Using Blended Learning to Implement Evidence-Based Psychotherapies

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Historically, clinicians have learned about evidence-based psychotherapies (EBPs) by reading therapy manuals and/or attending clinical training workshops. However, researchers agree that such methods alone are insufficient to support the implementation of EBPs. This article explores the concept of blended learning (BL) and its potential for facilitating the implementation of EBPs. Blended learning refers to integration of multiple methods of information delivery into a single learning system. Implementation of EBPs describes a specific set of activities that are designed to promote the uptake and sustained adoption of a psychotherapeutic approach, strategy, or technique that has demonstrable empirical support. This article reviews the most common methods by which EBPs are currently disseminated and implemented, defines the concept of BL, and presents some examples of different elements that can be combined into a BL system. Three models of BL are presented and illustrations of these BL formulations are provided using examples from the extant literature. This article concludes with a summary and recommendations for future research.

Key words: **blended learning, dissemination, evidence-based psychotherapy, implementation, instructional design and technology.** ***[Clin Psychol Sci Prac 15: 299–307, 2008]***

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INTRODUCTION

Blended learning (BL) refers to the systematic integration of several complementary informational delivery mechanisms in an effort to optimize learning and skill acquisition (Singh, 2003). Although some limit the definition of BL to the integration of face-to-face and Web-based training (WBT) applications (Singh, 2003), most training and development professionals define BL more broadly as the integration of multiple learning techniques (Rossett & Frazee, 2006). The authors embrace this more comprehensive definition.

Blended learning has been used extensively in education and industry (Graham, 2006; Rossett & Frazee, 2006; Singh, 2003). The reader likely has personal experience with the combination of laboratory sessions and lectures, assigned readings, and hands-on seminars, as well as formal coursework and supervised clinical practice. Although there is a long history of combining different instructional media and approaches, the widespread availability of the Internet and the attendant proliferation of technology-based training mechanisms have more recently led to the emergence of the BL framework. BL provides a conceptual framework for selecting and combining a multitude of learning techniques, such as from traditional (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004) and technology-based (Sholomskas et al., 2005) learning (e.g., e-learning), which, we argue, can be used to improve providers' training in evidence-based psychotherapies (EBPs). It is important to note that the inclusion of technology-based learning (although somewhat common) is not necessary for a learning system to be considered BL.

Evidence-based psychotherapies in mental health practice are those treatments that integrate the "best available research with clinical expertise in the context of patient characteristics, culture, and preferences" (APA Presidential Task Force on Evidence-Based Practices, 2006). The widespread promotion of EBPs has become an increasingly important priority not only for the American Psychological Association, but also for the National Institutes of Health, and major state and federal mental health service systems, including the Department of Veterans Affairs.

Although the terms are often used interchangeably, when discussing the promotion of EBPs, it is important to distinguish between *dissemination* and *implementation*. The term *dissemination* is generally understood as a process whereby an agency or investigator distributes information to the public or otherwise makes such information publicly available, as via a Web site or free publication. *Dissemination* is also defined as the act or process of scattering or state of being scattered, which is not necessarily an inaccurate description of the process by which information about EBPs ultimately reaches clinicians in the community. Research shows that traditional forms of disseminating EBPs (e.g., therapy manuals, workshops) are generally insufficient for producing sustainable changes in practitioner behavior (Miller, Sorenson, Selzer, & Brigham, 2006; Miller et al., 2004; Wilbourne & Weingardt, 2006).

In contrast, *implementation* describes a much more active process, referring to a set of activities designed to put an activity or a program into practice (see Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Silverman, Kurtines, & Hoagwood, 2004). For example, Lomas (1993) distinguishes the concepts of *diffusion*, *dissemination*, and *implementation* as progressively more active steps in the process of flowing valid and reliable research information into clinical practice. Researchers are increasingly interested in shifting their focus beyond the relative passive process of diffusion, to the systematic implementation of clinical research findings and evidence-based recommendations into routine clinical practice (Hagedorn et al., 2006; McQueen, Mittman, & Demakis, 2004). This broad implementation perspective acknowledges that the process of successfully changing clinical practice requires coordinated efforts across multiple levels of intervention, including marketing, behavioral, and organizational interventions, as well as training and education (Weingardt, 2004). This article is focused on using BL to improve the latter aspects of implementation—training and educating providers in EBPs.

