factor</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ORGANIZATIONAL</strong></td>
<td>Are expected business results defined and linked to organizational strategy? Measured and monitored?</td>
</tr>
</tbody>
</table>
| Business Plan Data         | □ Do business plans reflect strategic input?  
                              □ Are they compatible across functions? |
| Marketplace Indicators     | □ Are relevant measures in place to track key aspects of the organization’s performance in the marketplace?  
                              □ Is information about marketplace performance made available to those who need/can use it? |
| **OPERATIONAL**            | Are expectations for product/service performance defined and linked to the organizational strategy? Measured and monitored? |
| Product Data               | □ Is relevant information about product/service quality gathered?  
                              □ Is it accurate, reliable, and timely?  
                              □ Is it made available to those who need and can use it? |
| Product Mix                | □ Are product mix guidelines or expectations established and information about the actual mix gathered?  
                              □ Is the information made available to those who need/can use it? |
| **PERFORMER**              | Are there appropriate consequences for effective performance, e.g., information, rewards, recognition? |
| Performer Data             | □ Are those standards linked to company strategy and goals?  
                              □ Made available to people who need/can use it? |
| Feedback Appropriateness   | □ Are feedback sources reliable?  
                              □ Is feedback timely, constructive, and useful?  
                              □ Is it being used to actually improve performance? |
| Rewards and Recognition    | □ Are rewards and recognition provided for performance?  
                              □ Are they clearly linked to performance that meets or exceeds standards?  
                              □ What are the consequences for people taking initiative and/or assuming accountably? |
## Receiving System/Receiver

<table>
<thead>
<tr>
<th>Performance Systems Factor</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>OWNERS</td>
<td>To what extent is the organization creating value for owners? To what extent is it using owner feedback to continue to create or increase value?</td>
</tr>
<tr>
<td>Financial Return</td>
<td>Do owners receive what they see as an adequate return on their investment? Are expectations about financial return monitored and used to look for ways to adapt as appropriate?</td>
</tr>
<tr>
<td>Satisfaction with company performance reputation</td>
<td>How satisfied are owners with the company’s performance and reputation? Are expectations about company performance/reputation monitored and used to look for ways to adapt as appropriate?</td>
</tr>
<tr>
<td>CUSTOMERS</td>
<td>To what extent is the organization creating value for customers? To what extent is it using customer feedback to continue to create or increase value?</td>
</tr>
<tr>
<td>Product/Service Functionality</td>
<td>To what extent do products/services function as customers want or need them to? Are expectations about products/service function monitored and used to look for ways to adapt as appropriate?</td>
</tr>
<tr>
<td>Price, Effort, Recovery</td>
<td>To what extent do customers consider the price and effort associated with products and services reasonable in relating to the value they receive? To what extent are customers pleased with the company’s recovery efforts when they have problems or complaints? Are expectations about price, effort, and recovery monitored and used to look for ways to adapt as appropriate?</td>
</tr>
<tr>
<td>EMPLOYEES</td>
<td>To what extent is the organization creating value for employee? To what extent is it using employee feedback to continue to create or increase value?</td>
</tr>
<tr>
<td>Money, Benefit</td>
<td>Do employees receive what they see as adequate money and benefits for their performance? Are expectations about money and benefits monitored and used to look for ways to adapt as appropriate?</td>
</tr>
<tr>
<td>Security</td>
<td>Are employees satisfied with job security? Are expectations about job security monitored and used to look for ways to adapt as appropriate?</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>How satisfied are employees with their work, including the work itself, the environment, and the value they create? Are expectations about job satisfaction monitored and used to look for ways to adapt as appropriate?</td>
</tr>
</tbody>
</table>
Technology Domains

Rough draft produced by Ray Svenson based on the “Think Tank” work and edited in the January 5, 2004 conference call.

The Task Force’s effort in the area of Technology Domains is incomplete. There was insufficient time during the “Think Tank” in Las Vegas to complete it but, several versions have emerged since the “Think Tank.” These versions, along with some comments, appear in the Appendix of this document.

Completing the work on Technology Domains will fall to the new Technology Domains Advisory Council (see HPT Governance System section of this report on page 16).

Some of the questions to be resolved include:

1. What is the definition of a Technology Domain?
2. Are there different kinds of domains? (E.g., performance affecting, methodology, science)
3. How many domains can we have without it getting confusing?
4. What are the criteria for picking a domain?
5. What set of domains do we choose?
6. What are the best examples of applications for each domain?
HPT Governance System

Draft provided by Guy Wallace, John Amarant, and Dale Brethower.

NOTE: This rough draft is intended as input to a future Task Force chartered with completing this effort (to design and implement an HPT Governance System).

Purpose

The proposed HPT Governance System is an organization of people, roles, and responsibilities for the purposes of:

- Creating and maintaining a framework of HPT Domains for HPT technologies and research areas and also for Special Interest Groups, to further HPT research, applications development, and the communications with and the education and training of practitioners and their key stakeholders
- Deciding and disseminating whether or not interventions meet criteria – be the keepers of subsets of technology – looking at content in publications, etc. – trying to advance, push, move the technology – they are the keepers of that subset (e.g., tools)
- Recommending actions and budgets to the ISPI Board of Directors (BoD) to fund task forces and committee efforts consistent with the HPT Governance System’s charter
  - Decide whether or not interventions meet criteria – be the keepers of subsets of technology – looking at content in publications, etc. – trying to advance, push, move the technology – they are the keepers of that subset (e.g., tools)
  - Need some way to sustain and nurture the whole technology and each subset of technology
  - Two focuses: What is “state-of-the-art” and what are the new developments
- Sustaining and nurturing the whole technology and each subset of technology.

Proposed HPT Governance System Charter

The HPT Governance System will further the achievement of ISPI’s mission, vision, and value proposition of ISPI. This system is chartered to:

- Organize the diverse, professional content of HPT into “Domains” and “Special Interest Groups” (SIGs):
  - Technology Domains (the applications of HPT, i.e., learning, motivation, measurement, etc.) and their subsets
  - Research Domains (the science of HPT – behavior psychology, management sciences, etc.) and their subsets
  - Special Interest Groups (the opportunities and/or problems that HPT addresses, i.e., opportunity/problem-centered, industry-centered, geography-centered, etc.)
- Organize and build the infrastructure to enable the members to form “networks/communities of practice or interest” reflecting the HPT Domains/SIGs, to enable their further development of both HPT core capabilities and those unique capability needs of the community members of an HPT Domain/SIG.

- Empower the representatives of each domain to evolve and continuously improve the state-of-the-art of their HPT Domain/SIG and affect the professional content of ISPI’s forums and publications.

- Empower the HPT Domain Advisory Council to more directly oversee the HPT governance system on behalf of the ISPI Board of Directors and the members.

**Structure and Linkages**
The governance structure and reporting/communicating linkages are shown in the model below.

![Governance System Diagram]

**The HPT Domain Advisory Council**
The HPT Domain Advisory Council will be a permanent panel and composed of representatives from each of the HPT Technology or Research Domains. If there are more than six domains, the BoD will select six domains for representation on a rotating basis. Also, this council:

- Does not establish policy, but makes recommendations to the elected BoD regarding policy
Maintains the HPT definition and criteria (reviewing and recommending updates to the board)

- Makes recommendations on the mix of domains and SIG

- Meets face-to-face at/in conjunction with the annual Spring Conference and via conference calls and other “e” technologies at other times during the year

- Members are Domain Representative members and are selected by each HPT Domain Group (Technology and Research), as approved by the ISPI Board of Directors (BoD)

- Has rotating three-year membership.

**HPT Technology and Research Domain Groups (Domains – To Be Determined)**

Each HPT Domain:

- Will be a permanent panel of ISPI members elected by members of that domain
- Will define the state-of-the-art of the HPT technology or research as it applies to HPT
- Will provide staffing and criteria for the Awards of Excellence Committee’s processes for reviewing/evaluating submissions for presentations and awards, applying the definition and criteria for HPT in their domain. The criteria will be tailored to the domain in order to implement the criteria for identifying HPT applications
- Will provide staffing and criteria for the Conference Committee’s evaluation processes for the domain(s) related sessions
- Will manage peer-review processes for technology/research continuous improvement/evolution
- May create special forums and publications (in concert with ISPI staff and consistent with other ISPI standards and requirements).

**Special Interest Groups**

*NOTE: Criteria are needed for establishing and disbanding a SIG.*

- SIGs come and go with need and interest levels. Self-selecting groups around common topics of interest (e.g., Military applications, Research areas, specific opportunity/problem classes, etc.).
- Offered “standard/turnkey” ISPI web templates and resources for planning and communications purposes (within established limits of cost and effort).
- The Society will enable the networking of these SIGs at conferences and via electronic means, but will not resource these to the same levels as it might for some or all of the HPT Domains.
Observations and Recommendations to the Board

Task Force Accomplishments

- Defined criteria for HPT
- Defined Performance Systems Engineering Process
- Defined Performance Analysis/Design Systems Matrix
- Defined the Technology Domains concept and several first draft ideas for the domains
- Designed an HPT Governance System
  - HPT Domain Advisory Council
  - HPT Technology Domain and Research Domain Groups
  - HPT Special Interest Groups

Things That Remain to be Done

- Finish the work on Technology Domains
- Establish a glossary of terms
- Criteria for
  - Elements to be included in the Performance Analysis/Design Systems Matrix
  - Questions to be included as probes in the Performance Analysis/Design Systems Matrix
  - What constitutes a Technology Domain
  - Applications to be listed under Technology Domains
  - SIGs
- Bibliographic list of references
- Defining the relationships between HPT and other fields such as OD, IE, and six sigma
- Implementation/transition plan
  - Communication to the Society, Committees, and Task Forces
  - Setting up the HPT Governance Structure
  - Implications for the ISPI Board’s processes and agendas
  - Awards system implications
  - Conference track implications
  - Publications implications
  - CPT implications
  - ISPI marketing implications
  - Outreach to other fields, e.g., OD
General Observations

1. The work product represents a good start at fulfilling the expected outcomes, but it is just a start. Ongoing refinement and maintenance will be needed to produce sustaining value. Socializing the outcomes with the Society and getting feedback is also necessary before the adoption of these outcomes.

2. The process and approach generally worked well; convening a group of recognized experts produced a comprehensive (if rough) product in a short time. More time or more meetings will be needed in the future for similar efforts.

3. This work builds on a large body of previous work by many people over many decades. There was insufficient time to develop a comprehensive bibliography to credit previous work. This is left as a future activity.

Observations Regarding Specific Work Products

1. The Task Force feels particularly positive about the HPT definition and criteria, believing that the criteria significantly adds to our status as a technology.

2. The Performance Systems Engineering Process was intended to be applicable to both repair and new construction applications. The language may still need more fine tuning to fully reflect new construction.

3. The Performance Analysis Framework was not part of the original framework but the Task Force feels that this is a significant value-added component.

4. The Technology Domains for sorting applications was the area where the Task Force had the least consensus. The issues were not over whether Technology Domains were valuable but whether we had the best ones. The exact definition and functionality of a “domain” is not currently at a consensus status.

Observations about Relationships of HPT to Other Fields

1. We were not able, in the time we had, to develop comparative relationships between HPT and other fields such as:
   - Organizational Development (OD)
   - Industrial Engineering (IE).

2. These other fields do not neatly fall into any of our Technology Domains but have their own Application Domains that heavily overlap HPT.
**Recommendations**

1. Organize the HPT Domain Advisory Council and ask them to take ownership of the three level HPT framework (Performance Systems Engineering Process, Performance Analysis Framework, and Technology Domains).
   - Finish the descriptions of each level to be suitable for publication
   - Revise the list of domains if necessary
   - Create an implementation/transition plan
   - Develop the relationship of HPT to other fields/communities of practice, e.g., OD, IE, six sigma

2. Organize the Technology and Research Domain Groups after the domains are clearly identified.
Appendix
Technology Domains – Three Views

A. Draft by Jim Pershing/Comments from Dale Brethower (page 1)
B. Draft by Ray Svenson (page 7)
C. Suggested Domains from Don Tosti (page 10)
D. Commentary Regarding Domains from Guy Wallace (page 11)
Appendix: Technology Domains – Three Views

Appendix A: Draft by Jim Pershing

The Domains of Human Performance Technology (HPT)

Based on “Think Tank” and January 5, 2004 Conference Call.

