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What Should Instructional Designers & Technologists Know About Human Performance Technology?

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ABSTRACT

Human performance technology (HPT) is having a significant impact on the field of instructional design and technology (IDT), and many IDT graduate programs now offer training in HPT to their students. However, some IDT programs may be struggling with the extent to which they should incorporate the principles and techniques of HPT into their courses. To provide some determination of which specific skills and competencies in HPT graduates of IDT programs should have, an online survey was administered to 24 IDT faculty members and 45 members of local chapters of the International Society for Performance Improvement and the American Society for Training and Development. Respondents rated the importance of HPT competencies for graduates of IDT programs. Results suggest strong support for the inclusion of HPT concepts in the curricula of IDT graduate programs. Implications of these results for IDT graduate programs, as well as for distinguishing HPT as a field of specialization separate from IDT, are discussed.

Human performance technology (HPT) can be defined as "…a process of selection, analysis, design, development, implementation, and evaluation of programs to most cost-effectively influence human behavior and accomplishment" (International Society for Performance Improvement, 2002). It is an approach descended from systems theory, behavioral psychology, and instructional systems design (Rosenberg, Coscarelli, & Hutchison, 1999). Advocates of HPT encourage those working in the field of instructional design and technology (IDT) to conduct broader analyses of performance and organizational systems. From the perspective of HPT, instruction or training is but one of many solutions available to improve human performance, and analysts should thus be prepared to consider, design, implement, and evaluate an increasingly varied array of non-instructional performance interventions.

The HPT movement is having a significant impact on IDT (Reiser, 2001), and many IDT graduate programs have begun offering courses, special concentrations, or certificate programs in HPT. A recent review of the degree requirements and course offerings at 11 well-established IDT graduate programs revealed that eight of them offer at least one course specifically on HPT, and three offer more than one HPT course (Fox & Klein, 2002). In some IDT programs, even the core instructional design

courses have assumed an HPT orientation (Dick & Wager, 1998). A survey administered to faculty members in a variety of academic programs (including programs in IDT, human resource development, adult learning, business, management, and communications) showed that many HPT topics are addressed in the curricula of these programs, providing additional evidence for the emerging awareness of HPT in academia (Medsker, Hunter, Stepich, Rowland, & Basnet, 1995). Although most HPT courses in graduate IDT programs are offered as an elective (Fox & Klein, 2002), it is clear that IDT faculty consider it important to offer their students some training in HPT.

The increased emphasis on HPT concepts and principles in IDT graduate programs is not surprising, considering the strong relationship and obvious similarities between the two fields. Given their traditional focus on training solutions, however, some IDT programs may be struggling with the extent to which they should expand their curricula to focus on HPT (Dick & Wager, 1998). Furthermore, while the desired knowledge and skill sets of HPT practitioners has received some attention (e.g., Stolovitch, Keeps, & Rodrigue, 1999), as have the IDT competencies for instructional designers and trainers (e.g., International Board of Standards for Training, Performance, & Instruction, 2002; Richey, Fields, & Foxon, 2001), it is less clear which specific HPT skills graduates of IDT programs should have. Concerns about the level of HPT knowledge required by instructional designers and technologists, the degree to which a program can provide adequate training in both IDT and HPT, and the wisdom of broadening the field's scope to include issues addressed by several other disciplines (such as human resources development, business management, and industrial/organizational psychology) are likely shared by many IDT faculty members. These are difficult and important issues, and how they are addressed will help shape the future of both IDT and HPT.

The present study was conducted to provide a better understanding of what instructional designers and technologists should know about HPT. Such knowledge could provide guidance to IDT graduate programs seeking to prepare their graduates for today's workplace and illuminate issues relevant to how professionals in both HPT and IDT are trained. To achieve these goals, a survey was developed to assess the attitudes and beliefs of professionals in the two fields about the HPT competencies graduates of IDT programs should have. The survey was administered to faculty members at IDT graduate programs throughout the United States, as well as members of local chapters of two professional societies.

