University of Kentucky Engaging Differences Project: Providing Information about Accommodations On Line and Just in Time

Kristina M. Krampe

William H. Berdine

University of Kentucky

Abstract

The University of Kentucky Engaging Differences (UK-ED) project focused on developing, evaluating, and disseminating a web-based performance support system (WPSS) to enhance accommodations provided by personnel at the University of Kentucky (UK), the Lexington Community College (LCC), and the Kentucky Community and Technical College System (KCTCS). The project was completed in three phases: (a) knowledge base development, (b) development of a prototype of the WPSS for use at UK and LCC; and (c) validation of the UK-ED WPSS for use at KCTCS. The WPSS components and activities conducted within each phase are described. Results suggested that the WPSS allowed users to effectively and efficiently locate information. In addition, all users' perceptions of the systems were positive.

As a part of the 1999 Demonstration Projects to Ensure Students with Disabilities Receive a Quality Higher Education Program, the Office of Postsecondary Education funded the University of Kentucky Engaging Differences project (UK-ED) to develop, evaluate, and disseminate a web-based performance support system (WPSS) designed to enhance the accommodations provided by academic administrators (i.e., chancellors, deans, departmental chairs), instructional employees (i.e., faculty and teaching assistants), and auxiliary service administrators (i.e., housing, recreation, transportation, food services) at the University of Kentucky (UK), the Lexington Community College (LCC), and the Kentucky Community and Technical College System (KCTCS).

The goal of such a system is to support and enhance performance by providing the knowledge required by a given task at the time when it is being performed (Cole, Fischer, & Saltzman, 1997; Desmarais, Leclair, Fiset, & Talbi, 1997; Laffey, 1995). Thus, it should be designed in such a manner that it makes the user competent in the work environment, fits together as a whole, provides integrated

information that is contextually relevant, facilitates collaboration among workers, and is able to grow with technological advances. In recent years, the World Wide Web (WWW) has been used to build educational performance support systems (Bannan-Ritland, Egerton, Page, & Behrmann, 2000; Carr & Carr, 2000; Dunlap, n.d.; Kirkley & Duffy, 1997; Northrup, Pilcher, & Rasmussen, 1998). While WPSSs in educational environments have been described, there is no empirical research about their use in such environments. Hence the development of the project described here.

Methods

The UK-ED project was completed in three phases: (a) knowledge base development prior to development of the UK-ED WPSS; (b) development, evaluation, and dissemination of the prototype for use at UK and LCC; and (c) validation, revision, and dissemination of the UK-ED WPSS for use at KCTCS. Since these activities are cumulative, the results of these activities will be discussed within the phase they were conducted.

Phase I: Knowledge Base Development

During the first year of the project, a main objective was to develop a knowledge base of best practices related to the provision of a high-quality education to students with disabilities at the postsecondary level. Two activities were conducted to develop this knowledge base: (a) a web-based survey and (b) focused interviews.

Web-based survey. In spring 2000, a web-based survey was conducted with personnel on the UK and the LCC campuses (Sheppard-Jones, Krampe, Danner, & Berdine, 2002). Three versions of the survey were developed with questions specific to the job duties of administrators, faculty, and auxiliary service personnel, respectively. Each of the three versions also contained a common core of questions regarding knowledge of specific disability issues, services, and etiquette.

A request to complete the web-based surveys was sent to 18,754 staff via an e-mail message or printed flyer, with a return of 2,130 surveys. Auxiliary services personnel submitted the majority of the responses (1,569); this group also represents the largest percentage of university staff. Instructional staff completed 423 surveys, followed by administrators with 138 responses. Table 1 provides a summary of response rates for the web-based survey.

Respondents' level of knowledge of disability issues and services at the postsecondary level varied widely. For example, administrators indicated having higher knowledge overall, particularly regarding legal

issues and campus disability services. As expected, faculty professed having more knowledge of instructional accommodations than the other two groups of respondents. Finally, auxiliary services staff, comprising a wide array of job classifications, included the highest percentage of respondents with current knowledge in the area of etiquette, including person-first language, attitudinal barriers, and specific interaction recommendations.

Although the responses were classified according to the job category of the individual, common threads could be seen across the groups. Respondents indicated having some general knowledge of disability topics, but presented a lack of particular knowledge related to accessing accommodations. The results indicate a repeated need for specific, timely information on an as-needed basis. There also is a need for greater understanding of both available campus resources and general resources that may be helpful to students with disabilities. Responses to penended questions consistently stated that any additional information in the area of disability issues would be welcome.