The domains of HPT are categories in which we can sort the practices and applications of human performance technology. There is a hierarchy of the domains in HPT. In addition, there are other ways that human performance technologists associate professionally sharing interests and expertise.

The Domains of Human Performance Technology (HPT)

- **Foundations**
  - The Science of Human Performance Technology
    - Theory
    - Empiricism
    - Research

- **Technology Domains**
  - System Environment Analysis
  - Opportunity & Needs Analysis
  - Selection, Design, & Development of Interventions
  - Implementation & Change Management
  - Evaluation & Measurement

- **Sub-Domains**
  - Organizational Systems
  - Motivation & Incentive Systems
  - Instructional & Cognitive Support Systems
  - Management & Leadership Systems
  - Physical & Technical Systems

- **Special Interest Groups** (examples)
  - HPT Processes
    - Front-End Analysis
    - Strategic Alignment
    - Process Mapping
  - Specific Interventions
    - Leadership Development
    - Web-Based Training
    - Job Aids
  - Intervention Sets
    - Instructional Systems
    - Incentive Systems
    - Knowledge Management
  - Associated Communities
    - Six Sigma
    - Lean Manufacturing
    - Total Quality Management
  - Settings
    - Manufacturing
    - Academics
    - Military
  - Foundations
    - HPT Project Management
    - Research Methodologies
    - Social Science Theory

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Foundations of HPT

All HPT practices are grounded in science. Theories, empirical evidence, and validated research are drawn from a number of applied science areas such as: business, education, engineering, general systems, informatics, research methods and statistics, and so on. Historical, philosophical, and psycho/social principles and theories are adopted from areas such as: economics, psychology, sociology, and so on. In planning, organizing, and programming their work, human performance technologists adhere to contemporary principles and practices of management and leadership.

Technology Domains

The practice of HPT can be explained as five systemic elements. HPT initiatives involve all of these elements. Often human performance technologists specialize in a subset of the elements and work in cross-functional teams in solving performance improvement challenges. Following are elaborations of the five elements.
Sub-Domains

In diagnosing and looking for solutions to performance challenges and causes of problems, there are a number of systems and sub-systems to analyze in both simple and complex organizations. Depending upon the structure and purposes of an organization, these systems and sub-systems will be will have varying configurations and labels. Often, performance technologists use at least five categories. The five, with elaborations are:

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative goals &amp; policies</td>
<td>Allocation and procurement of resources</td>
<td>Career pathing</td>
<td>Ecology</td>
<td>Beliefs &amp; values</td>
</tr>
<tr>
<td>Authority</td>
<td>Collaboration</td>
<td>Compensation</td>
<td>Equipment</td>
<td>Cognitive skills</td>
</tr>
<tr>
<td>Culture</td>
<td>Decision making</td>
<td>Deployment of human resources</td>
<td>Ergonomics</td>
<td>Credentials/experience</td>
</tr>
<tr>
<td>Job/work design</td>
<td>Financial management</td>
<td>Feedback</td>
<td>Health &amp; safety</td>
<td>Internal motivation</td>
</tr>
<tr>
<td>Organizational norms &amp; values</td>
<td>Communications</td>
<td>Fringe benefits</td>
<td>Machinery</td>
<td>Physical skills</td>
</tr>
<tr>
<td>Socio-technical systems</td>
<td>Ethics</td>
<td>Interesting, meaningful work</td>
<td>Maintenance</td>
<td>Social skills</td>
</tr>
<tr>
<td>Strategic goals and policies</td>
<td>Networking</td>
<td>Performance appraisals</td>
<td>Materials</td>
<td>Work values</td>
</tr>
<tr>
<td>Job/work design</td>
<td>Planning &amp; budgeting</td>
<td>Reinforcement</td>
<td>Physical layout of space</td>
<td>Access/dissemination/ use of information</td>
</tr>
<tr>
<td>Problem solving</td>
<td>Results measurement</td>
<td></td>
<td>Sanitation</td>
<td>Documentation</td>
</tr>
<tr>
<td></td>
<td>Risk management</td>
<td></td>
<td>Software/hardware</td>
<td>MIS</td>
</tr>
<tr>
<td></td>
<td>Team support</td>
<td></td>
<td>Supplies</td>
<td>Management of Knowledge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tools</td>
<td>Networking</td>
</tr>
</tbody>
</table>

Special Interest Groups

As active participants in a professional association, performance technologists create both formal and informal associations and bonds with colleagues, often on the basis of their special needs, circumstances, and interests. Some of these associations are long-lasting, while others are temporary and short-term in nature. In accommodating such needs, small groups form in numerous ways. Examples follow on the next page.
Dynamics of the Domains & Special Interest Groups

The foundations and technology domains have been stable over time. They are at the core of the field of human performance technology. With time and advances in HPT practice, they have been refined and evolved.

The sub-domains have been relatively stable over time. They are greatly influenced in their structure, content, and practices by trends and issues in business and industry and government. Also, they are modified in their form and function by knowledge developments in the basic and applied sciences that impact HPT and associated communities of practice.

The special interest groups have the most variation over time. They are most often influenced by trends and issues in business, industry, and government and by the activities of associated communities of practice. Trends and issues in the basic and applied sciences that impact HPT also influence the configurations of special interest groups.

NOTE: End of syntheses by Jim Pershing
Comments from Dale Brethower

My congratulations, Jim, on a fine piece of work. With the single exception of the foundations area I could always see the logic, even in the parts I disagree with!

Comments:

1. The array of Special Interest Groups is quite good.

2. I dithered a bit on the Theory, Empiricism, Research trilogy, trying to substitute Practice for Empiricism to make is simple and communicative but Practice isn’t really much better. Validated Practice is better, in my view, but not by much. I’m OK with it as is.

3. Sub-domains--Friendly amendment: I wish the Motivation and Incentive Systems one was Motivation, Feedback, and Incentive Systems since the 3 work together or not at all. (Look at the research evidence closely and you will agree.)

4. But: Instructional and Cognitive Support Systems sucks. I know we gots to be with it and modern and all but it should be Instructional and Performance Support Systems. That is much more accurate. It even includes new jargon, performance support which focuses on the right stuff, namely performance. “Cognitive” is appealing to a vocal subset of academics who, by the way, are now going out of fashion. (Not their fault; academic fashions are as fickle as any other.) Performance Support Systems communicates except to the few remaining people who do not know that most work is knowledge work. But those Neanderthals are unlikely to be ISPI members or readers of these documents.

5. The only part I could see no sense in whatsoever is the Foundations.

- HPT Project Management might be a special interest group and/or Project Management might be an Associated Technology but a part of foundation? Ludicrous!

- Research Methodologies is right on but Social Science Theory is not even close. Most of the methodologies in “social science” are correlation based; the way the “findings” are nearly always applied is to set aside the “correlation does not mean causation” mantra and treat the variables as causal. I would be happy to see “Economics” there but not “Social Science.”

- I would be much happier to see only two bubbles: Research Methodologies and General Systems Theory. The good stuff in any of the social science and natural science areas comes in when viewed from a General Systems Theory perspective; bringing it in through the General Systems Theory perspective has the added virtue of leaving out most of the itsy bitsy tangents and cul-de-sacs that abound in any science.
On the other hand, if we simply want to be historically accurate—and I’m not arguing that we should on this point—we would use Research Methodologies, General Systems Theory, and Behavioral Psychology. The problem with using Behavioral Psychology is that too many people whose information about behavioral psychology is current only up to about 1940 pitch a hissy-fit when we use the term; I’ve gone to using Human Learning or Human Learning and Performance in place of Behavioral Psychology to avoid seeing smart people having hissy-fits.


My preference in the foundations bag is for the two item version but I would be quite supportive of the one item foundation—it is what drove me to General Systems Theory and to behavioral psychology—or any of the 3 item foundations (not including the project management, methods, social science trilogy).

Again, and in spite of the space given to criticism, I think the overall product is outstanding.
Appendix B: Draft by Ray Svenson

Technology Domains

The Technology Domains are categories into which we can sort HPT applications.

![Technology Domains Diagram]

There are large numbers of application types that can be sorted into these domains. What follows is a beginning illustrative list, not a definitive or validated list.

Performance Affecting Technology Domains

- Learning
  - ISD
  - Training
  - Coaching
  - Leadership development
  - Team building
  - Expert systems
  - Knowledge management
  - Benchmarking
  - Learning organization
  - Behavioral modeling
  - Mentoring

- Motivation
  - Incentive systems
  - Schedules of reinforcement
  - Leadership systems
  - Job fit
  - Health/wellness
  - Career development
  - Performance management
  - Compensation systems
Environment
- Culture alignment
- EPSS
- Job aids
- Expert systems
- Information systems
- Feedback systems
- Ergonomics

Performance Systems
- Organization design
- Team and job design
- Change management
- Total quality management
- Governance systems
- Re-engineering
- Process design
- Socio-technical systems design
- Succession management systems
- Strategic alliances/joint ventures
- Customer retention management
- Performance problem solving

Methodology Technology Domains

Analysis
- Performance analysis
- Performance systems analysis
- Behavior analysis
- System dynamics analysis
- SWOT analysis (strength, weaknesses, opportunities, and threats)
- Economic analysis
- Human factors analysis
- Cost/benefit or cost/effectiveness analysis
- Technology analysis
- Market analysis
Evaluation/Measurement
- Assessment
- Testing
- Statistical process control
- Evaluation
- Balanced scorecard
- Performance appraisal
- Performance measurement
- Certification/qualification systems
- Selection systems

Science Domain

- Research*
  - Knowledge
  - Human motivation
    - Individuals
    - Groups
  - Social psychology
  - Sociology
  - Cultural anthropology
  - Communications
  - Industrial/organizational psychology
  - Systems theory and analysis
  - Economics
  - Mathematics/statistics
  - Decision theory
  - Behavior analysis
  - Operations research
  - Exploratory data analysis

*NOTE: The Research Domain is qualitatively different from the other domains. It contains bodies of science or knowledge that our HPT applications draw from. The Task Force concluded that we should be continually reviewing and assessing the research for HPT implications.
Appendix C: Suggested Domains from Don Tosti

Seven Performance Domains

1. Process/task focused solutions
2. Practice/relationship focused solutions
3. Managerial/administrative focused solutions
4. Organizational/marketplace focused solutions
5. Competency/fluency focused solutions
6. Assessment/feedback focused solutions
7. Research in all solutions areas

Why not include learning and motivation? Because organizations don’t care about them per-se. What they do care about is the “correctness” and likelihood of performance.

Other areas like quality and evaluation are not really domains on their own. They may be supportive to improved performance, but our technology deals with such factors through solutions aimed at improving the human aspect of process, practice, and/or management.

It is that which differentiates us from other disciplines and that which should be attractive to practitioners in these other areas.
Appendix D: Commentary Regarding Domains from Guy Wallace

Functionality

I had originally hoped that the domains would segment (with minimum overlaps and gaps) the various technologies for HPT, beyond instruction and non-instruction.

My mental test for this has been along the lines of:

- If the conference opening session began with a networking exercise where everyone split up into groups reflecting the domains, would that make sense to them?
- If we named most of the conference tracks after the domains, would that make sense?
- If we started counting the number of articles or pages reflecting content of the domains, would we be able to better balance our content and not be so ISD dominated?
- Would the domains (and the interventions within each) enable HPTers to identify more clearly their value add when they need to collaborate with other improvement methods (OD, Six Sigma, Industrial Engineering)?

My hope is that the “big bubbles” of the Domains and the satellite bubbles of the interventions within would clarify HPT, and enable some to be “specialists” in some/all interventions/process methods within a Domain, or to be more of a “generalist” able to conduct many of the interventions/process methods from multiple Domains.

I had anticipated that this would be the most difficult task, but still underestimated the amount of time that a Think Tank effort would need to do that and the upfront dialogue and work to prepare to tackle that task.