The purpose of this article is to explore the concept of BL and how it provides a conceptual framework for systematically applying and evaluating different combinations of training mechanisms to facilitate implementations of EBPs. This article will begin by first reviewing some of the most common methods by which EBPs are currently being disseminated. Next, we elaborate upon the concept of BL and outline the different elements that can be combined into a blend. This discussion will provide evidence that BL systems are not only useful for disseminating EBPs, but also have the additional strength of promoting their sustained adoption (i.e., implementation). We then review three models of BL and provide illustrations of these BL formulations using examples from the extant literature. Examples of BL systems are provided that illustrate the use of both technology and traditional forms of learning. Finally, we conclude with a summary and recommendations for future research.

COMMON METHODS FOR DISSEMINATING EVIDENCE-BASED PSYCHOTHERAPIES

Several information-delivery mechanisms have been used to disseminate EBPs to both clinicians and clients. Some of the most common include therapy manuals, training workshops, Web-based applications, and consultation/supervision. In the following sections, we provide a brief discussion of each of these methods and how they have been used to disseminate EBPs.

Therapy Manual

Perhaps the most common form of disseminating EBPs has been through the use of written materials, such as manuals or books (e.g., Anton et al., 1999; Beck, Rush, Shaw, & Emory, 1987; Linehan, 1993; Miller & Rollnick, 2002). Manual-based psychotherapies offer many advantages in clinical practice, such as empirical support, standardization, and relative ease of use (Wilson, 1996). However, scholars have pointed out that therapy manuals have been widely criticized as being too linear and cookbookish (Kendall & Beidas, 2007), which can limit the extent to which idiographic clinical case formulation can be conducted or overstate how well a treatment validated on a research sample applies to a nonresearch sample (i.e.,

efficacy versus effectiveness problem; Wilson, 1996). Accordingly, research has shown that therapy manuals, used alone, are generally insufficient for providing clinicians the skills necessary to implement EBPs into routine practice (Miller et al., 2006). However, it has been suggested that these limitations can be addressed through the development of therapy manuals that allow providers more flexibility in how they apply manualized psychotherapies (see Kendall & Beidas, 2007). This approach to manual development may lead to improvements in how EBPs are implemented.

Training Workshops

Face-to-face interactions, such as lectures and workshops, have been used extensively to disseminate EBPs, such as cognitive behavioral therapy (CBT; Agras et al., 2000; Cook, Walser, Kane, Ruzek, & Woody, 2006) and motivational interviewing (Miller & Mount, 2001). Although shown to be effective in promoting knowledge acquisition (Hawkins & Sinhai, 1998), training workshops are generally ineffective as a singular training method for promoting the implementation of new clinical behaviors (Grol, 1997).

Web-Based Training

Given its potential flexibility in when and how information is delivered, WBT is particularly well suited for disseminating EBPs to both clinicians and clients (Clarke, Lynch, Spofford, & DeBar, 2006; Weingardt, 2004; Weingardt & Villafranca, 2005). The feasibility of using technology as a means to disseminate EBPs has been noted in the substance abuse literature (Morgenstern, Morgan, McCrady, Keller, & Carroll, 2001). Furthermore, research has consistently demonstrated Web training's equivalence in knowledge acquisition compared to training workshops (Weingardt, Villafranca, & Levin, 2006; Williams, Aubin, Harkin, & Cottrell, 2001). However, providing education/information about EBPs via the Web alone is not generally adequate to promote the sustained adoption of EBPs (Oxman, Thomson, Davis, & Haynes, 1995).

Consultation/Supervision

Psychotherapy supervision can occur in many contexts and is an important part of training providers in delivering EBPs. Supervision commonly consists of live, face-to-face interactions involving an expert-level practitioner and one (or many) student(s) in training. After trainees transition into licensed professionals, supervision may take the form of consultation on specific conceptual and technique issues, including EBPs. Supervision is widely considered important to learning EBPs (Chambless & Ollendick, 2001), especially within the context of a specific therapy case. However, to our knowledge, there is very little research on its effectiveness for training practitioners in EBPs and promoting their sustained adoption.

WHAT IS BLENDED LEARNING?