Focused interviews. In addition to the web-based survey, 52 participants participated in a qualitative study through e-mail, individual, and small-group interviews during spring 2000 (Jensen, McCrary, Krampe, & Sheppard-Hones, 2000). Participants included 23 academic administrators, 12 auxiliary service administrators, 8 instructors, and 9 students with disabilities. The interview transcripts were analyzed

Web-Based Survey Response Rates

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	Academic Administrator	Instructional Personnel	Auxiliary Services Staff	Aggregate
E-mails Sent	378	2,302	7,796	10,476
E-mail Response Rate	36.5	17.0	17.8	18.3
Fliers Sent	18	733	7,527	8,278
Flier Response Rate	0	4.4	2.5	2.6
Total Sent	396	3,035	15,323	18,754
Total Response Rate	34.8	13.9	10.2	11.4

Table 1

Note. The response rates represent percentages.

by means of open and focused coding by four members of the research team (Emerson, Fretz, & Shaw, 1995). As part of this process, several significant themes emerged that transcended organizational and individual differences and served as organizing principles for the design phase of the project.

Briefly, most of the faculty in the study indicated that they wanted to meet their responsibilities as teachers, but were unclear as to what "reasonable accommodation" means in the college classroom. Furthermore, some questioned whether providing accommodations for students with disabilities, in some ways, means providing remediation as well.

A number of sources noted that the campus is disconnected and lacks institutional mechanisms for sharing resources and information. For example, while most of the participants believed that there is a written policy regarding students with disabilities, they were unsure or unaware of institutional procedures or regulations. Overall, the strongest sentiment expressed involved the need for better training and more consistent application of accommodations.

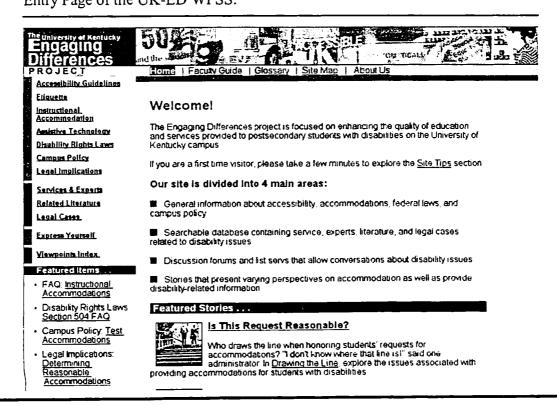
Phase II: UK/LCC WPSS Development, Evaluation, and Dissemination

Based on the needs assessment activities described above, the following topical areas were identified for inclusion: (a) physical accessibility, (b) etiquette, (c) instructional accommodations, (d) assistive technology, (e) legislation, (f) policy, (g) relevant court cases, (h) services, (i) experts, and (j) related literature. In addition, campus personnel indicated that there was a need for didactic information, there were negative attitudes and biases about accommodation, and there was a lack of connectedness.

Components of the UK-ED WPSS. To address these topical areas and identified needs, project staff employed four presentation formats: (a) Info Pages to provide didactic information; (b) Info Search to allow users to find services, experts, and related literature; (c) Info Exchange to allow discussions among postsecondary personnel; and (d) Viewpoints to allow users to explore attitudes and biases. Figure 1 illustrates the entry page to the UK-ED WPSS [http://www.uky.edu/TLC/grants/uk_ed/]

Figure 1.

Entry Page of the UK-ED WPSS.



First level of the info pages area.

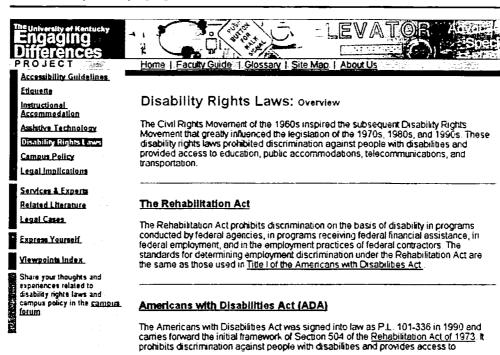
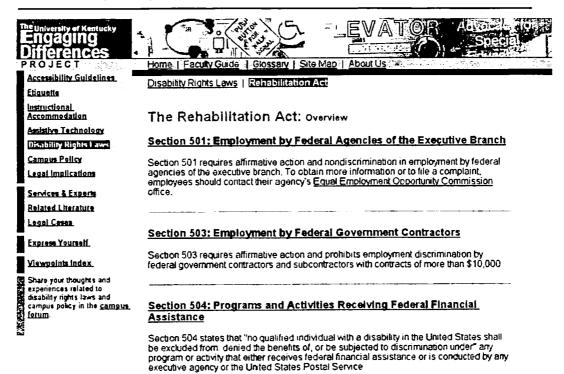


Figure 2b.