Once these Domains are clarified, the work can begin on updating/extending ISPI’s:

- Awards of Excellence
- Conference and publication content
- Marketing efforts
- Etc.

One last note: Don Tosti and I have been working together to ensure that this multi-year effort is carried over from my presidency to his. Work needs to be done to bring the next President-Elect up-to-speed on this effort, as it may very well extend into that person’s term as president.
Stage 1 to Stage 2 Transition Comments from Guy Wallace

Stage 1 has successfully been completed, even with the open issue of the exact number and naming of the “HPT Technology Domains.”

It is now in the hands of the next board to make decisions and both charter and resource several Task Force to carry forward and complete the work until the Society’s content is more balanced and reflective of the non-instructional technologies of HPT.

My comments regarding “going forward” are:

- Given the anticipation that this Presidential Initiative effort would need to span several presidential terms, I enlisted Don Tosti from the moment his election was announced, and invited him onto the smaller Core Team of the Task Force. I know Don intends to engage the next President-Elect when announced. I will support him in this effort as called upon.

- The new board members will also need to be fully oriented and encouraged to get behind and involved this effort.

- I believe that it is essential that the Society publish this effort’s outputs and seek commentary from the membership before moving too quickly and building off this preliminary work.

- It will be essential that several of ISPI’s committees’ work be realigned to and reflective of the new definition of HPT as articulated via the HPT’s Technology Domain segments.

I am willing to continue in a major or minor role as this effort proceeds. However, I do not wish to be seen as the only owner/sponsor of this effort, and would prefer to see new leadership take the helm of Stage 2, in conjunction with Don Tosti and the new board and steer the Society to its future.

Guy W. Wallace, CPT
ISPI President 2003-2004
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  Introduction and Overview

- Phase 1 – Rummler Article Republished

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- Phase 3 – Member Responses to the
  Special Issue of PI

- Phase 4 – Think Tank

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- Appendices
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Training and Instructional Design
Job Aids and Documentation
Online Design and Performance Support
Process Engineering and Quality Management
Organizational Design and Development
Measurement and Evaluation
Incentives and Compensation
Performance Appraisal and Feedback
Implementation Planning and Change Management
Performance Measurement
Opportunity Analysis
Mentoring and Coaching
Financial Analysis and Evaluation
Leadership and Management Development
Informatics and Decision Support

As presented at the Think Tank.
Acknowledgement: Support was proved by an International Society for Performance Improvement grant and additional assistance from DLS Group, Inc. of Denver, CO.
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INTRODUCTION

In January, 2001, the HPT Research Group of the University of Northern Colorado’s Educational Technology Department received support from the International Society for Performance Improvement (ISPI) and DLS Group of Denver, Colorado, to conduct a cognitive analysis of Human Performance Technology. In conducting this analysis, the study sought answers to five research questions:

1. How does ISPI leadership organize their knowledge of the discipline?
2. To what extent are coherence scores associated with other measures of expertise?
3. How do other HPT experts organize their knowledge of the discipline?
4. How does specialization in an area of HPT affect experts’ organization the discipline?
5. To what extent do experts organize their HPT knowledge differently than other practitioners?

As the first research question was answered in an email to the ISPI Board dated 7 April, 2001, this report will concentrate on the remaining research questions.

Important Measures

Three measures that the Pathfinder software produces are critical to understanding this study: coherence, relatedness and similarity. They are defined in the following table (Villachica, 1999).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
<th>Uses</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coherence</td>
<td>(Theoretical Range = -1.0 to +1.0)</td>
<td>A coherence score for an individual’s or group’s set of concept ratings calculated. This score is compared to that of other individuals.</td>
<td>Student coherence scores obtained prior to instruction are compared to those obtained after instruction to determine if learning occurred.</td>
</tr>
<tr>
<td>Relatedness</td>
<td>(Theoretical Range = -1.0 to +1.0)</td>
<td>The comparison of an individual’s or group’s set of concept ratings to another’s.</td>
<td>The proximity matrices of students are correlated with a referent matrix containing the averaged responses of a panel of experts.</td>
</tr>
<tr>
<td>Similarity</td>
<td>(Theoretical Range = 0 to +1.0)</td>
<td>The Pathfinder networks of an individual or group are compared to those of another.</td>
<td>The Pathfinder networks of students are compared to their instructor’s. The resulting similarity scores are used to predict performance on a test.</td>
</tr>
</tbody>
</table>

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SAMPLE

ISPI has an estimated 6,000 members, and invitations to participate in the study were issued to approximately 4,500 members (75 percent). The invitations were issued on two occasions, the first invitation contained in the ISPI Quick Read. After 14 days, only 38 people had responded to this invitation. Therefore, ISPI issued a second invitation two weeks later. This invitation consisted of an email message from Rick Battaglia and Judy Hale sent to individual members. After the second invitation, another 103 persons had responded, making a total of 141. Of those, 4 people had submitted duplicate data sets, which were subsequently removed from the study.

Of the 137 people who had completed the survey, 73 went on to complete all 435 concept ratings (reflecting overall response rates of 2 and 1 percent, respectively). The following table depicts the sample used in the study.

<table>
<thead>
<tr>
<th>N</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members of ISPI</td>
<td>6,000</td>
</tr>
<tr>
<td># Invited</td>
<td>4,500</td>
</tr>
<tr>
<td>Initial Response</td>
<td>38</td>
</tr>
<tr>
<td>Second Response (2 weeks later)</td>
<td>103</td>
</tr>
<tr>
<td>Sample Subtotal</td>
<td>141</td>
</tr>
<tr>
<td>Duplicates</td>
<td>4</td>
</tr>
<tr>
<td>Sample</td>
<td>137</td>
</tr>
<tr>
<td>Complete Ratings</td>
<td>73</td>
</tr>
</tbody>
</table>

Recommendations

It is important to note that the experimental mortality associated with the study is relatively high. Approximately 47 percent of the people who completed the demographic survey did not complete the 435 concept ratings.

The researchers attributed this mortality rate to several key factors that should be considered in the design of similar studies in the future. Although the Web-based data collection tool was pilot tested for time, and estimated completion time was stated prior before participants began the survey, participant feedback indicated that the time requirement was too much and the tedium level too high.

One way to minimize time and tedium would be to ask participants to rate fewer concept pairs. This option is not acceptable as it would decrease the reliability of the ratings that participants provide. Two other options should be considered. Future studies should provide a bookmarking function that would enable participants to complete the ratings over several shorter sessions. Future studies should also redesign the concept rating experience to provide additional positive feedback as participants rate their first group of 100 concepts, the next group, and so on. This reinforcement could also be linked to changes in the user interface, using a short-lived novelty effect as an incentive to keep rating concepts.
APPLICATION OF HPT ON THE JOB

Analysis

To determine the way in which practitioners apply HPT, the demographic survey asked participants to select one of the following phrases that best characterized their application of HPT on the job: performance improvement consultant, instructional systems designer, or a manager of learning and performance. In all, 137 participants responded to this item. The following bar chart illustrates the distribution of their responses.

Results

Half (50 percent) of the participants who responded to this study indicated they were performance improvement consultants. Thirty-six percent indicated they were managers of learning and performance. Approximately 13 percent indicated they were designers of instructional systems.

Discussion

Eighty-six percent of all respondents characterize their roles on the job using the term “performance.” At this time, it is unknown whether this finding reflects the results of an enlightened sample or a generalizable trend in the larger ISPI population.
COHERENCE AND EXPERTISE

Prediction

The coherence scores that the Pathfinder software produces have been associated with other measures of learning and expertise. As the study would employ coherence scores to identify HPT experts for the purposes of this study, the researchers investigated the relationship between these scores and other potential measures of domain-specific expertise.

Analysis

To determine the relationship between Pathfinder coherence scores and other measures of expertise, the researchers employed a multiple linear regression analyses that employed the following general linear model:

\[ Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 \]

Where:

- \( Y \) = Coherence scores.
- \( X_1 \) = Number of years the participant had been a practitioner of HPT.
- \( X_2 \) = Number of juried presentations relating to HPT the participant had either written or co-written.
- \( X_3 \) = Number of non-juried presentations relating to HPT the participant had either written or co-written.
- \( X_4 \) = Number of juried articles relating to HPT the participant had either written or co-written.
- \( X_5 \) = Number of non-juried articles relating to HPT the participant had either written or co-written.
- \( X_6 \) = Number of book chapters relating to HPT the participant had either written or co-written.
- \( X_7 \) = Number of books relating to HPT the participant had either written or co-written.

To control for Type I error, alpha was set at .05. All variables were entered at once.
## Results

### DESCRIPTIVE RESULTS

The following table summarizes the measures, survey items, number of respondents, means, standard deviations, and standard errors used in the regression analysis of coherence scores.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Item</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coherence scores</td>
<td>Not applicable</td>
<td>( N = 73 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( M = 0.324 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SD = 0.153 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SE = 0.018 )</td>
</tr>
<tr>
<td>Years HPT practitioner</td>
<td>How many years have you been a practitioner of human performance technology?</td>
<td>( N = 137 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( M = 11.161 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SD = 8.239 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SE = 0.704 )</td>
</tr>
<tr>
<td>Number of juried presentations</td>
<td>How many JURIED presentations relating to HPT have you written or co-written?</td>
<td>( N = 137 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( M = 3.321 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SD = 11.758 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SE = 1.005 )</td>
</tr>
<tr>
<td>Number of non-juried presentations</td>
<td>How many NON-JURIED presentations relating to HPT have you written or co-written?</td>
<td>( N = 137 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( M = 4.409 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SD = 8.839 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SE = 0.755 )</td>
</tr>
<tr>
<td>Number of juried articles</td>
<td>How many JURIED articles relating to HPT have you written or co-written?</td>
<td>( N = 137 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( M = 0.744 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SD = 3.097 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SE = 0.265 )</td>
</tr>
<tr>
<td>Number of non-juried articles</td>
<td>How many NON-JURIED articles relating to HPT have you written or co-written?</td>
<td>( N = 137 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( M = 2.007 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SD = 6.026 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SE = 0.515 )</td>
</tr>
<tr>
<td>Number of book chapters</td>
<td>How many book chapters relating to HPT have you written or co-written?</td>
<td>( N = 137 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( M = 0.774 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SD = 3.132 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SE = 0.268 )</td>
</tr>
<tr>
<td>Number of books</td>
<td>How many books relating to HPT have you written or co-written?</td>
<td>( N = 137 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( M = 0.197 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SD = 1.028 )</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( SE = 0.088 )</td>
</tr>
</tbody>
</table>

The following table summarizes Pearson Product-Moment correlations among the dependent and independent variables in this analysis. There are numerous correlations among the independent variables, ranging from weak to strong in magnitude. However, the only a single significant correlation exists between the dependent variable (coherence) and the independent variable measuring the number of HPT-related books the participant had either written or co-written (\( r = .444, n = 73, p = .000 \)).
As depicted in the following table, the multiple linear regression produced statistically significant results ($r^2 = .210$, $p = .026$), accounting for 21 percent of the variance in coherence scores. The only statistically significant independent variable contained in the equation was the number of books the participant had written or co-written. The independent variables of years of HPT practitioner, number of juried presentations, number of non-juried presentations, number of juried articles, number of non-juried articles, and number of book chapters did not reach levels of statistical significance. In other words, participants’ coherence score correlated only with the number of books they had written. The magnitude of this correlation is weak, although it approaches the moderate threshold of .5.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coherence ($n = 73$, $r^2 = .210$)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
</tr>
<tr>
<td>Years HPT practitioner</td>
<td>0.0006</td>
</tr>
<tr>
<td>Number of juried presentations</td>
<td>-0.0005</td>
</tr>
<tr>
<td>Number of non-juried presentations</td>
<td>-0.0049</td>
</tr>
<tr>
<td>Number of juried articles</td>
<td>0.0056</td>
</tr>
<tr>
<td>Number of non-juried articles</td>
<td>0.0098</td>
</tr>
<tr>
<td>Number of book chapters</td>
<td>-0.0025</td>
</tr>
<tr>
<td>Number of books</td>
<td>0.2747</td>
</tr>
</tbody>
</table>

* $p < 0.05$
It should be noted, however, that only 9 of 137 participants who responded to this item on the demographic survey had written a book. Stevens (1992) notes that statistical procedures based upon regression are mathematical maximization procedures offer a tremendous opportunity to capitalize on chance, especially when the number of subjects is not large relative to the number of variables. Thus, the results obtained in this study may not replicate well in another sample.