Blended learning is the integration of multiple learning techniques and strategies into one learning system to promote learning and skill acquisition. This might include integrating such techniques as software applications, Web-based courses, face-to-face learning (e.g., traditional classrooms), live e-learning, and various forms of self-paced learning. Common forms of BL also combine offline (e.g., written materials) and online (i.e., Internet-based applications), self-paced and collaborative, and structured and unstructured learning strategies (Singh, 2003).

Graham (2006) argues that BL is more specific than simply combining two or more instructional modalities. In his view, the problem with defining BL broadly is that it encompasses all learning systems. Most (if not all) learning systems include at least two methods of information delivery and, therefore, he suggests that BL is more accurately defined as integrating complimentary delivery mechanisms, such as online and face-to-face strategies.

Rossett and Frazee (2006) suggest that BL involves "integrat[ing] seemingly opposite approaches, such as formal and informal learning, face-to-face and online experiences, directed paths and reliance on self-direction . . . in order to achieve individual and organizational goals" (p. 2). Where psychotherapy researchers might have once traditionally placed greater emphasis on one dissemination method over another (e.g., manual or workshops), BL offers an approach to sharing information with providers that can have the added advantage of promoting the long-term adoption of such clinical practices (Miller et al., 2004).

Blended learning systems can utilize a wide range of learning strategies and techniques that can be arranged and presented in many different ways. Elements of a BL

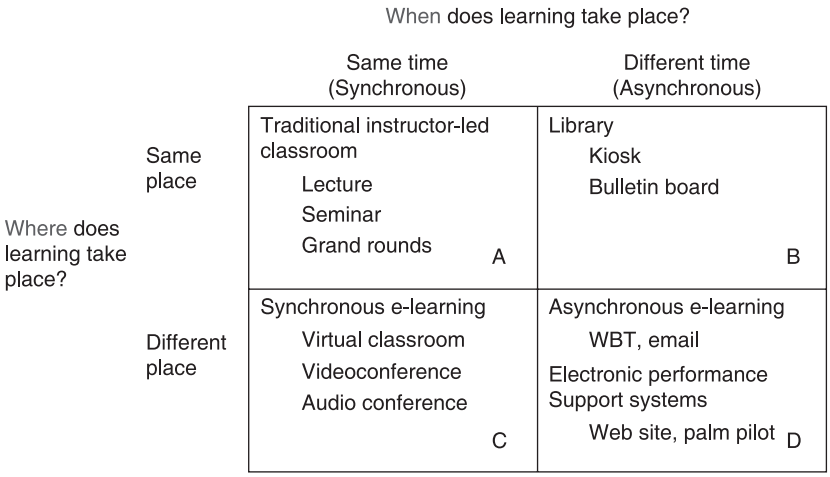

Figure 1. Mechanisms for the delivery of information and how they relate to each in terms of time and place.

system can include those we have previously discussed (e.g., therapy manuals, training workshops), together with a wide variety of other available learning methods. Scholars have presented many permutations of BL systems. For example, one might integrate any combination of recorded and live presentations (e.g., virtual classroom, Web conference), technology-based delivery systems (e.g., CD-ROM, video, and audio podcasts), traditional learning approaches (e.g., face-to-face and on-the-job training), and custom and off-the-shelf content (Shaw & Igneri, 2006). One way to understand how these various elements might be blended is to examine the needs and constraints of the intended audience, as well as those charged with developing the system. Weingardt (2004) outlines a model of available mechanisms of information delivery organized by synchronicity and location of the teaching event (Figure 1). His model is divided into four quadrants. For example, quadrant A represents mechanisms of delivery that provide information at one place and time (e.g., traditional classroom), while quadrant D represents learning mechanisms that provide information at different places and times (e.g., WBT).

Instructional designers can draw on any of these quadrants in order to design a learning system that meets their needs. For example, an individual interested in developing a BL system for teaching CBT might blend an initial live workshop with a follow-up Web-based coaching component that clinicians can access 24 hours a day, seven days a week. Alternately, as in our initial example, an individual might choose to blend an initial self-paced WBT course with a series of interactive supervision sessions.

MODELS OF BLENDED LEARNING: A BRIEF REVIEW OF THE LITERATURE

We now present three BL models that illustrate various combinations of the aforementioned elements. These models include the anchor, bookend, and field blends (Rossett & Frazee, 2006; Figure 2).