Method

Participants

IDT faculty members. One hundred one (101) faculty members from IDT graduate programs at Arizona State University, Boise State University, Florida State University, Indiana University, Pennsylvania State University, San Diego State University, Syracuse University, University of Georgia, University of Northern Colorado, Utah State University, and Wayne State University were invited via email to complete a web-based survey. Twenty-four fac-

ulty from nine different universities responded to the request, indicating a 24% response rate. Thirteen of these respondents were male (54%), 10 were female (42%), and one did not indicate his or her gender. Most of the faculty members (83%) indicated that they had more than 10 years of experience in IDT, and the vast majority (92%) rated their knowledge of IDT as "advanced." Only 10 (42%) of the faculty respondents had more than 10 years of experience in HPT, and another 10 (42%) reported having 5 or fewer years of experience. Most rated their knowledge of HPT as either intermediate (50%) or advanced (46%).

Members of ISPI and ASTD. Members of the central Arizona chapters of the International Society for Performance Improvement (ISPI) and the American Society for Training and Development (ASTD) were also asked via email to complete the survey. Forty-five members of these organizations responded to the request. The overall return rate for this group cannot be calculated because contact was initiated via a listserv email message, and the total number of subscribers to the listserv was not available. It was estimated by a representative from the ISPI chapter, however, that several hundred members subscribe to the listserv. Of the 45 respondents, 29 were female (64%) and 16 were male (36%). Most rated their knowledge of IDT to be intermediate (31%) or advanced (51%), and their knowledge of HPT to also be intermediate (38%) or advanced (44%). Members varied widely in their professional experience. With regard to years of experience in IDT, 11% reported having no experience, 22% reported 5 or fewer years, 18% reported 6-10 years, 22% reported 11-15 years, 16% reported 16-20 years, and 11% reported 20 or more years. For years of experience in HPT, 11% reported having no experience, 31% reported 5 or fewer years, 20% reported 6-10 years, 18% reported 11-15 years, 11% reported 16-20 years, and 9% reported 20 or more years.

Given their traditional focus on training solutions, however, some IDT programs may be struggling with the extent to which they should expand their curricula to focus on HPT.

Survey Instrument

The HPT Competencies for Instructional Technologists Survey was a web-based instrument consisting of 44 Likert-type items and one open-ended question. Respondents received the following directions at the beginning of the survey: "Please rate how important you believe it is for graduates of instructional systems/design/technology graduate programs to have each of the competencies listed below." Each Likert-type item consisted of a skill or competency for which respondents were asked to choose a rating from *not important* (scored as a 1) to *very*

important (scored as a 4). The open-ended question asked respondents to provide any additional skills or competencies in HPT (not addressed on the survey) that they believed instructional technology graduates should have.

The competencies listed on the survey were based primarily on a document analysis of the major topics and themes in the *Handbook of Human Performance Technology* (Stolovitch & Keeps, 1999) and the content and competencies of the syllabi for HPT courses offered by several IDT programs. Rather than list the dozens and dozens of possible performance interventions on the survey, some of the general intervention categories presented by Hutchison and Stein (1998) were used in constructing the competencies. For each intervention category, two items were written: one addressing knowledge of interventions in that category, and the other addressing skill in developing and implementing the interventions in that category. This distinction between knowledge and skill was made because interviews with faculty members revealed that some believe it is important to be aware of a wide range of performance interventions, but that skill in actually developing and implementing all of the interventions is not necessary.

Results

Respondents to the HPT Competencies for Instructional Technologists Survey deemed most of the competencies to be at least "somewhat important" for graduates of instructional technology programs, and the two respondent groups (ISPI/ASTD members and IDT faculty) rated most of the items similarly. Table 1 displays the means scores for each of the survey items, listed in order of highest to lowest overall mean, with scores calculated using the Likert-type scale: 4 for a rating of *very important*, 3 for a rating of *important*, 2 for a rating of *somewhat important*, and 1 for a rating of *not important*.