**Discussion**

Although the number of years participants had been HPT practitioners was expected to weakly correlate with participants’ coherence scores, it did not. Although the sample exceeded Ericsson’s (1996) threshold of ten years to reach expert status in a domain, no correlation with coherence scores or any other measure of expertise was found. As the number of non-juried/juried presentations and publications are based upon recognition in the field and the results of peer review, it was thought that these indirect measures of HPT expertise would correlate with coherence scores. Although these measures correlated among themselves, they did not correlate with coherence; book production alone correlates with coherence.
As a measure of the internal consistency of a participant's concept ratings, coherence scores can be used as an operational indicator of domain expertise (Interlink, 1994). To identify the participants who would act as the expert HPT practitioners in this study, the researchers identified all participants with coherence scores greater than 0.4. (Schvaneveldt, personal communication, June 23, 1998). The researchers then averaged the concept ratings of these operationally defined experts and subjected the results to Pathfinder analysis, which produced the following concept map. This concept map represents the organization of a statistically derived, “averaged expert’s” cognitive organization of HPT.

The key concept in the map is represented by “results,” which is linked to four other sets of concepts. The first set of concepts contains the terms “learning theory,” “ISD,” “needs analysis,” “job and task analysis,” “systematic,” “measurement,” “evaluation,” and “feedback.” The organization of these concepts indicates that experts employ ISD and its related components to obtain results.
The second set of concepts related to “results” contains the terms “goals,” change management, “motivation,” “performance barriers,” “cause analysis,” “performance support,” and interventions. These terms form the basis of HPT theory and reflect its behavioral roots. The organization of these concepts indicates that experts employ HPT theory to obtain results.

A third set of concepts related to “results” contains the terms “ROI,” “business case,” and requirements analysis.” Experts use requirements analysis to build business cases from which they can predict a return on investment that quantifies obtained results.

A fourth set of concepts related to “results” is more complex and consists of two separate subsets. The first subset consists of the terms “outputs,” “inputs,” “conditions,” work organization,” and “systemic.” Systemically accounting for workplace organization, experts assess the conditions of performance, their inputs, and their outputs in determining performance results. It is also important to note that “workplace organization” is also linked to “business case,” indicating that experts use the context of the workplace to create such cases.

The second subset consists of the terms “information,” “resources,” human capital,” competencies,” “individual and team workers,” and collaboration.” The organization of these terms indicates that collaboration among individual and team workers builds human capital, which can be described in terms of competencies. Human capital is linked to resources. Information about resources allows resources to be used as inputs to performance—which ultimately lead to outputs and results.

Discussion

The “averaged expert’s” concept map produced in this study may be used in a variety of ways in the future.

- As an informational tool introducing HPT to new practitioners at ISPI conferences, students in universities, and readers of the HPT literature.
- As a practice exercise for novices, allowing them to write their own descriptions of the links between concepts.
- As an assessment supplementing the results of multiple choice tests, essay tests, and performance tests.
- As a research tool for investigating the link between the organization of expert’s knowledge of HPT and the performance of HPT itself.

SPECIALIZATION AND EXPERTISE

The HPT Research Group is still analyzing these data and will provide analysis and results at a later date.
DIFFERENCES IN THE ORGANIZATION OF HPT KNOWLEDGE

Prediction

Experts organize their knowledge differently than novices and other practitioners of a given discipline. For example, both De Groot (1978) and Chase and Simon (1973) have demonstrated that expertise in chess is partially attributable to the organization of memory. Chess masters possess more highly organized and complex structures in long-term memory than chess experts, who possess more organized and complex structures than non-experts. Reingold, Charness, Pomplun, and Stampe (2001) note that the organization of experts’ domain knowledge enables them to have larger visual spans of the chess board and the pieces on it. More organized and complex knowledge structures facilitate better performance, and expertise is a partial function of the interrelationships among important concepts and their organization into a particular configuration or class of configurations (Goldsmith & Johnson, 1990).

In this vein, the researchers predicted that expert HPT practitioners would organize their knowledge of the discipline differently than novices.

Analysis

To answer this research question, the researchers employed a median split. In this instance, experts were operationally defined as any participant possessing a coherence score one standard deviation above the mean. Novices were operationally defined as any participant possessing a coherence score one standard deviation below the mean.

To determine if the similarity and relatedness scores of experts were more similar to each other than they were to novices, the study employed a multivariate analysis of covariance (MANCOVA). Group designation as either expert or novice acted as the independent variable. Similarity and relatedness scores acted as the dependent variables. As coherence scores were used to operationally define groups and represented a source of variation beyond the control of the researchers, they were used as a covariate in the analysis. To control for Type I error, alpha was set to .05.

Results

DESCRIPTIVE RESULTS

The following table summarizes means and standard deviations associated with experts’ and novices’ similarity and relatedness scores.
### Inferential Results

The results of the MANCOVA indicated that the group effect was statistically significant (Wilks’ Lambda = .544, F(1, 11) = 4.615, p = .035). Eta squared (1 - Wilks’ Lambda) revealed that approximately 46 percent of the variance in the linear combination of the dependent variables was associated with group differences.

As summarized in the following table, tests of between-subjects effects revealed that group differences were attributable to similarity scores alone.

<table>
<thead>
<tr>
<th>Source</th>
<th>Dependent Variable</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate (Coherence)</td>
<td>Relatedness</td>
<td>1</td>
<td>0.0035</td>
<td>0.0035</td>
<td>.439</td>
</tr>
<tr>
<td></td>
<td>Similarity</td>
<td>1</td>
<td>0.0065</td>
<td>0.0065</td>
<td>5.820*</td>
</tr>
<tr>
<td>Group</td>
<td>Relatedness</td>
<td>1</td>
<td>0.0065</td>
<td>0.0065</td>
<td>.816</td>
</tr>
<tr>
<td></td>
<td>Similarity</td>
<td>1</td>
<td>0.0110</td>
<td>0.0110</td>
<td>9.803*</td>
</tr>
<tr>
<td>Residual</td>
<td>Relatedness</td>
<td>12</td>
<td>0.0952</td>
<td>0.0079</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Similarity</td>
<td>12</td>
<td>0.0135</td>
<td>0.0011</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Relatedness</td>
<td>15</td>
<td>.137</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Similarity</td>
<td>15</td>
<td>.249</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* p &lt; 0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Discussion

The similarity scores of experts are higher than those of novices, indicating that expert concept maps are more like those of other experts than of novices. This finding replicates the results of other studies comparing the organization of expert and novice cognition. Specifically, experts share a greater proportion of the links in their individual concept maps with those of the “averaged expert’s” concept map (p. 8) than do novices (14 percent versus 10 percent, respectively).

It should be noted, however, that the small sample used in this analysis may not provide replicable results.
• Welcome to Expertise in HPT.
• I’d like to begin by thanking some people:
  • ISPI, who funded this study.
  • DLS Group, who sponsored this effort.
  • The members of the HPT Research Group. (Please stand up.)
  • Dr. Linda Lohr, my co-principal investigator.
    • Linda will now introduce the HPT Research Group.
Working in small groups, review novice and expert concept maps of HPT to answer the following questions:

1. How are the maps different?
2. How might you use these maps to support or improve performance?

- I’d like to begin with a short exercise.
- How are the two concept maps different?
- How might you use the expert map to improve performance?
  - Selection
    - Assume you wanted to hire an experienced HPTer. You could determine extent to which their concept map matches the expert map.
  - Task support
    - Assume you wanted to provide online access to an HPT glossary for your performance improvement organization. You could allow users to hyperlink to the definitions using both an alphabetical list as well as the concept map.
  - Skill and knowledge: Assume you wanted to teach someone to be an HPT practitioner.
    - Information/Lecture: Use concept map to introduce HPT.
    - Practice exercise: Let students write down own links on the concept map.
    - Assessment: Collect multiple concept maps during course of student’s tenure to monitor their progress.
Agenda

- Introduction
- A Pathfinder Primer
- Expertise in HPT: A Study
What is expertise?

- Domain-specific skill of an expert
- 10+ years experience
- Cumulative practice
- Progressively difficult problem-solving
Why is expertise important to HPTers?

- Knowledge work = solve problems
- Decrease ramp-up time
- Capture and disseminate best practices
- Improve productivity
How can HPTers represent expertise?

CTA

a set of strategies for eliciting and representing the mental organization of knowledge
### Types of CTA

<table>
<thead>
<tr>
<th></th>
<th><strong>CONCURRENT</strong></th>
<th><strong>RETROSPECTIVE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIRECT</strong></td>
<td>Think-aloud protocol</td>
<td>Structured interviews</td>
</tr>
<tr>
<td></td>
<td>Observation</td>
<td>Case-based reasoning</td>
</tr>
<tr>
<td></td>
<td>Interruption analysis</td>
<td>Card sorting</td>
</tr>
<tr>
<td></td>
<td>Simulations</td>
<td>Video playback with queries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical incident analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decompose, Network, Assess (DNA)</td>
</tr>
<tr>
<td><strong>INDIRECT</strong></td>
<td>Multidimensional scaling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pathfinder</td>
<td></td>
</tr>
</tbody>
</table>
Applications

Chan et al.'s (1995) comparison of the Pathfinder networks of 13 normal control subjects and Alzheimer's disease patients
Villachica's (1999) concept map depicting MS-PowerPoint expertise
Step 1: Elicit Domain Knowledge

A PATHFINDER PRIMER

INPUT

- Concept List

PROCESS

- Pairwise Ratings of Concept Similarity

OUTPUT

- Proximity Matrix

\[ N_{\text{pair}} = \frac{n(n-1)}{2} \]

\[ N = 435 \text{ concept pairs to be rated} \]

<table>
<thead>
<tr>
<th>Pair Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog-cat 7</td>
</tr>
<tr>
<td>Dog-bear 4</td>
</tr>
<tr>
<td>Dog-lion 3</td>
</tr>
<tr>
<td>Dog-raven 1</td>
</tr>
<tr>
<td>Cat-bear 3</td>
</tr>
</tbody>
</table>

Proximity Matrix

1 2 3 4 … 30
1 2 7
3 4 3
4 3 7 5
. . . .
. . . .
30 1 1 1

Step 2: Interpret the Data

Analytical Techniques

Knowledge Representations

Pathfinder Scaling Algorithm

Undirected Network

CONCEPT MAP

<table>
<thead>
<tr>
<th>Proximity Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 … 30</td>
</tr>
<tr>
<td>1 2 7</td>
</tr>
<tr>
<td>3 4 3</td>
</tr>
<tr>
<td>4 3 7 5</td>
</tr>
<tr>
<td>. . . .</td>
</tr>
<tr>
<td>. . . .</td>
</tr>
<tr>
<td>30 1 1 1</td>
</tr>
</tbody>
</table>
A Pathfinder Primer

Process

PHASES
1. Select Experts
2. Create Concept List
3. Orient Experts
4. Orient Participants
5. Collect Concept Ratings
6. Pathfinder Analysis

OUTPUTS
- Identified experts
- Concept list
- Expert proximity matrices
- Oriented experts
- Oriented participants
- Proximity Matrices
- Averaged Expert Ratings
- Concept Maps
- Pathfinder Measures
Pathfinder Measures

- **Coherence**
  - (Theoretical Range = -1.0 to +1.0)
  - A Pearson Product-Moment correlation indicating the internal consistency of ratings within an individual's or group's set of concept ratings (Interlink, 1996).
  - A coherence score for an individual's or group's set of concept ratings calculated. This score is compared to that of other individuals.
  - Student coherence scores obtained prior to instruction are compared to those obtained after instruction to determine if learning occurred.