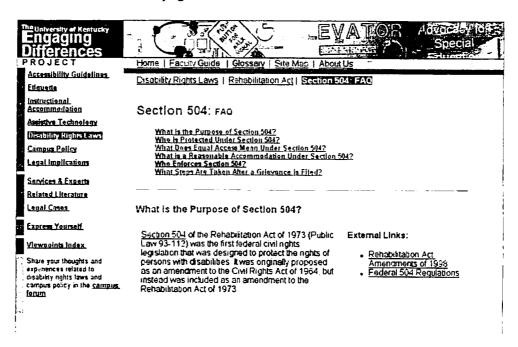
Second level of the info pages area.



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Figure 2c.

Third level of the info pages area.



The <u>Info Pages</u> component provides didactic information about the topics of accessibility guidelines (universal design, facilities, web sites); etiquette (specific interaction tips, person-first language, attitudinal barriers); instructional accommodations (according to disability types and academic activities, universal design for learning); assistive technology (background, types, decision-making model); legislation (Americans with Disabilities Act, Rehabilitation Act, Individuals with Disabilities Education Act); campus policy (UK, LCC); and legal implications for higher education.

Users may select Info Pages for topical areas using the local navigation menu included on the left side of each page in the WPSS. The didactic information is infused with images, when appropriate. In additions, within each Info Page, hyperlinks are provided to other locations in the WPSS related to the topic presented on a given Info Page. Figure 2(a-c) illustrates the three content levels available in the Info Pages component.

The <u>Info Search</u> component contains a searchable database of 239 services and experts (local, state,

and national), 142 related literature items (books, articles, on-line publications, reports), and 38 legal cases (Supreme, circuit, and district courts, and Office of Civil Rights) related to accommodating postsecondary students with disabilities. First, the user selects either the category he or she wishes to search (e.g., campus resources, law, and policy) or is given the option of searching the database. Upon entering a keyword or selecting a category, the user is presented with a list of ranked matches with hyperlinks to contact information for the requested service or expert, a citation and abstract for the piece of literature, or a citation and summary for the legal case. Figure 3 (a-b) illustrates the search pages and individual entries contained in the Info Search component.

The Express Yourself component allows users to discuss the topic of accommodating students with disabilities in postsecondary education. Users may select one of four UK-ED discussion forums or from a list of seven external discussion forums and listservs. Within the UK-ED discussion forums, users can post questions or concerns as well as view responses and

Figure 3a.

Search page in the info search section.

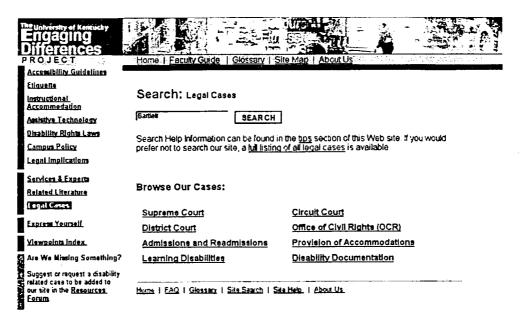


Figure 3b.

Retrieved information entry page in the info search section.

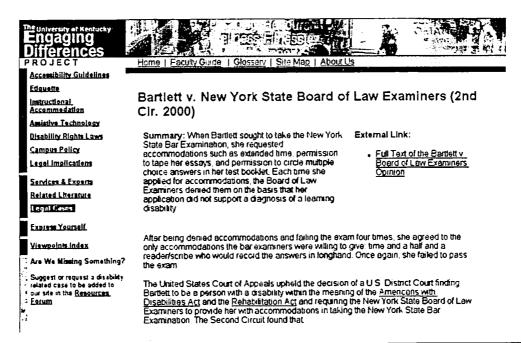


Figure 4a.

Question and answer story format in the viewpoints section.