Independent *t*-tests were conducted on each of the 44 survey items to test for significant differences between the two respondent groups. With an alpha level of .05 and using the Bonferroni correction procedure to compensate for the large number of comparisons, significant differences between the two groups were found for only 2 of the 44 items. The competencies for which significant differences were found include "develop and implement a variety of performance interventions in the area of career development" and "develop and implement a variety of performance interventions in the area of job and workflow." The members of ISPI and ASTD rated both of these items as more important (M=2.6 and M=3.3, respectively) than did the IDT faculty (M=1.9 and M=2.7, respectively). It should be noted, however, that the Bonferroni test compromises the power of an analysis, and some statisticians do not recommend any special corrections for a reasonable number of planned comparisons (Keppel, 1991). Without the Bonferroni correction in the present analysis, significant differences between the ratings of the two respondent groups were found for 10 additional items. Of these additional items, 3 addressed knowledge of performance interventions, 6 addressed skill in developing and implementing performance interventions, and 1 addressed knowledge about the history

Table 1
HPT Competencies for Instructional Technologists
Survey Mean Ratings

Rank Number	Item Statement	ISPI/ ASTD Members (n=45)	IDT Faculty (n=24)	Overall Mean (n=69)
1	Distinguish between performance problems requiring instructional solutions and those requiring non-instructional solutions	3.87	3.96	3.90
2	Conduct a performance analysis for a specific situation to identify how and where performance needs to change (the performance gap)	3.82	3.79	3.81
3	Evaluate a performance improvement intervention to determine whether or not it solved the performance problem	3.86	3.63	3.78
4	Conduct a cause analysis for a specific situation to identify factors that contribute to the performance gap	3.78	3.64	3.74
5	Select a range of possible performance interventions that would best meet the need(s) revealed by the performance and cause analyses	3.76	3.63	3.72
6	Assess the value of a performance improvement solution (in terms of return on investment, attitudes of workers involved, client feedback, etc.)	3.74	3.54	3.67
7	Define and describe human performance technology	3.58	3.75	3.64
8	Identify and implement procedures and/or systems to support and maintain performance improvement interventions	3.60	3.38	3.52
9	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of measurement and evaluation	3.59	3.35	3.51
10	Develop and implement a variety of performance interventions in the area of measurement and evaluation	3.53	3.42	3.49
11	Describe the general model of human performance technology (the systematic combination of performance analysis, cause analysis, and interventions selection)	3.49	3.42	3.46
12	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of instructional technology	3.40	3.46	3.42
13	Develop and implement a variety of performance interventions in the area of instructional technology	3.40	3.46	3.42
14	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of feedback	3.33	3.38	3.34

Table 1
(continued)

15	[b] Describe and be familiar with (NOT implement) a variety of performance interventions in the area of job and workflow	3.40	2.92	3.22
16	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of organizational design and development	3.25	3.17	3.22
17	Develop and implement a variety of performance interventions in the area of feedback	3.33	3.04	3.22
18	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of communication	3.23	3.08	3.18
19	Develop and implement a variety of performance interventions in the area of organizational design and development	3.26	3.00	3.16
20	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of quality improvement	3.24	2.96	3.14
21	[a, b] Develop and implement a variety of performance interventions in the area of job and workflow	3.35	2.67	3.10
22	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of reward/recognition	3.17	2.78	3.03
23	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of information	3.05	3.00	3.03
24	Develop and implement a variety of performance interventions in the area of quality improvement	3.14	2.71	2.98
25	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of documentation and standards	3.09	2.75	2.97
26	[b] Develop and implement a variety of performance interventions in the area of communication	3.12	2.61	2.94
27	Develop and implement a variety of performance interventions in the area of information	2.98	2.87	2.94
28	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of human development	3.05	2.67	2.91
29	[c] Describe the history and conceptual underpinnings of human performance technology	2.62	3.13	2.80
30	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of management science	2.90	2.59	2.80

Table 1
(continued)