- **Relatedness**
  - (Theoretical Range = -1.0 to +1.0)
  - The comparison of an individual's or group's set of concept ratings to another's.
  - The proximity matrices of students are correlated with a referent matrix containing the averaged responses of a panel of experts.

- **Similarity**
  - (Theoretical Range = 0 to +1.0)
  - The proportion of shared links in two concept maps using the same terms. The ratio of shared neighborhoods in two Pathfinder networks (Interlink, 1996).
  - The Pathfinder networks of an individual or group are compared to those of another.
  - The Pathfinder networks of students are compared to their instructor's. The resulting similarity scores are used to predict performance on a test.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
<th>Uses</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coherence</strong> <em>(Theoretical Range = -1.0 to +1.0)</em></td>
<td>A Pearson Product-Moment correlation indicating the internal consistency of ratings within an individual’s or group’s set of concept ratings <em>(Interlink, 1996).</em></td>
<td>A coherence score for an individual’s or group’s set of concept ratings calculated. This score is compared to that of other individuals.</td>
<td>Student coherence scores obtained prior to instruction are compared to those obtained after instruction to determine if learning occurred.</td>
</tr>
<tr>
<td><strong>Relatedness</strong> <em>(Theoretical Range = -1.0 to +1.0)</em></td>
<td>The Pearson Product-Moment correlation between sets of concept ratings <em>(Interlink, 1996).</em></td>
<td>The comparison of an individual’s or group’s set of concept ratings to another’s.</td>
<td>The proximity matrices of students are correlated with a referent matrix containing the averaged responses of a panel of experts.</td>
</tr>
<tr>
<td><strong>Similarity</strong> <em>(Theoretical Range = 0 to +1.0)</em></td>
<td>The proportion of shared links in two concept maps using the same terms. The ratio of shared neighborhoods in two Pathfinder networks <em>(Interlink, 1996).</em></td>
<td>The Pathfinder networks of an individual or group are compared to those of another.</td>
<td>The Pathfinder networks of students are compared to their instructor’s. The resulting similarity scores are used to predict performance on a test.</td>
</tr>
</tbody>
</table>
Coherence scores and expertise

Organization of HPT knowledge

Expert/novice differences

Specialization and organization of HPT knowledge

1.) To what extent are Pathfinder-derived coherence scores associated with other measures of HPT expertise?

2.) How do experts in the field organize their knowledge of HPT?

3.) To what extent are Pathfinder-derived coherence scores associated with other measures of HPT expertise? To what extent do experts organize their HPT knowledge differently than novices?
Coherence and Expertise

Housner, Gomez, and Griffey (1993)
Gaultieri, Fowlkes, and Ricci (1996)
Stout, Salas, and Kraiger (1997)
Dorsey et al. (1999)

Since the knowledge structures of experts are more organized than those of novices, experts in a given domain should possess relatively higher coherence scores. The higher the coherence score, the greater the internal consistency of the concept ratings, and the more likely that participants will recall the concepts in a specific order and context. However, results have been uneven, indicating a need for additional replication.

Three of these studies found a correlation between coherence and expertise. In a classroom setting, Housner, Gomez, and Griffey (1993) investigated the extent to which coherence scores and other knowledge structures would predict performance in a physical education preservice course. They found a moderate correlation between coherence and a simulated teaching activity ($r = .63$). Gaultieri, Fowlkes, and Ricci (1996) investigated the effectiveness of training that eight Navy and Air Force pilots received over a five-day workshop. This training consisted of pre-briefings, simulated missions, and debriefings. The pilots were divided into two teams of four pilots each, with each participants rating concept pairs on the first, third, and fifth days. Results of a repeated measures analysis of variance revealed a statistically significant increase in participants’ coherence scores over time ($F(2,14) = 11.55, p < .001$). In a similar study, Stout, Salas, and Kraiger (1997) studied 12 naval aviator trainees enrolled in a one-day, complex training program addressing aviation teamwork and communication skills. The researchers reported that course attendees earned higher mean coherence scores than a control group who received no training ($t = 2.70, p < .01$, $M_{\text{trainees}} = .63$, $M_{\text{control}} = .26$).

One study did not find a relationship between coherence scores and domain expertise. Dorsey, Campbell, Forste, and Miles (1999) used Pathfinder networks to create concept maps that evaluated relationships generated by 88 computer users and compared them against the scores of four subject matter experts. Their results indicated that coherence scores were not significantly related to any of the concept map scores.

Within the domain of HPT, coherence scores would conceivably be positively correlated with several measures of expertise. Experts in HPT are members of a community of practice that has its roots in academe. As a result, experts can be expected to present at conferences, write articles, and author books. They can be expected to have spent at least 10 years developing their expertise (Ericsson, 1996).
Organization of HPT Domain Knowledge

- Stolovitch and Keeps (1999)
- Addison (2001)
- ISPI (2001)
- Jonassen, Beissner, and Yacci (1993)

**Organization of HPT Domain Knowledge**

The organization of HPT domain knowledge can be viewed in terms of existing expert representations of the domain and the extent to which a Pathfinder-generated concept map could supplement these existing models.

**Existing Expert Representations of HPT.** Given the width and breadth of HPT, a variety of experts have authored conceptual and procedural representations of the discipline. Each representation depicts an expert’s organization of his or her HPT expertise. Conceptual representations place HPT within larger contexts and illustrate the relationships among its components. Procedural representations illustrate the steps comprising an HPT process.

Stolovitch and Keeps (1999) provide both conceptual and procedural representations of HPT. In their conceptual model, the authors depict external and organizational environments that influence internal requirements related to human performance. Once articulated, these requirements trigger behaviors that produce accomplishments, which are subjected to verification. Accomplishments that are aligned with business requirements are accepted; those that are not aligned are subjected to subsequent alteration in behaviors, which change the organization’s accomplishments. Their procedural representation of HPT consists of an iterative, 10-step process that begins with the identification of business requirements and concludes with monitoring and maintaining performance interventions. At this point, the process can repeat itself, leading to the identification of new requirements and subsequent interventions.

Addison (2001) provides a conceptual view of HPT in his Performance Consultant HPT Landscape. This representation of the discipline depicts the interaction of two conceptual and two procedural dimensions that comprise the landscape:

® • levels of the environment, ranging from the worker to society (conceptual);
® • principles of performance technology (conceptual);
® • systematic approach, starting with need and ending with evaluate (procedural); and
® • system(s) view point, beginning with conditions and ending with feedback (procedural).

The International Society for Performance Improvement has created its own procedural representation of HPT. This process model focuses on a systematic combination of performance analysis, cause analysis, and intervention selection (ISPI, 2001). The majority of steps comprising the HPT model contain additional conceptual information providing additional detail about a given step.

Pathfinder Representations of Expertise. In addition to the conceptual and procedural representations used to depict expert’s organization of HPT, one can use Pathfinder networks to represent this domain-specific expertise. The end result of Pathfinder analysis is a concept map that depicts a semantic network representing a domain, such as HPT. These concept maps are intended to represent the knowledge structures that humans store in their minds (Jonassen, Beissner, & Yacci, 1993).

Researchers have employed Pathfinder-derived concept maps to study the nature of expertise in some 13 studies and nine different domains, ranging aircraft combat to programming to electronic troubleshooting to medicine (Villachica, 2000). In a similar vein, Pathfinder-derived concept maps could depict the way in which experts organize their domain knowledge of HPT, providing another representation of this complex discipline.
Novice/Expert Differences

- De Groot (1978)
- Chase and Simon (1973)
- Reingold, Charness, Pomplun, and Stampe (2001)
- Chi, Feltovich, and Glaser (1981)

- **Novice/Expert Differences in the Organization of HPT Knowledge**

  That novices and experts exhibit different levels of domain-specific performance is not surprising. A well-established line of research traces the sources of these performance differences to the organization of cognitive structures in memory. De Groot (1978) and Chase and Simon (1973) demonstrated that expertise in chess is partially attributable to the organization of memory. Chess masters possess more highly organized and complex structures in long-term memory than chess experts, who possess more organized and complex structures than non-experts. These differences in domain knowledge allow chess masters to employ a larger visual scan than chess novices (Reingold, Charness, Pomplun, & Stampe, 2001). Similarly, Chi, Feltovich, and Glaser (1981) report that physicists sort physics problems differently than novices, with experts’ organizational strategies revealing more sophisticated cognitive structures, based upon their knowledge of the “deep structure” of the domain.

- Pathfinder-related studies that address novice/expert differences in domain-specific cognition have found that experts tended to exhibit greater degrees of intragroup agreement than novices. That is, the relatedness, similarity, and coherence scores of experts tended to be more similar than those of novices. For example, Schvaneveldt, Durso, Goldsmith, Breen, and Cooke (1985) conducted a discriminant analysis using Pathfinder measures that successfully predicted novice and expert performance in a fighter pilot task. Schvaneveldt, Durso, and Dearholt (1989) employed Pathfinder-produced concept maps to study differences in the ways in which biology graduate students (“experts”) and undergraduate students (“novices”) organized their knowledge of biology. Schvaneveldt, Beringer, Lamonica, Tucker, and Nance (2000) used Pathfinder to demonstrate differences in the priorities that novice and experienced commercial aircraft pilots assign to information viewed during the phases of a flight. Thompson (1992) employed Pathfinder-based measures to reveal differences in the organization of domain knowledge among expert, non-expert, and novice nurses.

- Given the consistency of these findings, one should expect to find novice-expert differences in the organization of HPT knowledge. That is, the Pathfinder-related measures of an operationally defined set of experts should be more like each other than they are like those of a set of novices.
Methodology: Participants

<table>
<thead>
<tr>
<th>N</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members of ISPI</td>
<td>6,000</td>
</tr>
<tr>
<td># Invited</td>
<td>4,500</td>
</tr>
<tr>
<td>Initial Response</td>
<td>38</td>
</tr>
<tr>
<td>Second Response (2 weeks later)</td>
<td>103</td>
</tr>
<tr>
<td>Sample Subtotal</td>
<td>141</td>
</tr>
<tr>
<td>Duplicates</td>
<td>4</td>
</tr>
<tr>
<td>Sample</td>
<td>137</td>
</tr>
<tr>
<td>Completed Ratings</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>1%</td>
</tr>
</tbody>
</table>

- **Participants**
  - ISPI issued invitations to participate in the study to approximately 4,500 of its 6,000 members (75 percent). ISPI published the invitations on two occasions, the first invitation in its online newsletter **ISPI Quick Read**. After 14 days, only 38 people had responded to this invitation. ISPI then emailed a second invitation to its members two weeks later. With this invitation, another 103 persons had responded, making a total of 141. Of those, 4 people had submitted duplicate data sets, which were subsequently removed from the study. Of the 137 people who had completed the survey, 73 went on to complete all 435-concept ratings (reflecting overall response rates of 2 and 1 percent, respectively).
Methodology: Procedure

- **50 concepts narrowed to 30**
  (modified Delphi)

- **Web-based instrument (instructions, practice, survey, concept ratings, thank you)**

- **Procedure**
  - The researchers drafted an initial list of 50 HPT-related concepts based upon a review of the Handbook of HPT (Stolovitch & Keeps, 1999). Acting as the operationally defined referent experts for the study, the ISPI 2000-2001 Board participated in a modified Delphi process that resulted in a final list of 30 HPT concepts that would be employed in the study. Quick Read newsletter and emailed individual invitations then invited ISPI members to participate in the study. The second sections of both the ISPI Quick Read article and the email invitation contained an informed consent form. Subjects who agreed to participate in the study indicated their agreement by clicking on a link that directed them to a website used to collect demographic data and concept ratings. In order to maintain confidentiality, all data were aggregated into a single computer file using the computer to assign unique, anonymous participant identification codes. Once subjects had entered their responses into an online dataset, all names were deleted from the file, thereby guaranteeing the anonymity of all participants and protecting subjects against unintentional disclosure outside the experiment.