Anchor blends start with a substantive learning experience and end with several smaller, independent learning experiences. In contrast, *bookend blends* are characterized as anchor blends with an additional "back end" component, and thus typically comprise three parts—an introduction, a larger, substantive learning experience (the middle), followed by a learning event that might have the purpose of extending the knowledge/skills learned into the relevant "real-world" context.

Sholomskas et al. (2005) provide examples of how both an anchor and a bookend blend can be used to implement EBPs. They assigned providers to one of three CBT training conditions: (A) therapy manual only, (B) therapy manual plus CBT-based training Web site, and (C) CBT-based training workshop plus a didactic seminar followed by supervised casework. Participants in condition A were provided a therapy manual and were asked to spend 20 hours studying the manual and practicing CBT, which perhaps resembles how EBPs are most commonly disseminated. In contrast, participants in condition B were given the therapy manual plus asked to spend 20 hours interacting

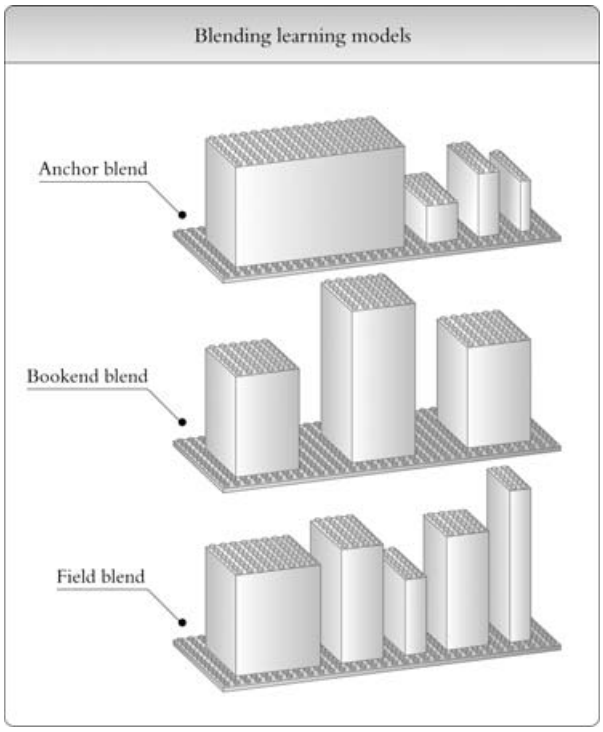

Figure 2. The basic component structure of the anchor, bookend, and field blends.

with a CBT-based interactive Web site. The Web site content resembled that of the manual, but added exams testing participants' knowledge of the various training modules and "virtual" role plays asking clinicians to demonstrate key CBT skills. Condition B most closely resembles an anchor blend in which trainees are provided a primary training experience (the Web site) and a smaller, secondary training experience (therapy manual).

Participants in condition C received the therapy manual and attended a three-day CBT training workshop followed by supervision. Following the workshop, participants were asked to practice CBT with their clients for the next three months. The sessions were taped and sent to three CBT experts for examination of adherence to the CBT model. Supervisors then provided up to three, one-hour supervision sessions via telephone. This condition exemplifies a bookend blend in that it contained (a) an introductory training experience (therapy manual), (b) the primary training experience (training workshop), and (c) follow-up training with a focus on generalizing skills to the real world or, in this case, clients in the community. Results showed that providers in condition C demonstrated the greatest CBT skills and adherence at three months posttraining when compared to conditions B and A, with the manual only group (condition A) performing the lowest. These results lend some support to the effectiveness of blending both traditional and technology-based learning to improve the sustained adoption of CBT relative to traditional methods of dissemination (i.e., therapy manuals).

The *field blend* is sometimes called "the learner-centric model" due to its emphasis on placing the learner in the situation of having many different types of learning resources and choices about when to draw on them. Miller et al. (2004) provide an excellent approximation of a field blend to teach clinicians motivational interviewing and also compare the relative efficacy of different training models. Participants were randomly assigned to one of four training conditions consisting of various traditional learning techniques (techniques in parentheses were implemented at eight months postinitial training)—(I) two-day workshop (plus feedback on therapy tapes); (II) workshop, feedback (plus telecoaching); (III) workshop, telecoaching (plus feedback); and (IV) workshop, feedback (plus telecoaching). These four conditions were compared to a training as usual control group that was asked to study a therapist manual and training videotapes on motivational interviewing for six months. Compared to control participants, individuals in the four training conditions showed greater proficiency (using Motivational Interviewing [MI] Spirit ratings) in MI at 12 months postinitial training.