31	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of resource systems	2.91	2.59	2.80
32	[b] Describe and be familiar with (NOT implement) a variety of performance interventions in the area of selection	3.02	2.42	2.80
33	[b] Develop and implement a variety of performance interventions in the area of documentation and standards	3.02	2.42	2.80
34	[b] Develop and implement a variety of performance interventions in the area of reward/recognition	3.00	2.33	2.75
35	Identify the similarities and differences among a variety of specific performance technology models	2.82	2.54	2.72
36	Describe a variety of specific performance technology models (e.g., those of Mager, Harless, Rummler & Brache, Tosti & Jackson, Langdon, etc.)	2.70	2.71	2.71
37	[b] Develop and implement a variety of performance interventions in the area of human development	2.88	2.42	2.71
38	[b] Describe and be familiar with (NOT implement) a variety of performance interventions in the area of career development	2.73	2.30	2.58
39	Develop and implement a variety of performance interventions in the area of management science	2.66	2.43	2.58
40	Describe and be familiar with (NOT implement) a variety of performance interventions in the area of ergonomics	2.60	2.52	2.57
41	[b] Develop and implement a variety of performance interventions in the area of selection	2.82	2.13	2.56
42	[b] Develop and implement a variety of performance interventions in the area of resource systems	2.73	2.22	2.55
43	[a, b] Develop and implement a variety of performance interventions in the area of career development	2.62	1.88	2.35
44	Develop and implement a variety of performance interventions in the area of ergonomics	2.32	1.96	2.18

Note. 4=very important, 3=important, 2=somewhat important, 1=not important

[a] Ratings of ISPI/ASTD members are significantly higher than the ratings of IDT faculty when analyzed with the Bonferroni correction procedure.

[b] Ratings of ISPI/ASTD members are significantly higher than the ratings of IDT faculty when analyzed without the Bonferroni correction procedure.

[c] Ratings of IDT faculty are significantly higher than the ratings of ISPI/ASTD members when analyzed without the Bonferroni correction procedure.

and conceptual underpinnings of the field (see Table 1). The ISPI/ASTD members ranked all of these performance intervention items higher than did the IDT faculty, while the IDT faculty rated the item about historical and conceptual knowledge of the field higher than the ISPI/ASTD members. Due to the largely similar responses of the two groups, only the means of the combined scores of the two groups will be examined and utilized in the analyses below.

As a group, the 16 performance intervention knowledge items (M=3.05) were found to be rated significantly more important than the 16 performance intervention skill items (M=2.87) using a paired-sample t-test and an alpha level of .05. For the individual performance intervention items, paired-sample t-tests with a Bonferroni correction revealed a significant difference between the knowledge score and the skill score only for the questions about interventions in the area of ergonomics. Without the Bonferroni correction, significant differences were also found for the 6 sets of questions about interventions in the areas of career development, communication, human development, resource systems, reward/recognition, and selection. With each pair of performance interventions items for which a significant difference was found (with or without the Bonferroni), knowledge of the intervention area was rated higher than skill in the intervention area.

All of the items received an overall mean score of at least 2.0, corresponding to a ranking of *somewhat important*. In addition, 23 of the 44 competencies received an overall mean score of 3.0 or higher, indicating an average ranking between *important* and *very important*. The competency rated the most important overall was "distinguish between performance problems requiring instructional solutions and those requiring non-instructional solutions" (overall M=3.90), followed by "conduct a performance analysis for a specific situation to identify how and where performance needs to change (the performance gap)" (overall M=3.81). The remaining highly-rated competencies cover all phases of the performance improvement process, including performance analysis, cause analysis, intervention selection, intervention implementation, and performance evaluation. The two lowest-rated items were "develop and implement a variety of performance interventions in the area of ergonomics" (overall M=2.18) and "develop and implement a variety of performance interventions in the area of career development" (overall M=2.35). Interestingly, the competencies associated with knowledge of different HPT models ("describe a variety of specific performance technology models" and "identify the similarities and differences among a variety of specific performance technology models") did not receive mean scores above 3.0 (although the means for both did rank somewhere between *somewhat important* and *important*).

Only 28 of the 69 total respondents provided an answer to the survey item asking if there were any additional skills or competencies in HPT they believed instructional technologists should have, and there was a great deal of variability in their answers. A number of them listed skills which were relatively vague and did not seem to be specific to HPT, such as

"interpersonal skills," "organizational and diplomatic skills," and "cultural sensitivity." General topic areas that were mentioned by several of the respondents included communication and writing, project management, the systems approach, computer technology, and needs assessment.