  - The website consisted of the following pages, which participants completed in order. After viewing a welcome page that described the purpose of the study, participants viewed instructions about rating HPT concepts. Participants then viewed a list of practice terms, which appeared next to radio checkboxes. Participants could click next to any term they did not know, and they would not have to rate the term in the subsequent set of practice ratings. Participants then completed a web page where they provided information about themselves. Participants then viewed the complete list 30 HPT concepts, with the option to check any terms they did not know. Participants then rated up to 345 randomly presented concept pairs, checking on the radio buttons comprising a rating scale to assign lower numbers (1-4) to unrelated items and higher numbers (6-9) to related items. Participants assigned a “5” to terms they did not know or could not rate. The last pages of the web site thanked participants and allowed them to view additional information about the HPT Research Group conducting the study. The concept ratings participants provided were then stored as proximity matrices for subsequent Pathfinder analysis.
Information about You

INSTRUCTIONS:
As part of this study, we need to obtain some information about you and your involvement with Human Performance Technology (HPT). Please answer each of the following questions.

1. Which of the following phrases best describes how you apply HPT on the job?
   (Select one.)
   ☐ Performance Improvement Consultant
   ☐ Instructional Systems Designer
   ☐ Manager of Learning and Performance

2. How many years have you been a practitioner of human performance technology?
   (Please type a number.) ______ years.

3. At what level would you characterize your knowledge of HPT? (Please check one.)
   ☐ Novice/Beginner (just starting in the field)
   ☐ Intermediate (has some experience)
   ☐ Expert (has much experience)

[Image: A screenshot of a web page with a form for collecting information about the user's involvement with HPT]
Methodology: Procedure

HPT Rating

Resources --- Inputs

1 2 3 4 5 6 7 8 9

Not Related

Previous Concept Pair

This is pair 2.
There are 433 pairs remaining.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coherence scores</td>
<td>N = 73</td>
</tr>
<tr>
<td></td>
<td>M = 0.324</td>
</tr>
<tr>
<td></td>
<td>SD= 0.153</td>
</tr>
<tr>
<td>Years HPT practitioner</td>
<td>N = 137</td>
</tr>
<tr>
<td></td>
<td>M = 11.161</td>
</tr>
<tr>
<td></td>
<td>SD= 8.239</td>
</tr>
<tr>
<td>Number of juried presentations</td>
<td>N = 137</td>
</tr>
<tr>
<td></td>
<td>M = 3.321</td>
</tr>
<tr>
<td></td>
<td>SD= 11.758</td>
</tr>
<tr>
<td>Number of non-juried presentations</td>
<td>N = 137</td>
</tr>
<tr>
<td></td>
<td>M = 4.409</td>
</tr>
<tr>
<td></td>
<td>SD= 8.839</td>
</tr>
</tbody>
</table>
## Results

Coherence and HPT Expertise (continued)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of juried articles</td>
<td>N = 137</td>
</tr>
<tr>
<td></td>
<td>M = 0.744</td>
</tr>
<tr>
<td></td>
<td>SD= 3.097</td>
</tr>
<tr>
<td>Number of non-juried articles</td>
<td>N = 137</td>
</tr>
<tr>
<td></td>
<td>M = 2.007</td>
</tr>
<tr>
<td></td>
<td>SD= 6.026</td>
</tr>
<tr>
<td>Number of book chapters</td>
<td>N = 137</td>
</tr>
<tr>
<td></td>
<td>M = 0.774</td>
</tr>
<tr>
<td></td>
<td>SD= 3.132</td>
</tr>
<tr>
<td>Number of books</td>
<td>N = 137</td>
</tr>
<tr>
<td></td>
<td>M = 0.197</td>
</tr>
<tr>
<td></td>
<td>SD= 1.028</td>
</tr>
</tbody>
</table>
To determine the relationship between Pathfinder coherence scores and other measures of expertise, the researchers employed a multiple linear regression analyses that regressed coherence scores on the number of years of HPT practitioner, number of juried presentations, number of non-juried presentations, number of juried articles, number of non-juried articles, number of book chapters, and number of books the participant had either written or co-written.

To control for Type I error, alpha was set at .05. All variables were entered at once. The multiple linear regression produced statistically significant results ($r = .458, p = .026$), accounting for 21 percent of the variance in coherence scores. As depicted in Table 3, the only statistically significant independent variable contained in the equation was the number of books the participant had written or co-written. The other independent variables did not reach levels of statistical significance. The magnitude of this correlation is weak, although it approaches the moderate threshold of .5.

It should be noted, however, that only 9 of 137 participants who responded to this item on the demographic survey had written a book. Stevens (1992) notes that statistical procedures based upon regression are mathematical maximization procedures may capitalize on chance and artificially increase alpha, especially when the number of subjects is not large relative to the number of variables. Thus, the results obtained in this study may not replicate in another sample.
The key concept in the map is represented by “results,” which is linked to four other sets of concepts.

- The first set branch of concepts contains the terms “learning theory,” “ISD,” “needs analysis,” “job and task analysis,” “systematic,” “measurement,” “evaluation,” and “feedback.” The organization of these concepts indicates that experts employ ISD and its related components to obtain results.

- The second branch of concepts related to “results” contains the terms “goals,” “change management,” “motivation,” “performance barriers,” “cause analysis,” “performance support,” and “interventions.” These terms form the basis of HPT theory and reflect its behavioral roots. The organization of these concepts indicates that experts employ HPT theory to obtain results.

- A third branch of concepts related to “results” contains the terms “Return on Investment,” “business case,” and “requirements analysis.” Experts use requirements analysis to build business cases from which they can predict a return on investment that quantifies obtained results. The organization of these items indicate that experts employ business-related measures to obtain results.

- A fourth branch of concepts related to “results” is more complex and consists of two separate subsets. The first subset consists of the terms “outputs,” “inputs,” “conditions,” “work organization,” and “systemic.” Systemically accounting for workplace organization, experts assess the conditions of performance, their inputs, and their outputs in determining performance results. It is also important to note that “workplace organization” is also linked to “business case,” indicating that experts use the context of the workplace to create such cases. The second subset consists of the terms “information,” “resources,” “human capital,” “competencies,” “individual and team workers,” and “collaboration.” The organization of these terms indicates that collaboration among individual and team workers builds human capital, which can be described in terms of competencies. Human capital is linked to resources. Information about resources allows resources to be used as inputs to performance—which ultimately lead to outputs and results.
Novice/Expert Differences in the Organization of HPT Knowledge

To answer this research question, the researchers employed a median split. In this instance, experts were operationally defined as any participant possessing a coherence score one standard deviation above the mean. Novices were operationally defined as any participant possessing a coherence score one standard deviation below the mean. Table 4 summarizes means and standard deviations associated with experts’ and novices’ similarity and relatedness scores.

Table 4

Numbers, Means, and Standard Deviations for Novice and Expert Similarity and Relatedness Scores

To determine if the similarity and relatedness scores of experts were more similar to each other than they were to novices, the study employed a multivariate analysis of covariance (MANCOVA). Novice/expert designation acted as the independent variable. Similarity and relatedness scores acted as the dependent variables. As coherence scores were used to operationally define groups and represented a source of variation beyond the control of the researchers, they were used as a covariate in the analysis. To control for Type I error, alpha was set to .05.

The results of the MANCOVA indicated that the group effect was statistically significant (Wilks’ Lambda = .544, $f(1, 14) = 4.615$, $p = .035$, Eta Squared = .46).
Coherence and Expertise

- Book authors publish and present
- Desire to create detailed conceptual structures or schemas
- Tolerance for tedium
- Low sample size

\* Coherence and HPT Expertise

Although the number of years participants had been HPT practitioners was expected to weakly correlate with participants’ coherence scores, it did not. Although the sample exceeded Ericsson’s (1996) threshold of ten years to reach expert status in a domain, no correlation with coherence scores or any other measure of expertise was found. As the number of non-juried/juried presentations and publications are based upon recognition in the field and the results of peer review, it was thought that these indirect measures of HPT expertise would correlate with coherence scores. Although these measures correlated among themselves, they did not correlate with coherence; book production alone correlates with coherence.

Three possible explanations for the significant relationship between coherence scores and authoring an HPT-related book include: 1) desire to create detailed conceptual structures or schemas, 2) tolerance for tedium, and 3) low sample size. The correlation between coherence scores and writing an HPT-related book could be the result of the capacity or desire of an author to develop highly detailed and organized cognitive structures or schemas. Books are representations of schemas, divided into chapters and sections. Perhaps book authors possess such schema, making it more likely that their cognitive maps would correlate with coherence scores.

Another conceivable reason for the correlation between book authorship and coherence scores may be book authors’ tolerance for tedious activity. Authoring depends on patience, self-discipline, and a large devotion of time and energy. Authoring also requires one to switch attention between small details and large-picture views frequently. The structure of this study’s pair-wise rating activity required the same sort of mental activity for an extended period of time (between 30 minutes and one hour). Perhaps individuals who were able to complete the ratings and stay on task for this time are also individuals who can author books.

Finally, the low sample size employed in the study may have precluded obtaining significant results. In addition to artificially increasing alpha, low sample size may have lacked adequate statistical power to detect otherwise significant relationships between coherence scores and measures of HPT expertise. Replicating this study with a larger sample and modifications to the website to decrease experimental mortality could produce less ambiguous findings.
Discussion

Organization of HPT Expertise

- Mirrored other HPT models – convergent validity
- Need to determine predictive validity
- Use as Mind Tool or in assessment

- **Organization of HPT Expertise**

  The expert concept map is similar to other expert representations of HPT, suggesting the convergent validity to this finding. The information and resource components of the human capital branch of the concept map roughly correspond to the organizational environment of Stolovitch and Keeps’ (1999) conceptual representation of HPT. The business case branch corresponds to their components of business goals/objectives and internal requirements. Where Stolovitch and Keeps focus on accomplishments and their verification, the expert concept map focuses on results. Additional similarities can be found comparing the expert concept map to Stolovitch and Keep’s procedural representation of HPT. The business case branch of the concept map addresses Stolovitch and Keeps’ steps of identify business and performance requirements. Likewise, the HPT branch of the concept map addresses the steps “define performance gaps, specify gap factors, and select interventions.

  One of the underlying principles of the HPT landscape model (Addison, 2001) is “the focus is results, outcomes.” The expert concept map depicts a focus on results, which is the key concept in the map. Sections related to ISD, human capital, business cases, and HPT are linked to obtaining results. The systems and business case portions of the Addison model are similar to the ISD systems and business case branches of the expert concept map.

  The predictive validity of the expert concept map could be determined by determining the extent to which it predicts performance in HPT. For example, concept ratings could be obtained from previous winners of ISPI awards. These scores could be compared against a control group who did not win such awards. Subsequent statistical analysis could determine the extent to which Pathfinder-derived relatedness, similarity, and coherence scores predicted the award-winners.

  In addition to providing a unique perspective of HPT as a discipline, practitioners and researchers could employ the concept map in different ways. For practitioners, the expert concept map can assist in the creation of HPT competencies. The different branches of the map could represent the major HPT competencies. The organization of subordinate and related competencies could also be derived from the concept map.