One conclusion that might mistakenly be drawn from this study is that "more is better" with regard to training resources. Although Sholomskas et al. (2005) support this conclusion, it is not supported by Miller et al. (2004). Miller et al. (2004) report that at 8- and 12-month follow-up, participants in condition II demonstrated the highest level of proficiency in motivational interviewing when compared to the other three conditions. Interestingly, participants in conditions II and IV received the exact same teaching strategies (i.e., workshop, feedback, and telecoaching); however, the order in which they were implemented differed, leading to the speculation that order of delivery matters with respect to training providers in motivational interviewing.

From a BL standpoint, each of the above training models exemplifies a variation or different model of BL. Condition I illustrates an anchor blend with the workshop

being the primary learning experience followed by personal feedback after eight months; conditions II and III most closely resemble a bookend blend with the introductory workshop, followed by some combination of personal feedback and coaching. And finally, condition IV closely resembles the field blend whereby participants receive all available modes of instruction. Condition IV does not fit perfectly, but approximates Rossett and Frazee's (2006) field blend, as participants were not allowed to choose which modes of learning they prefer at various points throughout the study.

POTENTIAL ADVANTAGES AND DISADVANTAGES OF BLENDED LEARNING

Researchers and scholars have discussed the many advantages of BL systems over the use of a single method of learning (Driscoll & Carliner, 2005; Graham, 2006; Rossett & Frazee, 2006; Singh, 2003; Snipe, 2005). Some of these advantages include enhancing the learning process; extending the reach of information; optimizing development costs and time; and cost-effectiveness (see Singh, 2003). We briefly discuss each of these advantages.

Potential Advantages

Enhancing Learning. It has been stated that, compared to traditional classroom training, BL strategies can improve both retention of learned information and performance of learned tasks by up to 110% (Snipes, 2005). Snipes argues that several key BL principles must be implemented in order to attain such results. These include ensuring a parallel between learning and performance context (to ensure generalizability of skills); prompt repetition in teaching skills; and practice and repetition of skills spaced over time.

Extending the Reach. Using a single method of learning can limit the reach or number of people exposed to information. For example, using a classroom setting limits information to the individuals who are able to attend that specific teaching session. In contrast, if the information were posted on the Web in a self-paced course or live Internet class, many individuals could access that information at any time and from a range of locations (Singh, 2003). Providing complementary training content through a blend of delivery mechanisms ensures that the material reaches the largest number of learners possible.

Optimizing Development Costs and Time. Blending multiple methods of information delivery has the potential to optimize the costs and time associated with developing a learning program. Specifically, a completely self-paced, Web-based learning program rich in media may be too costly to develop and implement, whereas a learning program with similar objects (i.e., self-paced learning) utilizing multiple delivery mechanisms, such as the Web, case studies, text assignments, and PowerPoint presentations, may be quicker to develop, less costly, and just as effective in achieving the learning objectives.

Cost-Effectiveness. Blended learning systems can include learning strategies that reach large numbers of individuals quickly (e.g., the Web) with information that can be tailored to the individual needs of learners. Although the cost-effectiveness of specific BL systems in the context of training providers in EBPs has not been specifically examined, BL systems have been shown to be a cost-effective approach to teaching various industry-related skills (e.g., Gruber, Moran, Roth, & Taylor, 2001). As outcomes, such as practitioner/trainer time, development, and deployment cost of BL systems, become more commonly tracked and reported, we anticipate that the cost-effectiveness of such systems compared to traditional methods of disseminating EBPs will be demonstrated.

Potential Disadvantages

Resource Intensive. Blended learning can be used to improve provider training in EBPs and to increase the sustained adoption of such practices. However, comprehensive BL systems often require more resources (e.g., trainers, time, and money involved in developing Web-based tools) than traditional forms of training. This may serve as a potential disadvantage for organizations with limited resources. However, as shown by Miller et al. (2004) and Sholomskas et al. (2005), BL systems can play an important role in the implementation of EBPs. Viewing BL as a central feature in an empirically supported implementation initiative, rather than a relatively less ambitious dissemination or training activity, may help to justify the up-front costs associated with the development and use of BL training models.