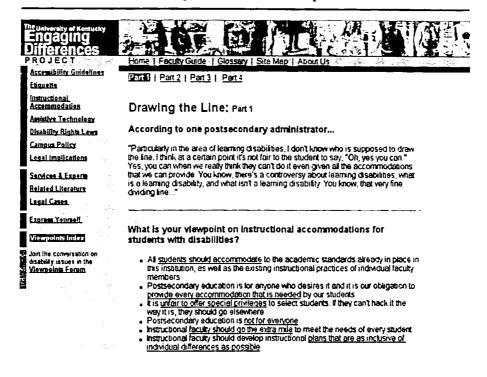


Figure 4b.

Personal story format in the viewpoints section.

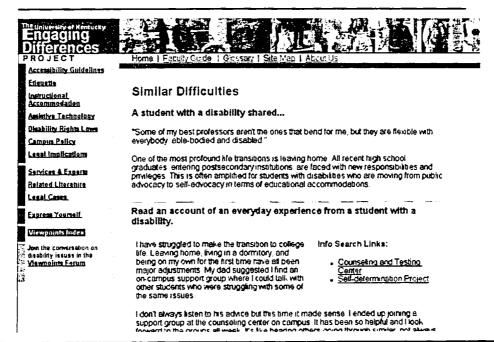
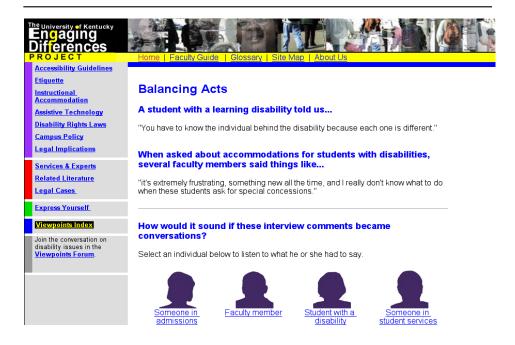


Figure 4c.

Collage story format in viewpoints section.



solutions from the entire postsecondary community or their individual campus.

Finally, the <u>Viewpoints</u> component allows users to explore their attitudes about providing accommodations to postsecondary students with disabilities. Stories are based on comments expressed during individual and small-group interviews with representatives of the target audience on the UK campus and responses are based on disability rights laws, campus policy, and literature. On the entry page of the WPSS, the user is presented with story headlines, brief story descriptors, and links to seven Viewpoints stories. Story formats include: (a) brief statements with questions and possible responses along with discussions for each response; (b) brief stories that reflect an individual's experiences related to accommodation; and (c) a collage of statements from diverse perspectives on a single topic. Regardless of the format, Viewpoints stories include hyperlinks that direct the user to other locations in the WPSS that contain information about topics presented in the story. Figure 4 (a-c) illustrates the three story formats used in the Viewpoints component.

Formative evaluation. In January 2001, formative evaluation activities were initiated on the UK campus to review the effectiveness and usability of the UK/LCC version of the UK-ED WPSS prior to public posting and dissemination activities. These activities, based on Dick and Carey's (1996) model, included four phases of evaluation: (a) expert review, (b) one-to-one, (c) consumer analysis, and (d) field trial.

The expert review phase included evaluations by 5 content experts, 5 instructional design experts, and 15 individuals with disabilities with postsecondary experience. In the one-to-one phase, an in-session questionnaire was used to evaluate information access by 5 academic administrators, 5 faculty members, and 5 auxiliary service administrators on the UK campus and a post-session survey was used to gather information about their perceptions of the support system.

For the next two phases, consumer analysis and field trial, the in-session questionnaire and post-session survey used during the one-to-one phase were completed by other participants on the UK campus to determine if any additional revisions were neces-

sary in the site prior to public posting. For the consumer analysis phase, 5 academic administrators, 5 faculty members, and 5 auxiliary service administrators, other than those involved in the previous phase, participated. In the final phase, 10 academic administrators, 15 faculty members, and 5 auxiliary service administrators completed the in-session questionnaire and post-session survey.

During the <u>expert review phase</u>, subject matter experts and individuals with disabilities generally agreed that the content was current and represented best practice in the field. Subject matter experts also agreed that the media used in the WPSS supported the content. In addition, subject matter experts and individuals with disabilities agreed that its use was feasible and would enhance accommodation. Finally, the two groups agreed that the WPSS was appropriate for postsecondary personnel.

Design and usability experts were most concerned with the combination of background and foreground colors used, the design of the Viewpoints component, the use of logos and montages within the WPSS, and the lack of help and orientation information. Individuals with disabilities were most concerned about missing alt and title tags, insufficient contrast between foreground and background colors, lengthy pages, confusing navigation, and missing contextual and orientation information. Based on these data, 14 actions were undertaken to resolve reported problems and issues.