  Experienced practitioners can also use the concept map as a “mind tool” to introduce new practitioners to HPT. Specifying the nature of the links could help learners construct their knowledge of the discipline (Jonassen, 2000). The similarity measure that Pathfinder derives from the concept map could also be used as an assessment tool for practitioners and researchers alike. Over time and experience solving increasingly difficult problems in the domain, the similarity scores of new practitioners should increase, indicating that their mental map of HPT is increasingly like those of experienced practitioners. Their development within this community of practice could be modeled statistically, with different stages of practitioner HPT development lending themselves to different learning and other types of performance supporting interventions. If such stages and interventions could be determined, then whole programs could be designed to help novices move along a
Novice/Expert Differences

- **Expert to expert, novice to novice**
- **Replicates other studies comparing experts and novices**
- **Longitudinal acquisition of HPT**

- **Novice/Expert Differences in the Organization of HPT Knowledge**
- The similarity scores of experts are higher than those of novices, indicating that expert concept maps are more like those of other experts than of novices. This finding replicates the results of other studies comparing the organization of expert and novice cognition. Specifically, experts share a greater proportion of the links in their individual concept maps with those of the “averaged expert’s” concept map (p. 8) than do novices (14 percent versus 10 percent, respectively). It should be noted, however, that the small sample used in this analysis may not provide replicable results.
Replication and New Directions

- Revise web-based instrument
- Replicate using ISPI chapters, ASTD
- Establish reliability of web ratings
- Establish predictive validity of concept map


Thank You!
Human Performance Model

1. Identify Business Requirements
   - Reactive
   - Proactive

2. Identify Performance Requirements
   - Legal/Regulatory
   - New Skills / Knowledge
   - Performance Improvement

3. Specify Current Performance
   - Exemplary
   - Deficient

4. Define Performance Gap
   - Magnitude
   - Value
   - Urgency

5. Specify Performance Gap Factors
   - Environmental
   - External
   - Internal
   - Organizational / Cultural
   - Job Specific
   - Skill / Knowledge
   - Emotional / Political
   - General
   - Specific

6. Monitor and Maintain Performance Interventions
   - Performance
   - Business

7. Implement Performance Interventions
   - Plan
   - Execution
   - Support

8. Develop Performance Interventions
   - Design
   - Creation
   - Verification

9. Select Performance Interventions
   - Appropriateness
   - Economics
   - Feasibility
   - Acceptability

10. Identify Potential Interventions
    - Environmental
    - Skills / Knowledge
    - Incentives / Motivation

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### Performance Consultant HPT Landscape

#### 4 Principles of Performance Technology
1. Focus on outcomes & results
2. Take a System(s) view point
3. Add value & focus on the business or organizational purpose
4. Establish partnerships & work collaboratively

#### 6 Phases of the Systematic Approach
1. **NEED:** Assessment & Analysis of Need/Performance and/or Opportunity
2. **RESULTS:** Functional/Requirement Analysis
3. **WHAT:** Cause/Means Analysis Solutions/Interventions Recommendations
4. **HOW:** Organize, Design, Develop
5. **DO:** Implement, Deploy, Manage Change
6. **EVALUATE:** Effectiveness, Value, Continuous Improvement, Lessons Learned

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A Cognitive Map of Human Performance Technology: A Study of Domain Expertise

Abstract

Using the Pathfinder Scaling Algorithm (Pathfinder) (Interlink, 1994), the researchers conducted a cognitive task analysis of expertise in Human Performance Technology (HPT). The study investigated: 1) the extent to which Pathfinder-derived coherence scores were associated with other measures of HPT expertise; 2) how HPT experts organize their knowledge of the discipline; and 3) how experts organize their HPT knowledge differently than novices. Findings include: 1) a significant correlation between coherence and the number of HPT-related books participants had written; 2) a Pathfinder-derived concept map of HPT; and 3) expected novice/expert differences in Pathfinder similarity and relatedness scores.
Concept Map of Human Performance Technology

**Goal:**
To improve HP in workplace

**Definition:**
A set of methods and processes for solving problems or realizing opportunities related to the performance of people

**Characteristics**
- Systematic approach
- Grounded in theory & empirical evidence
- Focus on achievement
- Organization oriented
- Multiple methods

**Target Area**
- (A) Performer
- (B) Performance
- (C) Environments

**Considerations**
- (A) Interventions
- (B) Accomplishment
- (C) Cost

**Applications**
- Strategies & Methods
- Goal: To improve HP in workplace

**Origins & Theoretic Foundations**
- General System Theory
- Behaviorism
- Cognitive Science
- Neuroscience
- Ergonomics
- Economics
- Management & leadership Theories

**Systematic approach**
- Multiple methods
- Grounded in theory & empirical evidence
- Focus on achievement

**Target Area**
- (A) Performer
- (B) Performance
- (C) Environments

**Considerations**
- (A) Interventions
- (B) Accomplishment
- (C) Cost

**Applications**
- Strategies & Methods
- Goal: To improve HP in workplace

**Origins & Theoretic Foundations**
- General System Theory
- Behaviorism
- Cognitive Science
- Neuroscience
- Ergonomics
- Economics
- Management & leadership Theories

**Common Interventions**
- Needs Assessment
- Task Analysis
- Behavior Engineering Model
- ACORN Test
- Many More...

**Effective Interventions**
- Training
- Communication
- Organizational Development
- Work/Job Design
- Environment Engineering
- Staffing
- Rewards/Incentives
- Job Aids
- Communication
- Organization oriented
- Multiple methods
Note on the Concept Map of Human Performance Technology

• **Definition**
  People try to define human performance technology (HPT) from different perspectives. The one I like is “Human performance technology is a set of methods and processes for solving problems or realizing opportunities related to the performance of people. It may apply to individuals, small groups, or large organizations.” (National Society for Performance and Institution, cited in Rosenberg, 1990, p.46)

• **Goal:**
  HPT has a clear goal: to improve human performance in workplace. To improve means to find out the faulty aspects of human performance and offers the correct or more effective and efficient way in performing certain task. This does not mean that human performance is only fault finding although very often it is the case. It also means to realize the opportunities related to human performance. For instance, the management may foresee the new way of doing business and want to find out the possible requirement in performance. This is time when human performance technologist will be called upon to analyze the situations and to help the organization easily go through the possible changes. This aspect will be discussed in detail in the application part of the concept map.

• **Origins and theoretic foundations**
  HPT is grounded in theories. It can be assumed that HPT is built upon but **not confined to** following disciplines of studies:

  o **General system theory:** HPT takes a system approach in analyzing situations and devising interventions for performance improvement or opportunity realizing.
  o **Behaviorism:** HPT uses behaviorism principles to analyze the performance in stimulus-response manner.
  o **Cognitive science:** HPT also uses cognitive science to analyze the psychological and intellectual aspect of performance, including the mental
aspects of information processing, motivation, attitude, etc. involved in the performance.

- **Neuroscience**: HPT also uses the discovery of neuroscience to understand how the human being physiologically handle the information, how they store and retrieve it. Human performance technologists use it to seek out the internal influence on human performance.

- **Ergonomics**: HPT also uses principles and ideas from ergonomics to reveal the nature of performance and seek possible ways to improve it.

- **Economics**: HPT is closely tied with economics. The performance is often evaluated or assessed in terms of cost effectiveness, efficiency, productivity, value added, return on investment, and etc. Most of these terms are borrowed from economics.

- **Management & Leadership**: HPT also applies a lot of management and leadership theories. First, HPT always take the individual performance into organizational and social contexts, where strategies and skills of management and leadership play an important role in influencing human performance.

### Characteristics of human performance technology

Revealing the characteristics of HPT is actually another way of defining it. Since there is no ruling definition of human performance technology, its characteristics people perceive are different. The following characteristics are widely acknowledged ones:

- **Grounded in theories and empirical evidence**: HPT as a field of study is grounded on theories and empirical evidence. The theories mentioned above help and guide it in its applications. Also, HPT enriches its contents by empirical evidence. What has been proven effective and efficient in practice is always valued in this field.

- **Systematic approach**: HPT always takes systematic approach in analyzing human performance and devising interventions in improving it.
Organization oriented: HPT in most cases studies the individual performance. However, it always brings performance issue into organizational perspective. The significance of performance towards the organization makes it valuable for human performance technologists to study.

Focused on achievement: HPT is result-driven. It focuses on the achievement of performance rather than on analyzing it for its own sake. It tries to find out what the performers need to do to improve their performance. It helps the performers to do better in their performance --- performance achievement.

Multiple methods: HPT utilizes multiple various methods to achieve its goals to improve human performance and realize opportunities related to it. Training is one of the common interventions HPT devises. Various interventions will be discussed in application part below.

Application of human performance technology
Application of HPT be found almost anywhere in our work and life. It can be applied to individuals, small groups, teams, and large organizations. Three common aspects of its application listed here are Target Areas, Considerations, and Strategies and Methods,

Target areas: Target areas of application includes the following.

- Performers: HPT can change performers to achieve the improvement of performance. (e.g. staffing) It also can make changes within the same performer in order to achieve the improvement of performance. For example, helping performer to become more motivated in performing job tasks.

- Performance: HPT can change performance in order to improve it. Job design is a perfect example.
- **Environment**: HPT can change the environment to improve the performance. The environment can either be the immediate environment where the performance takes place or extended environment that includes the organizational and social context related to the performer and performance. The management support, more financial input, comfortable lighting are examples of performance environment.

  HPT can manipulate these target area individually or in combination with others to achieve better performance.

- **Considerations**: Three main considerations in HPT are Interventions, Accomplishment, and Cost. They are usually evaluated in terms of *efficiency, effectiveness* or both which is *productivity*. Also they can be evaluated at different levels: simple satisfaction, knowledge or skills learned, knowledge and skills transition, and return on investment.

  - **Interventions** are devises HPT uses to improve the performance. What are the best interventions for performance improvement in the particular situation is the first considerations HPT has.

  - **Accomplishment** refers to the result of intervention, another major consideration in HPT. HPT is result-driven. There various ways of evaluating the accomplishment of a performance. Usually, it is related to the mission, vision, and value systems of the organization.

  - **Cost** is a fundamental consideration in HPT. It influences the decision about intervention and evaluation of the accomplishment. Again, the cost is not always in monetary terms. It can be measured in terms of the resources, and opportunities.

The three major considerations above show that HPT takes systematic approach in its applications.
Strategies and methods: Strategies and methods listed here are only common ones HPT employs to tackle the performance problems. They are not conclusive.

- Needs assessment
- Task analysis
- Behavior engineering model (by Thomas Gilbert)
- ACORN test

Common interventions: The three major aspects of HPT application work together to devise interventions. The common interventions HPT employ in improving the human performance includes the following:

- Training
- Communication
- Organizational Development
- Work/Job design
- Staffing
- Environment engineering
- Job aids
- Rewards/Incentives

These are common interventions HPT devises. They are by no means conclusive.
Why Doers Do
by David Wile

What are the elements of human performance (HP)? Why do people do what they do? Concomitantly, when people aren’t performing, what is the gamut of solutions the human performance technologist should consider?

For as much agreement as there appears to be in human performance technology (HPT) circles on the philosophical answers to these questions, the semantics and taxonomies of HP models seem disparate. In this article I provide a synthesis by:

- identifying HP models of five prominent HPT authors;
- contrasting the models with one another;
- combining elements of the models into a new model; and
- discussing how this new model should be used.

Five HP Models
There are far more than five HP models, but I’ve chosen to synthesize five models of the more prolific HPT authors, including Thomas F. Gilbert, Allison Rossett, Joe Harless, Dean Spitze, and Robert F. Mager.

It’s likely that other HP models are similar to at least one of these five and as such are probably accounted for somewhere in my analysis. For the purposes of synthesis, I’ve had to modify the authors’ models. Although some nuances may be lost in translation, I hope my modifications are deft enough to retain the authors’ original intents.

I’ll comment here on the first step of reconciling models: normalization. Normalization means converting each model into units that can be measured against one another. For example, to calculate the volume of a box with a width of two feet, a height of 22 inches, and a depth of 45 centimeters, the first step is to decide on a unit of measurement (say, inches), then convert all dimensions to that unit (24” x 22” x 18”).

Some models use different language for essentially the same phenomena (e.g., skills/knowledge versus training). In these cases, I chose one consistent term. Also, others take the negative perspective (reasons humans don’t perform, e.g., lack of skills and knowledge) versus the positive stance (solutions a human performance technologist must consider, e.g., training). For simplicity, I converted each model into positively-stated language.

Gilbert. Tom Gilbert offers a performance matrix. In the third of three dimensions (“Methods of Improvement”), he suggests that a human performance technologist is:

“...using the behavior engineering model to analyze the alternative ways we might make the pursuit of accomplishments more efficient, looking at:

- environmental methods;
- people programs; and
- management actions.”

David Wile is a performance technologist with Blue Cross and Blue Shield of Massachusetts, trying to nudge paradigms from knowledge to information retrieval and from paper to electronic media. He has a Master’s degree in instructional and performance technology from Boise State University. He may be reached in Boston at (617) 832-7653. 
A slight translation results in a model that attributes HP to three factors as shown in Figure 1.