Discussion

Overall, this sample of professionals and academics in the fields of IDT and HPT felt that graduates of IDT programs should have a broad knowledge of HPT and the performance improvement process. Every single competency listed on the survey received an overall mean rating of at least *somewhat important*, and over half of the items were rated as *important* or higher. These results indicate strong support for the incorporation of HPT concepts and techniques into the curricula of IDT graduate programs.

Overall, this sample of professionals and academics in the fields of IDT and HPT felt that graduates of IDT programs should have a broad knowledge of HPT and the performance improvement process.

Many of the highly rated competencies reflect skills and knowledge that are likely already addressed in most IDT programs. The two highest-rated competencies, for example, are both closely related to traditional training needs assessment, a staple of most IDT curricula. Some of the highly rated competencies, however, probably do not receive extensive coverage in most IDT programs. Competencies such as "select a range of possible performance interventions that would best meet the need(s) revealed by the performance and cause analyses" and "identify and implement procedures and/or systems to support and maintain performance improvement interventions" may not be emphasized in many IDT programs, particularly in those that do not offer HPT courses. In addition, many of the competencies related to specific performance interventions are probably not covered outside of courses focusing specifically on HPT. Since most IDT programs do not require HPT courses of their students, there may be numerous discrepancies between the curricula being offered by these programs and the competencies the respondents to this survey consider important.

Not surprisingly, the lowest-rated competencies were those involving the development and implementation of specific performance interventions, such as ergonomics or career development. It is also not surprising that the competencies focusing on knowledge about performance interventions were generally rated as more important than the competencies focusing on skill in developing and implementing the interventions. Most professionals rec-

ognize that "practitioners are not expected to be experts in all categories and subcategories of interventions" (Van Tiem, Moseley, & Dessinger, 2000, p. 64), and that the expertise of other members of an organization will often be called upon to implement interventions. Nevertheless, the relatively high ratings for all of the survey items indicates that those working in IDT and HPT consider it important for instructional designers and technologists to be at least familiar with a variety of performance improvement interventions.

Despite its limited sample size, the present study clearly reveals some support in both academia and industry for training IDT students in the principles and methods of HPT. Additional research extended to a larger sample of the professional population would be useful, particularly for better illuminating any discrepancies that may exist between the attitudes toward HPT of academics and those of training and performance specialists working in industry. Updated and detailed analyses of the degree to which HPT is currently covered in the curricula of graduate programs in IDT and relate disciplines, such as the one conducted by Medsker et al. (1995), would also be valuable. It is also likely that HPT is emphasized more in IDT programs that focus on adult learning and corporate training systems than in IDT programs that focus on instructional development and technology integration in elementary and secondary education, and an analysis of this possible distinction would be helpful. Further, much could be gained from studying the practices and attitudes of IDT programs that already place considerable emphasis on HPT. Understanding the details of how and why these programs extended their curricula, and the perceived or actual advantages of their doing so, may provide valuable guidance to other IDT graduate programs seeking to update and revise their own curricula.

The findings of the present study also contribute to the confusion that frequently surfaces in distinguishing HPT from other fields, such as IDT (Stolovitch, Keeps, & Rodrigue, 1999). If IDT programs continue incorporating more and more of the HPT perspective into their curricula, and if IDT programs are one of the primary sources for graduate-level training in HPT, is it truly useful to view HPT as a separate field of specialization from IDT? Is it more appropriate to speak of IDT as a subset of HPT, as some suggest (Hutchison, 1990)? Some in IDT also wonder whether IDT programs can handle the additional responsibilities of teaching HPT or if such programs will need to be split into more specialized areas (Dick & Wager, 1998). If IDT programs do *not* expand their curricula to include more extensive coverage of HPT, what implications would this have for individuals seeking to receive professional training in HPT? These questions will likely figure prominently in the future of instructional design and performance improvement. While it is not known whether IDT and HPT will continue to evolve as separate fields that simply have considerable overlap in goals and methods or whether they will merge into a single, broader discipline, it is clear that professionals in both fields need to be aware of these important issues and trends.

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