An analysis of data from the <u>one-to-one phase</u> indicated that the WPSS was effective in providing information to personnel on the UK campus. Users obtained an accuracy rate of 80% or higher on the insession questionnaire. In addition, users viewed an average of 6.5 pages per question to locate responses. Users' perceptions of the WPSS were generally positive, and nearly all of the negative ratings on the postsession survey (i.e., 10 out of 12) were attributed to two users.

However, further analysis indicated that the WPSS was more effective at providing information about campus policy, legal cases, and campus services than information about reasonable accommodations, discussion forums, and perspectives on disability issues. Furthermore, the main difficulties encountered during this phase consisted of the amount

of time required by administrators to locate responses to specific questions on the in-session questionnaire, confusion over the evaluation instruments, and a few technical problems. Fourteen actions were undertaken to resolve problems reported by users during this phase.

Data from the <u>consumer analysis phase</u> indicate that the WPSS was effective in providing information to personnel on the UK campus. Users obtained an accuracy rate of 76% or higher on the in-session questionnaire; however, accuracy rates may have been confounded by technical difficulties. In addition, they viewed an average of 5.3 pages per question to locate responses. Users' perceptions of the WPSS were generally positive, and nearly all of the negative ratings on the post-session survey (i.e., three out of five) were attributed to one user.

Further analysis indicated that the WPSS was more effective at providing information about campus policy, legal cases, related literature, discussion forums, and perspectives on disability issues than information about reasonable accommodations and campus services. In addition, the main difficulties encountered during this phase consisted of the amount of time required by auxiliary service administrators to locate a response to one question on the in-session questionnaire, some confusion over the evaluation instruments, and a few technical problems. To improve the effectiveness of the WPSS, five actions were taken.

During the field trial phase, data indicated that the WPSS was effective in providing information to personnel on the UK campus. Users obtained an accuracy rate of 74% or higher on the in-session questionnaire, with a variation based on constituent group (i.e., the smaller auxiliary administrator group had an accuracy rate 20% higher than the other two groups). Users' perceptions of the WPSS were positive, and the majority of negative ratings on the post-session survey (i.e., 16 of 21) were attributed to 5 of the 30 users. Furthermore, the main difficulties encountered during this phase consisted of the amount of time required by auxiliary service administrators to locate a response to one question on the in-session questionnaire, some confusion over the evaluation instruments, and a few technical problems. Based on these data, three actions were taken to improve the WPSS. (For more detailed information, see Krampe, 2002.).

Table 2

Web Statistics on the UK/LCC Version of the UK-ED WPSS from January to September 2002

Month/Year	Rank Based on Hits	Total Monthly Hits	Daily Average Hits
Jan-02	117	7,757	259
Feb-02	109	8,703	290
Mar-02	121	7,662	255
Apr-02	100	10,720	357
May-02	92	11,829	394
Jun-02	78	11,822	394
Jul-02	81	12,885	430
Aug-02	77	16,941	565
Sep-02	79	18,670	622

UK/LCC dissemination. Beginning June 2001, information was provided about the WPSS at UK Human Resources training events. In addition, information was provided to new teaching assistants at an annual orientation and to a staff advisory council at a monthly meeting in fall 2001. A greater emphasis was placed on these activities Starting in January 2002. All administrators, faculty members, auxiliary services personnel, and students had multiple opportunities to be exposed to the UK-ED WPSS through these dissemination activities, which were diverse in their techniques (i.e., listing in the undergraduate bulletin; posting on three campus listservs; mass mailing to all faculty for two semesters; 11 campus presentations; articles in two campus newspapers and one community newspaper; advertisements on tables in all food services locations for two semesters; advertisement in all student housing for one month; booths at new graduate students, teaching assistants, and faculty orientations; brochures distributed by nine campus offices; and links from nine university web pages, including the UK's site index.).

Table 2 reports information about the frequency of online access of the UK-ED WPSS from January to September 2002. When dissemination activities were systematically provided, the number of monthly hits on the UK-ED WPSS increased from 7,757 to

18,670; its ranking on the UK server jumped from 117 to 79; and the number of daily average hits more than doubled from an average of 259 to 622 hits.