Rossett. Allison Rossett proposes a model of “Causes of Performance Problems.” She lists the kinds of causes as:
• lack of skill and/or knowledge;
• flawed incentives;
• flawed environment; and
• lack of motivation.

Paring down the language and converting from a negative to a positive focus, Rossett’s model attributes performance to the four factors as shown in Figure 2.

Harless. Joe Harless, as part of his front-end analysis workshop titled, “Accomplishment-based Curriculum Development (ABCD),” offers an HP model that asks participants to:

“Think of the ABCD process as belonging to a larger field, performance technology:
• ABCD (‘training’);
• personnel selection;
• environmental engineering; and
• motivation-incentives.”

By simply altering the language, this model becomes normalized to HP as the four factors shown in Figure 3.

Spitzer. Dean Spitzer writes, “It has been found that there are seven major factors that underlie human performance....” With my slight twist on his language, he presents the seven HP factors as described in Figure 4.

Mager. Robert Mager presents a checklist titled, “Why People Don’t Do What They’re Expected to Do.” This checklist is meant less for a human performance technologist to use in solving HP problems than to explain HPT to clients, yet it forms a distinctly varied HP model.

As shown in Figure 5, the ninth (“‘They’re punished...’”) and tenth (“‘They’re rewarded...’”) items are essentially inverses of each other, so I’ve combined them, reducing the model to 10 factors. I’ve also converted the language from negative to positive.

Model Reconciliation

Our five authors are on different points along a continuum. One extreme of this continuum (Gilbert) implies that HP factors are best covered with a few categories broad enough to account for the entire domain. The other end (Mager) implies that domain is best accounted for by more categories.

For comparison, I’ve arranged these five models in one matrix, shown in Figure 6.

Despite an attempt to normalize the models, they clearly do not match perfectly. Some questions arise as follows:
• Would Gilbert place feedback systems in his environment, management, or people factors? A case can be made for each.
• What do Rossett and Harless really mean by environment: tools and resources, organizational structures, or both?
• How would Spitzer define job aids: as tools/resources or skills/knowledge?
• Where would Mager place inherent abilities? He doesn’t seem to account for performers’ natural abilities.
A New Model

Figure 7 is my model of HPT, a synthesis of the models I’ve discussed so far. This is a model that has helped to assess performance problems and explain those assessments to my clients.

Starting at the top of the model, I first divide the entire domain of elements required for HP into those that are either external or internal to the performer. For the sake of organization, think of external elements as those that occur outside the performer’s body (e.g., tools, work spaces, managers) and internal elements as those inside the performer’s body (e.g., the brain, nervous system, musculature).

I’ve further divided those external elements into a performer’s environment (intangible elements you can’t see or touch) and a performer’s resources (tangibles you can see, touch, or otherwise sense).

Finally, those divisions shake out into seven more or less discrete HP elements (in Figure 7, the boxes numbered one through seven). Under each box, I list several examples of each element.

1. Organizational systems include elements such as:
   • policies, procedures, rules, laws;
   • job/task design;
   • logical reporting systems within an organization;
   • departments or divisions that depend on others being clearly aligned;
   • clearly communicated performance goals;
   • authority to perform;
   • matching a person to the right job;
   • appropriate workloads; and
   • secretarial and support staffing.

2. Incentives include:
   • financial or material compensation;
   • feedback (positive reinforcement); and
   • interesting, meaningful work.

3. Cognitive support includes:
   • job aids and
   • documentation.
4. Tools include any physical items (other than cognitive support) that a performer needs to perform. The list is endless, including such varying examples as:
- computers;
- software;
- pencils;
- fork-lifts;
- shovels;
- hair-nets; or
- chain saws.

5. Physical environment includes such tangibles as:
- temperature;
- light;
- noise; and
- logical physical layout (e.g., a warehouse bay door being the right height for incoming trucks, a fax machine closest to the person who does the most faxing).

6. Skills/knowledge includes:
- stand-up training;
- education;
- self-study programs;
- on-the-job training; and
- mentoring and/or coaching.

7. Inherent abilities includes abilities a person is born with. These are performance factors a human performance technologist has little, if any, ability to change. They include:
- physical ability to perform (e.g., being strong enough for the job);
- intelligence;
- emotional ability to perform; and
- internal motivation (e.g., the satisfaction a person feels with doing a job well or the rush a rock climber gets just conquering the summit of a mountain).

Some features of this new model are highlighted below.

Categories and Subcategories. The model provides important relationships between the various performance elements of the five models. What one model deems a performance element, another model uses a mere example of a performance element that is part of a larger group. For example, Spitzer cites job design as a discrete element, while

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Figure 7. A new HPT Model
Mager says job design is part of organizational systems. This model clearly shows what is a category and what is merely an example within a category.

**Performance Problem Priorities.** If you were to rank the seven elements in this new model according to how often they are part of the performance problem, how would the prioritized list look? I wonder whether it might not resemble the numbers as they appear in the model. Are organizational systems most often part of the problem, and are incentives next, and are inherent abilities least likely to be a problem? My guess is it's close.

A ranking like this stands to reason. Problems are frequent partly because they are hardest to solve. It's reasonable that intangible problems are harder to solve than tangible problems and that organizational problems are harder to pin down than those internal to an individual performer.

**Capacity versus Selection versus Inherent Abilities.** This model prefers to term factor #7 as *inherent abilities*, not *capacity* (Spitzer) or *selection* (Harless). *Selection* infers there is a problem with a manager's selection of the right person. That would really be an organizational systems issue. *Inherent abilities* properly identifies the performer's inherent ability to perform. Again, inherent abilities are rarely the problem except in extreme cases. For instance, my 93-year-old grandmother doesn't have the ability to lift crates onto a loading dock. A quadriplegic will not have the ability to be a great bullfighter. A convicted rapist probably doesn't have the ability to provide therapy to sexual abuse victims because client trust, key in therapy, would always be low. In these cases, all the training, job aids, compensation, and feedback won't help.

**Motivation: External versus Internal.** Motivation is treated in two separate ways in this model. Factor #2, *incentives*, includes the traditional motivational factors such as feedback, money, and interesting work. These elements are categorized as external to the performer because a manager or organization can provide these for a performer and will have a high degree of control of how they are deployed. Conversely, factor #7, *inherent ability*, includes motivation internal to the performer. This is motivation of a different type, the feeling of satisfaction we get for performing successfully. For example, I may be motivated to grow the perfect tomato in my garden on the weekends, and that has nothing to do with a salary or perhaps even what anyone else thinks of my tomatoes (feedback).

**Environment.** This new model also reconciles the nebulous category of environment as other models use it. As it is used in this model, *environment* clearly means those things a performer needs to perform that are outside of the performer's mind and body, but that are intangible. Environment is solely the organization in which a performer performs plus those elements that "inspire" a performer to perform.

**To Saw or Not To Saw.** This model echoes Gilbert's discussion of whether a tool is part of performance, i.e., is a saw a part of the performance of sawing? This model says yes, it is. The first division of this new model has two halves: elements external to the performer (e.g., a saw) and elements internal to the performer (e.g., the ability to saw).

**Cognitive Support Is Not Training.** This model pulls out *cognitive support* (job aids, documentation) as a discrete performance element, separate from elements like training and education. Often, cognitive support is lumped in with either *tools* or *skills/knowledge*. Here, though, by being discrete, we see that cognitive support can alone solve performance problems without changing a performer's tools or (gasp!) teaching him or her anything new.

**A Book Is a Book.** The distinction between the middle three external, tangible elements (cognitive support, tools, and physical environment) depends on how an item is used. How would a book be categorized? If you look up job aid information in the book it's a cognitive support. If you use the book to hammer in a nail, it's a tool. If you use it to prop open a window and let in fresh air, it might be considered a physical environment performance support.

**How a Human Performance Technologist Can Use the New Model**

Whereas the five models analyzed earlier are one-dimensional (i.e., lists of elements), the model in Figure 8 displays a hierarchy of elements. A human performance technologist has the option of explaining HP to clients at three different levels.

For some clients, it may be enough to discuss solutions at the top level of this model: external versus internal or environment versus resources. I've found that most clients are comfortable with discussing solutions at the "seven elements" level, but some learning styles are accommodated by treating the elements as seven discrete factors while others prefer the seven elements categorized in the external (intangible) / external (tangible) / internal groupings. Still,

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**Figure 8. Three Levels of Consulting Language**

<table>
<thead>
<tr>
<th>If client is...</th>
<th>You might say something to this effect...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big picture</td>
<td>&quot;My needs assessment indicates we need to concentrate mainly on external-intangibles as solutions for your organization.&quot;</td>
</tr>
<tr>
<td>Mid-range</td>
<td>&quot;My needs assessment indicates your employees would benefit from improved incentives with some possible improvement also in the cognitive support area.&quot;</td>
</tr>
<tr>
<td>Concrete solutions</td>
<td>&quot;My needs assessment indicates you could benefit from a better compensation set-up, formalized feedback systems, and better job aids.&quot;</td>
</tr>
</tbody>
</table>
some clients need a larger domain in which to discuss HP solutions, so this model allows a human performance technologist to go down to the “examples” level and communicate with clients about discrete solutions. I’ve labeled each of these three families of clients in Figure 8, along with an example of how a human performance technologist might cite this model with them.

A quick survey of my internal clients tells me that at least 80% are at the “concrete solution” level. In fact, I would only dare approach one or two at the “mid-range” level and wouldn’t really use “big picture” language with any of them.

There has been discussion in instructional design circles of objectives for use in client communication versus objectives from which instruction can be designed. It may be reasonable to use instructional objectives that do not conform to Mager’s three-part objective or the Gagne/Briggs/Wager five-part objective to communicate with clients.

For example, instruction can be designed based on this objective:

Given 10 simulated client questions about the 5090 copier, sales staff will provide answers to the satisfaction of a panel of judges all 10 times.

However, “answer all client questions about the new 5090 copier” may be enough for clients to know what the instruction is going to do, even though a designer cannot design instruction from it.

Likewise, this HP elements model gives a human performance technologist a choice of which level to use based on the purpose or audience. As discussed earlier, “big picture” clients may only be concerned with whether the problem is external or internal. However, that knowledge alone is not enough for a human performance technologist to plan solutions. In creating HP solutions, the seven elements can be used as an ordered checklist of performance gaps.

Furthermore, an argument can be made that this list is cumulative; solving a gap for any element is useless unless there are no problems with any of the elements to the left of it in the “performance continuum.” For example, don’t bother designing new job aids until organizational systems are fixed. Or don’t bother training until you have a solid feedback system in place.

References


Hi, Guy,

Good New Year to you!!!
Hope this finds you doing well. Things are getting back to some level of calm here in the New Mexico world.
Fred and I are okay.

As promised, I had an opportunity to review all the notes sent by Ray related to the meeting in Las Vegas. Overall, I think things are looking great!!
I have one perception and perhaps its more of a question than anything - or I could be way off. What this means is that if you have already thought of this - or I'm off base - it's okay with me - this is just a perception.

Here goes:
If one of the purposes of this process is/was to help differentiate HPT form other similar things (or similar processes) and/or to show the relationship with others - I'm not seeing how this will help. It shows that all are subsets of HPT - such things as 'quality' or 'OD'. We might suggest where in all this each of these groups might operate. For example, OD people work at the Org. level - not necessarily at the performance level (see the matrix in the notes). Might be 'cool' to have a matrix or job aid that highlights where the others come from/operate.
I'm realizing that I have no way in this email to give you a picture of what I have in mind. But, if I looked at the Matrix Framework on page 9 of the notes - taking this one step further would identify at what point in this matrix each of these other processes works. OD across the top line and usually within the context of the Conditions and Input sections. Few OD folks go beyond these boxes to go all the way across and work with the feedback/outcomes etc.
Another example: Quality. Most experts in Quality work on the Operational System Line with the Process and Outcomes boxes - they seldom get to the next line related to Performers.

I'm hoping this makes some level of sense.

Thank you for giving me the opportunity to review the notes.
I'm truly sorry I missed the event.
Looking forward to your visit to New Mexico.

Char