Requires Expertise. Blended learning systems will likely incorporate learning strategies and instructional technologies

with which mental health researchers and clinicians are unfamiliar. For example, the development of Web-based tools requires expertise in programming languages, such as HTML, JAVA, Flash, and SQL, and/or use of Web site designing tools, such as Dreamweaver™. Although BL system designers may choose to outsource Web application development to programmers instead of developing such tools themselves, the ability to develop realistic, clinically relevant training content and to deploy that content in a way that is easy to apply in clinical practice will likely take time for any team to develop.

SUMMARY AND RECOMMENDATIONS FOR FUTURE RESEARCH

This article explored the concept of BL and examined how it can be useful in facilitating the implementation of EBPs. This article distinguished the concepts of dissemination and implementation to highlight the distinction between traditional efforts of distributing information about EBPs to providers and the complexities involved in promoting the implementation or sustained adoption of such practices. Traditionally, delivery mechanisms, such as therapy manuals or training workshops, have been used as the primary method by which EBPs are disseminated. Recent research shows that these methods, when used alone, are not sufficient to ensure the sustained adoption of EBPs (Miller et al., 2004; Sholomskas et al., 2005). In contrast, research shows us that blending mechanisms known to be useful in knowledge and skills acquisition can be more effective in changing clinicians' behavior in the long term when compared to using a single learning strategy alone (e.g., workshop). BL offers such advantages as increasing the extent to which skills and information are acquired, extending the reach of information, optimizing costs and time, and, perhaps in some instances, providing a more cost-effective way to implement EBPs. Using BL can also require additional resources and skill sets that can limit both the size of the learning system and which components are chosen to be included (e.g., BL systems that focus more heavily on traditional versus technology-based learning strategies).

With regard to future research, the outcome studies cited in this article are excellent examples of how one might systematically evaluate the effectiveness of BL systems in facilitating aspects (e.g., provider training) important to the implementation of EBPs. There are currently no empirically based guidelines for recommending how to optimally integrate various learning strategies into BL systems for training providers in EBPs. However, studies, such as Miller et al. (2004), provide some evidence for the integration of workshops, personal feedback of taped sessions, and telephone coaching, and perhaps more crucial, how one might optimally configure these strategies to optimize the implementation of EBPs, such as MI. Furthermore, based on the findings of Miller et al. (2004) and Sholomskas et al. (2005), it appears that BL systems that provide learning opportunities for mental health providers focused on (a) acquiring basic knowledge about EBPs, (b) practicing relevant skills and techniques, and (c) receiving some form of ongoing supervision/feedback play an important (and perhaps necessary) role in optimizing the sustained adoption (or implementation) of EBPs.

Future research should also consider additional outcomes when studying various BL systems in the context of implementing EBPs and attempt to answer such questions as "which learning strategies are most effective for the implementation of EBPs and how should these strategies be arranged to optimize training?" and "what are the costs associated with delivering these blends relative to their success in implementing various EBPs?" (i.e., cost-effectiveness analysis). The latter question would require researchers to provide cost data in their outcome studies associated with the many aspects of implementing EBPs. Some of these cost aspects include hiring trainers, printing materials, time away from work (for both trainers and trainees), and renting space. These outcomes are rarely reported in the empirical literature on the training of EBPs, and providing them may help us understand how to most successfully design BL systems for implementing EBPs in a wide variety of clinical settings and with various practitioner groups.

ACKNOWLEDGMENTS

This research was supported by the Health Services Research & Development Service of the U.S. Department of Veterans Affairs, Stanford University School of Medicine's Postdoctoral Research Fellowship in Health Services Research to M. A. Cucciare, and NIDA grant 5R21DA17933-2 to K. R. Weingardt. The authors would like to thank John Finney, Keith Humphreys, and Rudolf Moos for their valuable feedback on a previous version of this article. We would also like to thank Kevin Lai, MS, for helping us create the figures in the article.

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Received January 10, 2007; accepted August 8, 2007.