Phase III: KCTCS WPSS Development and Dissemination

In October 2001, UK-ED entered its third and final phase, which focused on the validation of the UK-ED WPSS. This phase overlapped with the second phase, which continued until the end of the project in September 2002. During the third phase of the project, the UK/LCC version of the UK-ED WPSS was modified for use with KCTCS personnel. Meetings were held with KCTCS personnel to review the UK/LCC version to determine necessary revisions for use with a statewide system of community and technical colleges.

Six changes were deemed necessary to validate its use with KCTCS campuses. First, the design was modified to reflect the look of the KCTCS site on which it would reside. Second, the searchable databases component was modified due to the lack of a search engine for the KCTCS site. Third, UK and LCC services and experts were removed from the databases and replaced with KCTCS services and experts – system-wide and campus-specific. Fourth,

the campus policy section was redesigned and rewritten to reflect the system-wide policies and procedures mandated by KCTCS and the individual policies and procedures of the 25 campuses within KCTCS. Fifth, the faculty guide was rewritten for use with KCTCS faculty and staff. Finally, links within the WPSS were modified to reflect internal and external links pertinent to KCTCS.

Prior to public posting, KCTCS central office personnel and disability services coordinators from all 25 KCTCS campuses reviewed the revised version of the UK-ED WPSS [http://www.kctcs.net/edp/] in summer 2002. Necessary revisions were made based on their feedback and preparations were made for mass dissemination. Beginning in August 2002, dissemination activities were conducted system-wide. First, numerous interactive television (ITV) broadcasts were made to expose all KCTCS personnel to their modified version of the UK-ED WPSS. Second, videotapes were made of the ITV broadcasts for use with personnel unable to attend these broadcasts. Finally, printed brochures were disseminated to all KCTCS personnel.

Due to the end of the project in September 2002, no further dissemination activities were provided on individual campuses. While a meeting was held in September 2002 with disability services coordinators to discuss individual presentations for the 25 campuses, no follow-up activities were conducted due to the end of the UK-ED project. Unfortunately, it is not possible to report on the web server statistics for the KCTCS version of the UK-ED WPSS since it was not publicly disseminated until August and September 2002, when funding for the UK-ED project ended.

Implications

The UK-ED project provided a resource to the postsecondary community in Kentucky about accommodation of students with disabilities. The need for this resource was identified through needs assessment activities completed by faculty, auxiliary service personnel, and administrators. Based on the data on monthly hits, average daily hits, and ranking on the UK server, it appears that information on the UK-ED WPSS is being accessed at increased levels.

It is the hope of the project personnel that the efforts undertaken through UK-ED will create positive changes. Through the creation of resources such as UK-ED we can begin to address some of the needs expressed by postsecondary personnel, including a sense of community, consistent information about the accommodation process, and knowledge of campus and community resources available.

While the specific target audience for the UK-ED project was postsecondary administrators, faculty, and staff, this WPSS has a much greater potential audience. For example, the information would be beneficial to postsecondary students themselves, those with and without disabilities. Also, many persons with and without disabilities who work, play, teach, and interact together across a variety of settings could benefit. Other potential users include parents of students with disabilities and secondary school personnel. There is a need to better prepare students with disabilities so they can be successful in postsecondary settings. Parents, students, faculty, and administrators at the secondary level could use information provided within the UK-ED WPSS to better address issues related to transition and accommodation at the postsecondary level.

Conclusion

The University of Kentucky Engaging Differences (UK-ED) project focused on developing, evaluating, and disseminating a web-based performance support system (WPSS to enhance accommodations provided by personnel at the University of Kentucky (UK), the Lexington Community College (LCC), and the Kentucky Community and Technical College System (KCTCS). The project was completed in three phases: (a) knowledge base development, (b) development of a prototype of the WPSS for use at UK and LCC; and (c) validation of the UK-ED WPSS for use at KCTCS. The WPSS components and activities conducted within each phase were described. Results suggested that the WPSS allowed users to effectively and efficiently locate information. In addition, all users' perceptions of the system were positive.

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About the Authors

Kirstina M. Krampe is an Assistant Professor in the Department of Special Education and Rehabilitation Counseling at the University of Kentucky. She is the Co-Principal Investigator for the Commonwealth Center for Instructional Technology and Learning. In addition, Dr. Krampe teaches an online course about legal issues.

William H. Berdine is a Professor in the Department of Special Education and Rehabilitation Counseling at the University of Kentucky. He is a Principal Investigator for the Commonwealth Center for Instructional Technology and Learning. From 2000-2002, he served as president of the Higher Education Consortium for Special Education. In 2002, Dr. Berdine served on President Bush's Commission on Excellence in Special Education.